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Final Report

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Country Note – Burkina Faso

by Paul G.H. Engel, Fabien Tondel and Sayouba Ouedraogo on field mission from 1-6 November 2015.

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List of Acronyms

ACP	African, Caribbean, and Pacific
AFD	Agence Française de Développment
AGRA	Alliance for a Green Revolution in Africa
CAADP	Comprehensive Africa Agriculture Development Program
CCV	Comités de concertation villageois
CEDRES	Centre d'Etudes, de Documentation et de Recherche économiques et sociales
CGIAR	Consortium of International Agricultural Research Centres
CILSS	Comité permanent Inter-Etats de Lutte contre la Sécheresse dans le Sahel
CIRAD	Centre de Coopération Internationale en Recherche Agronomique pour le Développement
CIRDES	Centre International de Recherche – Développement sur l'Elevage en zone subhumide
CNRST	Centre National de la Recherche Scientifique et Technologique
CORAF	Central African Council for Agricultural Research and Development
CPF	Confédération Paysanne du Faso
CPWF	Challenge Programme on Water and Food
CREPA	Centre Regional pour l´Eau Potable
CRIS	Common RELEX Information System
CRP	CGIAR Research Programme
CSLP	National Poverty Reduction Strategy
CSO	Civil society organisation
CSP	Country Strategy Paper
DANIDA	Danish International Development Agency
DCI	Development Cooperation Instrument
DEVCO	Directorate-General Development and Cooperation/EuropeAid
DFID	Department for International Development
DG	Directorate-General
DTA	Département Technologie Alimentaire
EC	European Commission
ECDPM	European Centre for Development Policy Management
ECHO	Directorate-General Humanitarian Aid & Civil Protection
ECOWAS	Economic Community Of West African States
EDF	European Development Fund
EIB	European Investment Bank
ENPI	European Neighbourhood Policy Instrument
EnvCC	Environment and Climate Change
EQ	Evaluation Questions
EU	European Union
EUD	Delegation of the European Union
EUR	Euro
FAO	Food and Agriculture Organization
FAPAD	Foreign Aided Projects Audit Directorate
FGPN	Fédération des Groupements de Producteurs du Nayala
FSNA	Food Security, Nutrition and Agriculture
GDP	Gross Domestic Product
GPARD	*Global* Programme on *Agricultural Research for Development*
GRN	Gestion des Ressources Naturelles
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IFAD	International Fund for Agricultural Development
IFDC	International Fertilizer Development Center
INADES	Institut Africain pour le Développement Economique et Social
INERA	Institut de l'Environnement et de Recherches Agricoles
IPR	Intellectual property rights
IRSAT	Institut de Recherche en sciences appliquées et technologies
IWMI	International Water Management Institute
JC	Judgement Criterion
MAFAP	Monitoring and Analysing Food and Agricultural Policies

MARHASA	Ministère de l'Agriculture, des Ressources Hydrauliques, de l'Assainissement et de la Sécurité Alimentaire
MDG	Millennium Development Goal
MR	Monitoring report
MSc	Master of Science
MSRI	Ministère de la Recherche Scientifique et de l'Innovation
NARS	National Agriculture Research System
NGO	Non-government organisation
NIP	National Indicative Programme
OECD	Organisation for Economic Co-operation and Development
PAFFIC	Programme d'Appui Financier à la Filière Coton
PAFMR	Plan d'Action Financement du Monde Rural
PAFR	Plan d'Action Filière Riz
PAGIRE	Action Plan for Integrated Water Resources Management
PAI	Programme d'Appui Institutionnel
PAOPA	Plan d'Actions pour l'émergence d'Organisations Professionnelles Agricoles
PAOSA	Plan d'action pour la Organisation du Secteur Agricole
PAPISE	Plan of Action and Livestock Sub-sector Investment Programme's
PCD	Policy Coherence for Development
PhD	Doctor of Philosophy
PN-AEPA	National Program for Water Supply and Sanitation
PNDDAI	National Policy for Sustainable Development of Irrigated Agriculture
PNDEL	National Sustainable Development Policy
PNE	National Environment Policy
PNSFMR	National Rural Land Policy in Rural Areas
PNSR	Programme National du Secteur Rural
PSNA	Policy and National Sanitation Strategy
ROPPA	Reseau des Organisations Paysannes et des Producteurs Agricole de l'Afrique de l'Ouest
RTD	Directorate-General for Research & Innovation
SAPEP	Projet d'Amélioration de la *Productivité Agricole des Petits Exploitants*
SCADD	Strategy for Accelerated Growth and Sustainable Development
SISS	Science, Information Society and Space
SMEs	Small and medium sized enterprises
SNV	Netherlands Development Organization
STABX	Pioneer Short Term Income *Fund*
ToR	Terms of Reference
UEMOA	Union économique et monétaire ouest-africaine
UPPC	*Unions* provinciales *des producteurs de* coton
USAID	United States Agency for International Development
WECARD	West and Central African Council for Agricultural Research and Developmen

Note: The Evaluation uses the common acronym "**EC**" to refer to either the "Commission of the European Union" (post-Lisbon Treaty) or the "European Commission" (pre-Lisbon Treaty), as applicable.

1 Introduction

1.1 Mandate, scope and purpose of the evaluation

As spelt out in the Terms of Reference the general objectives of this evaluation are:

- To provide the relevant external cooperation services of the EU and the wider public with an independent assessment of the support provided to research and innovation for development over the period 2007-2013;
- To identify key lessons and forward-looking recommendations.

The thematic scope of the evaluation encompasses the EU support to Research and Innovation (R&I) in four key sectors: (i) Food Security, Nutrition and Agriculture (FSNA), (ii) Health, (iii) Environment and Climate Change (EnvCC), and (iv) Science, Information Society and Space (SISS) (henceforth "thematic sectors")

The specific objectives of this evaluation are to provide an overall judgement on the extent to which the EU development co-operation policy has adopted a strategic approach to support R&I in the thematic sectors, and whether the approach was appropriate to enhance capacity to reach development objectives in these fields. Moreover, the ToR specify that the conclusions and lessons learned are expected to specifically address areas of particular interest, namely:

- The support provided to capacity building in partner countries;
- The level of the transfer of research results into social or economic processes likely to impact on poverty reduction in the longer term;
- The appropriateness of instruments and modalities made available; and
- The approaches, notably *country* versus *regional* support, or *direct* support to research versus *indirect* support through sectoral programmes that include research components.

The legal scope of the evaluation is delineated by the activities supported by the European Comission's Directorate-General Development and Cooperation/EuropeAid (DEVCO) through its cooperation instruments: the European Development Fund (EDF), the Development Cooperation Instrument (DCI) – both geographic and thematic budget lines – and European Neighbourhood Policy Instrument (ENPI).

While the Directorate-General for Research & Innovation (RTD) implements activities supporting R&I in developing countries, its policies, strategies, programmes and activities are not included in the scope of the evaluation and hence not the object of in-depth analysis here. They are, however, considered from a contextual point of view, and analysed from a complementarity and synergy perspective, together with, for instance, the activities of EU member states, other donors or multilateral organisations.

The temporal scope of the evaluation is the period of 2007-2013 which corresponds to the last EU multi-annual budget period and to that of the 10th EDF. Equally this is the period of RTD's Seventh Framework Programme (FP7).

1.2 Purpose of the country note

The ten Country Notes for this evaluation serve to provide a national level view of what DG DEVCO support to R&I entails on the ground. They validate and expand the documentary analysis using the evidence collected during the field mission and the individual responses of EU Delegations (EUDs) to the online survey.

The Country Note is structured as follows. The introduction in Section 1 explains the rationale for the choice of the country. Section 2 outlines the methods use. Section 3 spells out the country context for DEVCO support to R&I and Section 4 provides an overview of the key DEVCO interventions. Section 5 presents the field mission findings for each EQ. These findings are categorised for each sector, per JC and per geographic level (national, regional, global) as far as applicable. Section 6 draws out any overall conclusions about the EU's cooperation on R&I with the country concerned.

The dates of the mission to Burkina Faso were: 1-6 November 2015. The mission was conducted by: Dr Ir. Paul G.H. Engel (international consultant, team leader, ECDPM), Dr Fabien Tondel (ECDPM) and Dr Sayouba Ouedraogo (national consultant, CEDRES). The team would like to thank the EU Delegation, CEDRES and all collaborating institutes for their willingness to participate actively in this mission.

1.3 Reasons for selecting this country for the Field Phase

Burkina Faso has been chosen for further research and crosschecking during the field phase because it is a relatively poor Least Developed Country. A field study would therefore help the evaluation team to judge what role DEVCO support to R&I could play in this context. Besides, the country has a relatively well-documented project portfolio, as well as regional and global research programmes financed by the European Union. The national portfolio included projects financed through EDF and FP7. Its main focus is on FSNA and SISS sectors.

The national programme includes the Soil Fertility Programme consisting of consists of six projects that integrate developmental and research aspects to improve soil fertility of smallholder farmers in Burkina Faso. In some of these projects (*c-144075* and *c-144084*) there are clear R&I components with different approaches (action research, building on existing institutional structures), different degrees of developmental/research aspects and with different impact. The field mission chose to focus in particular on Fertipartenaires because it is the project with the most obvious research component. FP7 supported 15 national research institutes to engage with 25 projects, contributing a total of 28 grants representing a EU contribution to R&I in Burkina Faso of 8.5 million euro. International programmes include: the International Crops Research Institute for the Semi-Arid Tropics' (*ICRISAT)1/ICR25* 'Improving policies and facilitating institutional innovation, markets and impact to support the sustained reduction of poverty and hunger in the Semi-arid Tropics'; a good example of an EU-funded CGIAR project implemented in Burkina Faso, comprising different aspects of research to improve food security and reduce poverty; International Water Management Institute (IWMI)/ Challenge Programme on Water and Food (CPWF), an interesting example of a Challenge Programme-project implemented in Burkina Faso and Northern Ghana.

1.4 Gaps of evidence addressed in the country

The field mission to Burkina concentrated on finding additional evidence for answering EQ 1, particularly with regard to practical links between support from the EU and its Member States; EQ 2, in particular specific results of capacity building and the strengthening of research networks; EQ 3, with regard to the way in which instruments and modalities affect support to R&I; EQ 4, specific examples of how DEVCO-RTD complementarity works in practice; EQ 5, zooming in on concrete R&I results that transferred into processes likely to impact development outcomes on the ground, and EQ 6, focusing on specific characteristics of the role the EU Delegation plays and its capacity to conduct R&I related support activities in the country.

During the Burkina Faso field visit the mission focused in particular on gathering information and interrogating the following issues:

- Identifying specific R&I results and outcomes:
  - Their alignment with EU and country development objectives;
  - The way they transfer into corresponding country and regional development processes;
  - Their contribution to strengthening the Burkinabe research and innovation community.
- Understanding the EU R&I (support) capacity available; including
  - The strategic use of different financing modalities;
  - The R&I focus of sector policy dialogues and Government-EU interaction;
  - The interaction between R&I projects and policy and/or development stakeholders, and
  - The complementarity between DEVCO R&I and RTD FP7 activities.

Underlying interest was to understand in detail how multi-stakeholder approaches to R&I were implemented and in particular, what their policy and development relevance and impact might be.

2 Data collection methods (including limits and constraints)

The team used individual and group interviews to collect local stakeholders' views and specific evidence in the above-mentioned areas. A group interview (15 participants) was held at the start of the mission that allowed drawing up a quick overview of relevant issues during the first day. Individuals from the participating institutions and organisations were also interviewed individually during the week. A total of 38 persons were contacted. The main body of persons interviewed (21 persons) were research coordinators and researchers executing EU-supported R&I projects. They provided insights in the research and innovation implementation process, stakeholder participation and evidence on practical results achieved. A total of ten national decision-makers from national research institutes, universities and relevant ministries were interviewed to obtain information on the coherence of EU R&I sup-

port with national R&I agendas and its role in strengthening national research institutions and national and international research networks. Finally, the President of the national farmers' organisation (CPF, *Conféderation Paysanne du Faso*) and four technical assistants working with farmers were interviewed to cross-check the evidence obtained with the views of the farmers' organisation and technical personnel closely working with farmers in development projects.

The main constraint for obtaining a satisfactory number and spread of interviews was the time the team was able to spend in the country. In order to incorporate more stakeholders, the team started the mission with a group interview, combined with individual interviews of key participants. Also, group interviews with two research teams were held at their premises to try to account for the geographic decentralisation of R&I in Burkina. Interviews were held in Ouagadougou, Tuy province and Bobo Dioulasso. Paying field visits to observe the results at each of the research and innovation sites was not possible.

3 Country context

3.1 Overall description of country political, legal, and development context in relation to Research and Innovation (context in which the EU intervenes)

3.1.1 R&I situation in the country

The Burkina Faso economy has grown at an annual rate of 6% between 2000 and 2012. Contributions by the agricultural sector show large yearly variations; in 2012 the agriculture contributed about 30% to GDP while it employs over 90% of the workforce. Before the gold mining boom, cotton was the main commodity exported, accounting for about 60% of export revenues. In 2012 its contribution has decreased to 15%. Food consumption relies heavily on traditional cereals such as sorghum and millet, while urban households prefer rice and maize. Food insecurity and malnutrition continue chronically high[1]. Besides, even though Burkina Faso is a member of both UEMOA and the Economic Community of West African States (ECOWAS), its agricultural economy is poorly integrated into the sub-regional market. Burkina Faso spending on research and development is close to 0.2% of GDP (2004-2009)[2]. The Ministry of Scientific Research and Innovation is charged with boosting research and innovation in the country. A National Innovation Fund has recently been established to fund innovative research.

Over the 2006-2010 period Burkina Faso allocated more than 10% of its budget to agriculture and rural development[3]. Indeed, after nearly two decades of withdrawal from agriculture, national investment in agriculture, livestock, environment and water and irrigation was boosted during the first decade of the new millennium, mostly however with the help of international grants and loans[4]. In general, "public expenditure analysis shows a strong reliance of agriculture on external funding, which accounted for an average of 71% of total expenditures for agriculture and rural development over the period 2006-10"[5]. Also, public expenditure on agriculture is dominated by input subsidies (38%). On the contrary, public investment in marketing (3%), storage (0%), inspection (1%), extension (3%), technical assistance (1%) and agricultural research (6%) are relatively low. 90% of commodity specific public expenditures target rice and cotton. The commodities most important for people's diet are not targeted by specific policies or strategies[6].

3.1.2 R&I national policies, legal framework

The main policy framework is the government's National Poverty Reduction Strategy (CSLP by its French acronym, 2001-2010), which is based on four pillars:

1. Accelerate economic growth and equity,
2. Guarantee access to basic social services for the poor
3. Stimulate employment and income generating opportunities for the poor,
4. Promote good governance.

[1] FAO/FAPAD, Country Fact Sheet on Food and Agriculture Policy Trends, April 2014.
[2] World Development Indicators, November 2014, Open Data for Africa, Burkina Faso.
[3] FAO/MAFAP Synthesis report, 2013, chapter 5.1 Burkina Faso.
[4] OECD, 2013, Policy Framework for Investment in Agriculture in Burkina Faso.
[5] FAO/FAPAD, Country Fact Sheet on Food and Agriculture Policy Trends, April 2014, with reference to Yameogo, S., Kienou A. (2013), Analysis of public expenditures in support of food and agriculture development in Burkina Faso, 2006-2010. Technical notes series, MAFAP, FAO, Rome.
[6] FAO/MAFAP Synthesis report, 2013, chapter 5.1 Burkina Faso.

The current strategic framework of the government's economic and social development policies is the Strategy for Accelerated Growth and Sustainable Development (SCADD 2011-15). The SCADD aims at boosting economic growth and reducing poverty to less than 35% by 2015. It foresees an average growth rate for the rural sector of over 10%. The National Programme for the Rural Sector (PNSR 2011-15) represents the operational framework on rural development. Its overall objective is to contribute to ensuring food and nutrition security, sustained economic growth and poverty reduction. It articulates five axes:

1. Improvement of food security and food sovereignty;
2. Improvement of the incomes of rural populations;
3. Sustainable development and management of natural resources;
4. Improving access to drinking water and creating green jobs and a healthy rural environment;
5. Development of partnerships between rural actors[7].

These documents call the private sector the engine of growth and emphasise an approach that promotes growth poles, promising value chains and pro-poor growth policies[8]. It provides a reference framework for all strategies, policies and plans related to agriculture, water and fisheries, environment as well as animal resources[9].

Box 1 Other government strategic and policy frameworks pertinent to agriculture

- The National Strategy for development and management of fisheries resources, adopted in 2003, set as its overall objective to sustainably contribute to poverty reduction and food security through the rational exploitation of fisheries potential;
- The Action Plan for Integrated Water Resources Management (PAGIRE), adopted in 2003, aims to contribute to the implementation of integrated management of water resources of the country, adapted to the national context, consistent with guidelines laid by the Government of Burkina Faso and respecting the principles internationally recognised sustainable and environmentally sound management of water resources;
- The National Policy for Sustainable Development of Irrigated Agriculture (PNDDAI), approved in 2004, but published in 2006, constitutes the general framework for irrigated agriculture subsector. The program of irrigation development plans to increase: (i) the storage capacity of surface water, (ii) water control in areas and (iii) the share of irrigated production in total agricultural production;
- The National Program for Water Supply and Sanitation (PN-AEPA), adopted in 2006 aims to halve by 2015 the proportion of people without adequate access to clean water and the sanitation in 2005;
- The National Rural Land Policy in Rural Areas (PNSFMR), adopted in 2007, aims to ensure that all rural actors, equitable access to land, the guarantee of their investments and the effective management of land disputes to contribute to poverty reduction, consolidation of social peace and the achievement of sustainable development;
- The National Environment Policy (PNE), adopted in 2007, aims to conserve resources and promote integrated management and contribute to the fight against poverty and the national economy;
- The Policy and National Sanitation Strategy (PSNA), adopted in 2007 aims to contribute to sustainable development by providing appropriate solutions to sanitation problems, to improve the living conditions of populations and habitat, to preserve their health and protect natural resources;
- The National Sustainable Development Policy Livestock (PNDEL), adopted in 2010; PNDEL the aims for 2025 "a competitive livestock and environmentally organize around which real value chains worn by professional sectors, market-oriented and contribute more both to food security that to improve the level of welfare of Burkina Faso. Its operational tool is the Plan of Action and Livestock Sub-sector Investment Programmes (PAPISE).

The recent AGRA assessment (2014) identified a number of legal and regulatory constraints limit progress by the private sector in agriculture in Burkina Faso. These include weak institutional capacity, poorly trained human resources in the public as well as the private sector, and a risk-averse banking sector that does not willingly invest in agriculture; all conditions that severely hamper innovation in the sector. According to the same report, the country is trying to tackle these constraints, with the active involvement of a number of development partners including the International Fertilizer Development Center (IFDC), the World Bank, the United States Agency for International Development (USAID), *Gesellschaft für Internationale Zusammenarbeit*, *Agence Française de Développment* and the Danish International Development Agency (DANIDA)[10].

[7] Burkina Faso, Programme National du Secteur Rural (PNSR) 2011-2015.
[8] AGRA, 2014, An Assessment of Agricultural Policy and Regulatory Constraints to Agribusiness Investment in Burkina Faso, Ethiopia, Ghana, Nigeria and Tanzania, AGRA Policy & Advocacy Programme.
[9] FAO/MAFAP 2013: ibid.
[10] AGRA, 2014: ibid.

3.1.3 R&I institutional framework (who does what)

The public sector responsible for research, extension and advisory services in the areas of agriculture, livestock and natural resources consists of the Ministry of Agriculture, Water resources, Sanitation and Food Security, the Ministry of Secondary and Higher Education, the Ministry of Scientific Research and Innovation, the Ministry of Environment and Fisheries, the Ministry of Animal Resources. International, national research institutes and universities are the main implementers. The state uses a decentralised system with provincial offices to deliver extension services to farmers and producer groups. After various decades of reducing ministry staff, the average coverage of rural areas is about one extension worker per 20-30 villages. Likewise, the coverage of community health workers is one per ten thousand people in 2010[11]. As a result, much agricultural extension work is currently done by non-governmental organisations, sometimes in collaboration with private initiatives and/or government research institutes, such as the *Institut de l'Environnement et de Recherches Agricoles* (INERA), the *Centre National de la Recherche Scientifique et Technologique* (CNRST) and the *Centre International de Recherche – Développement sur l'Elevage en zone subhumide* (CIRDES). Sources interviewed indicate that often, donors put more trust in non-governmental organisations than in public institutes for delivering on research and innovation projects. As a result of all of the above, the institutional landscape for R&I for rural and agricultural development is described as extremely fragmented and does not reflect the implementation of a clear vision or strategy for rural and agricultural development.

While the Ministry of Scientific Research and Innovation takes an innovation systems approach, taking into account the institutional foundations of widespread innovation for development, there is frequent mention of the weakness of the institutions that should bring widespread innovation about. Research teams generally do work closely together with NGO's, national extension services and small businesses on innovation. This leads oftentimes to 'deep' innovation – research partners collaborate successfully with other stakeholders including practitioners to achieve changes in (farming, health, conservation) practices. Yet these impacts remain limited in scale; only those practitioners participating directly in the project learn and may adopt the new practices developed. All partners report difficulties with scaling up innovations to practitioners not having been involved directly in the project. Sometimes these do, in part, participate in dissemination activities, but no evidence can be presented of widespread innovation as a result, i.e. actual changes in practices amongst larger numbers of practitioners. For certain commodities innovation platforms have been established improving the organization of stakeholders for achieving innovation. However, in general, the innovation system's downstream organizations and institutions (extension services, business advisors, input and services suppliers, farm credit and risk insurance systems, NGO's and other organizations that are needed to enable large numbers of farmers to apply validated innovations in practice) generally seem too weak to play their role effectively[12].

3.2 Description of EU strategic priorities for the country, especially in the areas of R&I and key thematic sectors

Research and innovation is not a priority issue for the EU in Burkina Faso; the implementation of development programmes is. The EU country strategy follows the national priorities of the Government's poverty reduction strategy. The CSP/NIP (2008-2013) identifies three focal areas:

1. Support to basic infrastructure and interconnectivity (transport and water, sanitation and energy);
2. Support to good governance;
3. Macroeconomic support and poverty reduction (budget support).

Other non-focal sectors are regional integration and cooperation and institutional support. No reference is made to EU support to R&I. General and Sector budget support were the main financing modalities in European Development Fund (EDF) 10 (2008-2013). The total amount of EU support (envelope A) is EUR 529 million. General budget support, with priority sectors health, education and food security, will amount to EUR 320 million (60%). Support to strengthening basic infrastructure will amount to EUR 140 million (26%), through projects and sector budget support. Research is not an issue in the policy dialogue linked to budget support (CSP p.15). The European Commission (EC) has tried to get food and nutrition security issues higher on the policy agenda, but there is no documentation whether they succeeded. EUD sources confirm that R&I has not been addressed as an issue for

[11] World Development Indicators, November 2014, Open Data for Africa, Burkina Faso.
[12] Interview: "The financial envelope of the donors (*note by the author:* to support agricultural Research and Innovation) seems based on an unverified hypothesis: national structures have the managerial and logistic capacity to scale up innovations; they don't".

sector policy dialogue. The CSP notes that implementation by state institutions e.g. in the field of agricultural production and sanitation is difficult. In fact, since structural adjustment government services have been scaled down strongly and, lack resources and clear policies to guide their work. Agricultural and Health extension services exist but are hugely. As a result, donors feel better results are achieved through the support to NGOs in the areas of food security, health, environment and human rights. A budget of EUR 15 million for non-State actors is envisaged in the 9th EDF (CSP, p.11). Coordination with DG ECHO and other Member States is foreseen.

Earlier on, during the 8th and 9th EDF rural development and food security were priority areas of the EU's country strategy. Under the 8th EDF EU financed the agricultural sector through the *Plan d'action pour la Organisation du Secteur Agricole* (PAOSA). The PAOSA action plan was budgeted for EUR 24.2 million. The Action Plan consisted of four separate programmes; *Plan d'Actions pour l'émergence d'Organisations Professionnelles Agricoles* (PAOPA), *Plan d'Action Financement du Monde Rural* (PAFMR), *Plan d'Action Filière Riz* (PAFR) and *Programme d'Appui Institutionnel* (PAI). The programme lasted longer than foreseen. It ran from 1999 until 31 December 2007 instead of 2005. According to the evaluation of EU cooperation with Burkina Faso 1999-2008, results of the PAOSA were mixed (p.57). Mainly, the four different parts of the PAOSA were not integrated and rather weak in design and implementation. Coordination with other donors was also weak, due to diverging points of view. In the 9th EDF the EU financed a programme to support the cotton sector (*Programme d'Appui Financier à la Filière Coton*, PAFFIC). The evaluation covering the period 1999-2008 mentions that the cotton sector benefited from STABX funding (EUR 4.04 million), regional funding through support to the West African Economic and Monetary Union's (UEMOA by its French acronym) cotton programme, interregional funding through the Agricultural Commodities Programme and EDF's general budget support. EU sector budget support to the cotton sector has profited from an integral approach: support to production, producers' organisations, infrastructure, finance, etc. (Evaluation of EU cooperation with Burkina Faso, p.61). Support to different food security programmes in the period 1999-2008 cumulated to EUR 34.8 million of which EUR 22.9 million was allocated to support to NGOs. The EU contributed to important monitoring and rapid intervention instruments like the national food security information system. Also during this period research and Innovation was never a priority for budget support to Burkina Faso.

R&I-related projects in the FSNA sector are generally funded through support to the Consultative Group on International Agricultural Research (CGIAR) and the Global Programme on Agricultural Research for Development (GPARD). Besides, interviews pointed to the fact that Burkina Faso is involved in a structured policy dialogue with RTD through its Ministry of Research. FP7 supported research projects were mostly in the Health sector (48%), the Environmental and Water sectors (20% each). Two projects supported FSNA (KBBE project) and one grant was given for strengthening research infrastructures. Recently, the Burkina Faso Government itself has established a competitive National Fund for Research.

4 Overview of EU-funded key interventions

Table 1 Overview of EU-funded key interventions in Burkina Faso

#	Sector	Contract title	CRIS number	Contractor	Year	Total amount contracted (in EUR)
1	*FSNA*	***Soil Fertify Programme:*** *Amélioration de la sécurité alimentaire par la fertilité des sols au Burkina Faso ("Soil Fertility Programme")*	*D-18464*	*Various (see below)*	*2006 (start)*	
1.a	FSNA	*"EcoSan-UE2":* Projet d'amélioration de la fertilité des sols dans 30 villages de Koubritenga	c-144103	EAU ET ASSAINISSEMENT POUR L'AFRIQUE (CREPA)	2008-2011	1,220,826
1.b	FSNA	*"Nayala soil fertility project":* Projet d'amélioration durable de la sécurité alimentaire par la fertilisation des sols dans la province du Nayala BF	c-144105	ASSOCIATION SOS SAHEL INTERNATIONALFRANCE	2007-2011	1,051,432
1.c	FSNA	*"Fertipartenaires":*	c-144075	CENTRE DE COOPERATION	2008-	1,186,594

#	Sector	Contract title	CRIS number	Contractor	Year	Total amount contracted (in EUR)
		Partenariat et innovations agro-pastorales pour relever la fertilité des sols des zones peuplées de l'Ouest du Burkina Faso (le cas de la province du Tuy): projet ferti-partenaires		INTERNATIONALE EN RECHERCHE AGRONOMIQUE POUR LEDEVELOPPEMENT - C.I.R.A.D. EPIC	2012	
1.d	FSNA	*"PASAF":* Projet d'appui à la sécurité alimentaire par la fertilité des sols dans les régions du centre nord et du plateau central au Burkina Faso PASAF	c-144084	DEUTSCHE WELTHUNGERHILFE EV	2008-2011	1,792,115
2	*FSNA*	***GPARD:*** *Global Programme on Agricultural Research for Development*	*D-23193*	*Various (see below)*	*2011 (start)*	
2.a	FSNA	Increasing yields of Millet and Sorghum by a new and sustainable seed technology developed in the Sahel (Burkina Faso, India, Tanzania)	c-304690 (grant contract 2)	KOBENHAVNS UNIVERSITET	2012-2016	1,602,827
2.b	FSNA	Improving the management of trypanosomiasis in smallholder livestock production systems in Tse-Tse infested Sub-Saharan Africa (Burkina Faso, Ethiopia, South Africa, Togo, Mozambique)	c-279754 (grant contract 6)	PRINS LEOPOLD INSTITUUT VOOR TROPISCHE GENEESKUNDE STICHTING	2012-2017	2,994,878
3		***RTD FP7***				
3.a	FSNA	*INSTAPA:* Novel staple food-based strategies to improve nutrition for better health		Wageningen University, Netherlands, with CNRST/DTA in Burkina Faso	2008-2013	475,209
3.b	FSNA	*UNDESERT:* Understanding and combating desertification to mitigate its impact on ecosystem services		Aarhus University, Denmark, with University of Ouagadougou in Burkina Faso	2008-2013	671,526
4	FSNA	***CGIAR***	D-23939 D-24000	*Various CGIAR research centres*		
4.a	FSNA (IFAD)	Improving policies and facilitating institutional innovation, markets and impact to support the sustained reduction of poverty and hunger in the Semi-arid Tropics	n/a	*ICRISAT*	2008-2010	10.1 million
4.b	FSNA (IFAD	Integrated Management of Rainwater and Small Reservoirs for Multiple Uses in the Volta River Basin.	n/a	*IWMI*/CPWF	2010-2012	1.5 million
5	Higher Education	**Intra-ACP mobility programme** PIMASO	n/a	Univ. de Montpellier with Francophone West African Universities	2011-2016	

FSNA sector

Food security is one of the priority areas of EU's budget support to Burkina Faso. Support to infrastructure, the first priority of the 2008-2013 CSP, also contributes to agricultural development. Infrastructure opening up rural areas contributes to improved access to basic services for example. Support to the trans-Sahel route (Bamako-Ouagadougou-Niamey) linking the cotton value chain to regional markets will contribute to a more favourable business environment. Support to water and sanitation will contribute to combat the underlying factors of malnutrition.

The CSP 2008-2013 mentions that indicators will be chosen to assure the government takes certain actions to evaluate the results of the national food security strategy, such as indicators monitoring the

implementation of a Food Security Information System and the implementation of sound management food stocks. Budget support should be accompanied by institutional support to the government institutions charged with food security policies, according to the EU country strategy.

Programme #1: Soil Fertility Programme

As part of its 10th EDF the EU funded the Soil Fertility Programme (D-18464).

General description:

The programme consisted of six projects. All the projects started at the end of 2007 and lasted between four to five years. The programme focused on applying research on soil and water conservation and tried to strengthen the innovation capacity of farmers and institutions. A brief overview is presented of four of the six projects for which an evaluation is available. The overview of the fourth project, *Ferti-partenaires*, is a bit more elaborated as the evaluation team has been able to discuss it at length with the collaborating institutes during the field visit.

Findings:

From the evaluations or the interviews no close relation between the different projects is apparent.

Project 1.a: EcoSan-UE2

Description:

The project builds on a previous project where treated human waste was used as compost in a peri-urban setting. It was implemented by *Centre Regional pour l´Eau Potable* (CREPA), together with the national research institute of Burkina Faso, the *Institut de l'Environnement et de Recherches Agricoles* (INERA). Testing the approach in a rural setting makes it possible to scale it up to other regions in Burkina and other African countries. Part of the multidisciplinary approach is the adaptation and improvement of integrated soil fertility management to the local physical and socio-economic environment of small-scale producers in Burkina.

Findings:

Design, implementation and the use of existing institutional structures have resulted in a successful project, even though the quality of material and constructions could have been monitored better. The EcoSan-UE2 project has reached good results in using treated human waste as compost, using a multi-actor and multi-disciplinary approach facilitating the adaption of new technology to local needs. (Evaluation Report, p.5, p.23) Also, the project activities in dissemination of information (reaching 10.000 persons) and the training of local service providers has been very effective and contributes to the sustainability of the project (ibid, p.14) Impact however is limited because of delays in construction of the latrines in 16 of the villages (ibid, p.25).

Project 1.b: Nayala soil fertility project

Description:

The project aimed to implement a range of soil conservation techniques and institutional strengthening of the *Fédération des Groupements de Producteurs du Nayala* (FGPN), Unions and farmer groups. It was implemented by SOS Sahel together with the Nayala Producers Federation (FGPN).

Findings:

According to the evaluation, the project has suffered from a difficult implementation. This was partly due to a weak design and too much emphasis on the technical side of the project. The institutional strengthening has been particularly difficult. The project apparently suffered from major problems with one of the partners (FGPN) affecting the project in a negative way. In the case of such a problematic project it seems even more pertinent to have a solid evaluation to be used as a learning tool.

Project 1.c: Fertipartenaires

Finally, the Fertipartenaires project is the one with the most prominent research component.

Description:

The Fertipartenaires project is managed by the French Centre de *Coopération Internationale en Recherche Agronomique pour le Développement* (CIRAD), partnering with the *Burkinabe Centre International de Recherche – Développement sur l'Elevage en zone subhumide* (CIRDES), the union of cotton producers UPPC-T and the training unit of *Institut Africain pour le Développement Economique et Social* (INADES). The project aims to improve productivity and resource management of mixed farming systems (cotton and cereal crops and livestock) based on conservation agriculture principles. Strengthening the capacity of farmers to co-manage resources has had good impact during the project as a recent internal evaluation of the introduction of composting techniques shows. The sustainability of the coordination system of comités de concertation villageois (CCV) after the end of the project however has proven problematic, partly due to lack of financing.

Findings:

Overall the project has shown good impact and sustainability (rating B) mainly due to a strong participatory design (action research in partnership with 3,700 cotton-producers and 1,800 farmers organised through seven village coordination committees). The participatory approach has contributed to the diffusion of new techniques after the project ended. A study trip to Mali led to the successful adoption of a new technique (*c-144075* MR-109714.03, p.4). According to the external evaluation of the project the long-term 'on the job' cooperation between CIRAD and CIRDES has strengthened local research capacity. The last monitoring mission was done one year after the close of the project, which made it possible to observe some longer-lasting effects of the project. The participating farmers' knowledge and management of soil fertility has improved, but the impact on food security is less than expected; scaling up beyond the participants of the project remains difficult. The project design shows flexibility in the testing of different techniques, recognising that adoption by the farmers would depend on the success of these techniques. Uptake of research results and impact on food security will only be visible on the longer term, not in the 4 years duration of this project. Tracking of adoption rates, however, should have been better to be able to share lessons learnt. The support of the EUD was good, showing flexibility in adjusting EC procedures to the distinct features of the Action Research Partnership. The quality control of EUD of the *Fertipartenaires* project could have been better (*c-144075* MR-109714.03, p.5). Recent participatory evaluations of project results confirm the widespread improvement of farmers' knowledge on soil fertility management, in particular composting techniques, yet wide-spread adoption lags behind. Lack of monitoring data hinders further investigation into current adoption rates and their causes.

Project 1.d: PASAF

Description:

The project aimed to increase the productivity of farmers in the provinces of Bam, Sanmatenga, Ganzourgou and Oubritenga in a sustainable way through soil and water conservation techniques, soil protection and restoration and soil fertility measures. It was implemented by *Welthungerhilfe* with three local partners. According to the evaluation report, around 72.500 people have been reached. Activities to develop the capacity of *Organisations de Paysans Formateurs* and *Organisations Paysannes* have been successful (evaluation *c-144084*, p.11). Farmers have learned different conservation and fertility techniques and have access to means (to transport material, tools etc.) to implement these techniques. Activities to promote innovation through a farmer-to-farmer knowledge transfer component are especially well regarded by the evaluators of the project.

Findings:

The activities to make local decision makers more aware of farmers' priorities and needs have improved the policy dialogue at a local level, albeit less in the Centre Nord region, where local agricultural authorities have shown much less interest in cooperation than those in the Plateau Central region.

Programme #2: GPARD

Project 2.a: Increasing yields of millet and sorghum by a new and sustainable seed technology developed in the Sahel

Description:

The project is led by the University of Copenhagen (Denmark) and executed with INERA, the National Agricultural Research Institute. It concerned developing a natural pesticide for crop protection by small farmers from *Eclipta Alba.*

Findings:

Together with Danish partners, and supported by DANIDA, the *Eclipta Alba* plant and its customary use by farmers for crop protection had been identified earlier. EU support was then achieved with the help of the Danish partners in order to develop concentrates that could be used more efficiently and systematically, particularly for seed treatment. Simple water-based means of extraction were developed that matched preparation by the farmers themselves under on-farm conditions. In collaboration with the provincial extension service, these were developed and tested with some ten farmers from seven villages on three different locations in Burkina. Seed treatments proved effective up to six weeks after treatment. Yield increases have been measured in pilot areas between 17-25%. The results were shared during multi-stakeholder meetings in the villages. The extension service does the technical follow up and collects data on farm level impact. The interest from non-pilot farmers to participate in these meetings was very large. Dissemination meetings were open to everyone and were always overbooked. Acceptation by the farmers is very good, as the technology matches what they know. No information is available about adoption of the technique beyond the initial farmer group. The

team has discussed intellectual property registration of the extract, but no funds were available to do so. Industrialization of the process may happen at a later stage.

Programme # 3: RTD FP7

Burkinabe partners participated in 25 FP7 funded research projects, mostly in the Health sector. During the field visit two projects of direct relevance to the FSNA sector were studied in more detail: *Novel staple food-based strategies to improve nutrition for better health* (INSTAPA, KBBE) and Understanding and combating desertification to mitigate its impact on ecosystem services (UNDESERT, ENV).

Project 3.a: FP7 INSTAPA

Description:

INSTAPA aimed to improve micronutrient nutrition for better health and development of women and children in Sub-Saharan Africa. It focused on improving millet-, sorghum-, maize-, and cassava-based processed food products with the objective to address vitamin A, iron and zinc deficiencies. This project ran from 2008 to 2013 with a EU contribution of EUR 5.9 million. The lead local partner in Burkina Faso was the *Centre National de la Recherche Scientifique et Technologique* (CNRST/*Département Technologie Alimentaire* (DTA)).

Findings:

The project generated practical and policy recommendations on the use of improved food products and on how to prepare food in order to avoid leakage of micronutrients. Several seminars were held with local Health workers to share results. As far as known, the recommendations have not led to changes in policy.

Project 3.b: FP7 UNDESERT

Description:

The UNDESERT studies desertification and its effects in West Africa, working alongside local people to implement best practices. This also includes restoring the ecosystem through tree plantations for carbon sequestration, sometimes known as carbon forestry, in dry zones vulnerable to climate change. The main partner in Burkina Faso is the University of Ouagadougou.

Findings:

The UNDESERT projects is very well linked with National Forest Service, NGOs, private sector and local institutions, as well as networked with Africa Forest Forum. The team entertains high-level contacts with policy makers on a regular basis, and formulates recommendations on land and agricultural policy. It also organizes conferences with the participation of high- level policymakers. It collaborated with other countries and European institutions to continue to fill the “West African Plants Database”, an important resource for national and regional policymakers and planners.

Programme #4: CGIAR

Burkina Faso benefitted from two other sets of DEVCO-funded projects that were managed by GPARD and the CGIAR (including ICRISAT and IWMI/CPWF). GPARD-led projects concerned millet and sorghum seed enhancement and the management of trypanosomiasis in small-scale livestock systems. The thematic areas of the CGIAR-led projects included staple cereal and pulse seed improvement, semi-arid livelihood system development, and rainwater and small water reservoir management. One of these EU-funded projects in Burkina Faso was reviewed in a 2011 study (Margiotta et al 2011) and one in a 2012 review (IFAD 2012)[13]. The 2011 study found that at the time the EU was funding thirteen CGIAR-projects in Burkina Faso.

Project 4.a: ICRISAT - Improving policies and facilitating institutional innovation, markets and impact to support the sustained reduction of poverty and hunger in the Semi-arid Tropics

Description:

The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), headquartered in Hyderabad (India), implemented two projects in Burkina Faso that were reviewed in the 2011. The project (referred to as ICRISAT 1/ICR25 in the 2011 study and the contribution agreement 2008-2010 (*c-*

[13] With the 2011 study it is referred to Margiotta, M. et.al., 2011. Practical Application of CGIAR research results by smallholder farmers. This was a study commissioned by the EC (*c-259990*). 23 projects were reviewed during field missions. With the 2012 review it is referred to IFAD/EC, 2013 (2012 Review of EC-funded CGIAR projects, Synthesis Report (May 2013)). In this review a sample of 13 projects, implemented by ten different CGIAR-centres were reviewed.

148759)) aims to improve policies that are beneficial for smallholder farmers and the practical application of research by developing and promoting strategies to:

- Enhance access to research;
- Enhance market access;
- Strengthen rural institutions;
- Analyse the effectiveness of rural and agricultural development strategies, and
- Identify development pathways and policies that facilitate poverty reduction and livelihood protection.

Findings:

General results were that the adoption of new breeder or foundation seeds (dissemination of genetic resources) in Burkina Faso, was hindered through a number of factors that are comparable to other projects in other countries (IFAD, 2010 Practical application of CGIAR research results by smallholder farmers, p.34). The availability of foundation and breeder seed is poor and when available, of poor quality. Scaling up the adoption rate of modern varieties in West Africa (Niger, Nigeria and Mali) lags behind according to a study conducted under ICRISAT1. Other projects did manage to develop a more pro-poor and inclusive approach improving the dissemination and adoption of genetic resources. This was the case in Tanzania (ICRISAT-4) where farmers organisations and the National Agriculture Research System (NARS) participated in the selection of varieties, on-farm trials were done and linkages between research, extension and farmers were forged.

Project 4.b: IWMI/CPWF - Integrated Management of Rainwater and Small Reservoirs for Multiple Uses in the Volta River Basin.

Description:

The 2012 IFAD review does not present outcomes of the IWMI/CPWF project specifically for Burkina Faso. The project is implemented in Burkina Faso as part of the larger Challenge Programme for Water and Food**.** It is funded under the 2010 contribution agreement (*c-246357*). On the global level of the IWMI/CPWF, the 2012 IFAD review finds the following.

Findings:

During the review, projects and monitoring frameworks were being re-organised to fit under the then new CGIAR Research Programmes (CRPs). IWMI/CPWF was found to monitor its project successfully through their CRP. Logframes could be improved to make them more specific and time-bound. In 2012 IFAD introduced new procedures that will facilitate high quality logframes.

Higher Education

Programme #5: Intra-ACP Mobility Programme – PIMASO

Description:

This Intra-ACP Mobility project runs 2011-2016, in order to harmonise student information, credits, requirements and standardisation processes in Francophone West African Universities and focus the curricula more on the development needs of each country. It supports 82 MSc degrees, 52 PhDs and exchange of experience between university staff and personnel.

Findings:

Results included innovations in the Universities' management and visibility, teachers and researchers of different universities sharing good practices, conferences to adapt the curriculum to development needs, joint publications and co-supervision of PhD students. The support of the European partner, the University of Montpellier, was key to the success of the programme. It provided lessons learned from Erasmus in Europe, guidance on selection, reception, information and communication with students, support to the standardisation process and quality assurance. The greatest impact was the pedagogical innovation of opening a West African research and teaching area in which students were given the freedom to choose courses at different universities that were recognised as part of their own university program. Even more than in Europe (ERASMUS) in West Africa, where universities had never exchanged students before, nor coordinated their curricula, this program provided a large step forward for strengthening the role of universities in national and regional development.

5 Field mission findings, by relevant EQ

5.1 EQ 1: Development policy objectives

FSNA sector

EQ 1 To what extent has EU support to R&I through DEVCO been successful in promoting the overall development policy objectives of the EU?	
JC 11 Link between R&I activities and EU development objectives (as per European Consensus and Agenda for Change – MDGs, etc.)	National level: • The link between R&I activities and EU development policy objectives in general was quite strong. However, given the weak implementation of domestic policy on FSNA using budget support as a financial instrument may have weakened the EU focus on agricultural development and national food and nutrition security, as formulated in the EU Agenda of Change • "Going for the last inch, the farmer": Generally, participating farmers have received significant benefits from EU-supported R&I projects, for example through the projects "Fertipartenaires" and "Increasing yields of Millet and Sorghum". However, collaboration with provincial extension services has not guaranteed follow-up towards wider adoption of farming practices and techniques by a wider audience. Key mechanisms for dissemination such as the *Comités de concertation villageois* (CCV) in the case of Fertipartenaires lack legal status and financing and only few have been integrated in local structures, such as the *Cadre villageois de développement* . In the case of "Increasing yields of Millet and Sorghum", collaboration with local extension services was close but no information exists on wider adoption beyond the farmers directly involved in the project. Interviewee: "Strengthening the research community is not enough; other institutions that are fundamental to achieving impact are too weak."
JC 12 Extent to which R&I has informed sector policy dialogue and sector support at national and regional levels	National level: • R&I was not part of sector policy dialogue. Budget support did not prioritise R&I for development. It is therefore unlikely that R&I informed policy dialogue in any direct manner. • Indirect linkages may have been present. R&I project leaders generally do make an effort to link up with government policy makers to inform them of their activities and results, both at the provincial and national level (including at the occasion of the national farm days). For example, *Fertipartenaires* raised awareness amongst state extension agencies about the advantages of manure fosses over compost stored on the ground, and about various soil fertility management techniques. Similarly, *Improving yields of sorghum and millet* fed back information about alternatives to chemical treatment of seeds for crop protection to agricultural policy makers. Such awareness may have led to influence policy planning in the ministry of agriculture, but no evidence has been found that it actually did.

5.2 EQ 2: Impact on partner country research communities

FSNA sector

EQ 2 To what extent has DEVCO funding of R&I enabled research communities in partner countries to build up and develop their own R&I capacity, including the ability to actively engage in research networks (regional and international)?	
JC 21 Degree of alignment and coherence of DG DEVCO support to R&I with relevant policies and strategies	National level: • Country priorities: In general, EU R&I support is perceived as well aligned to the priorities of the country. This is mainly due to the efforts of the researchers and innovators themselves who create coherence with national development objectives by inserting national priorities into international research if these latter are open enough. However, "If they can't find a match, we can't participate" (statement of a national policymaker). • Coordination among development partners supporting R&I is deficient, even though the MRSI adopted a new strategy in 2011. Regional level: • It is also aligned with regional needs of enhancing agricultural productivity, food supply, and making regional food systems more resilient to climate change. • In West Africa, as in the other countries where ICRISAT projects were reviewed, involvement of farmers in the research projects is low. National and regional research organisations in West Africa signalled that some CGIAR centres see national players as service providers and not so much as partners. Sometimes

	individual researchers were contracted instead of signing agreements with the organisations they work for (2011 Evaluation, p.35).
JC 22 Increased focus of EU support on 'capacity building' and enhancing institutional sustainability	National level: - Interviewees highlight the crucial importance of EU R&I support for developing the capacities of their research institutions and staff; capacities that have been strengthened include research design and implementation, regional and bi-regional research collaboration and networking, teaching, reviewing and quality management. - Among the projects sponsored by the EC, there are good examples of involvement of researchers and technicians in applied/practical research projects in partnership with agricultural producers. Farmers' organisations confirm the practical orientation and applied nature of such partnerships. They also signal the lack of space and/or emphasis on documentation and dissemination of research results within these research projects. - However, long-term capacity building and sustainability of R&I actors and processes require longer-term partnerships between research institutions, for example as in the cases of the University of Copenhagen-INERA or CIRAD-CIRDES partnerships, which received funding from the EU as well as other European donors. Predictability and continuity in these funding relationships is affected adversely by lack of donor coordination. - In Burkina Faso, national research institutes and extension services do not have the capacity to test and disseminate research results to farmers due to low budgets and lack of equipment and weak capacity to coordinate field interventions (2011 IFAD study, p.35). The *Unite d'Appui Conseil'* is an EU-supported initiative to address this need by creating a new extension service through a public-private partnership mentioned in the 2012 IFAD study. Regional level: - The information flow from CGIAR researchers to end-users is poor; research results are not easily available and often only in English. Difficult access to credit and availability of (affordable) nutrients are considered to be a major bottleneck for the adoption of new farming methods. Despite the good connection between ICRISAT and seed breeders, weak linkages between farmers and seed processors continue to be a problem (2012 IFAD study, p.35). - In general, the IFAD 2012 review found that the IWMI/CPWF performed well on relevance, efficiency, effectiveness and potential for impact. Visibility of EU funding was less than satisfactory. The project could improve by building stronger partnerships with NGOs, NARS and private sector actors. These partnerships would improve project design and improve successful outcomes and impact. Most centres are too optimistic in their research proposals, over-estimating the achievements the projects will have. Confusion about final versions of proposals and logframes should be avoided by informing staff on the ground better. Budget management by IWMI/CPWF was good.
JC 23 Improved access of developing countries' research communities to EU FP7 funding	National level: - Participation in EU FP7 projects is very limited and comes about only upon invitation by a European partner. No national support structure exists in Burkina Faso as in other countries (that aim to be) more successful in receiving FP7 grants. - Due to the decentralised nature of their institutions Burkinabe researchers have often only incomplete access to electronic media – mostly used by the EU to disseminate information about research programmes and calls and, to receive proposals. - Also the EUD does not see an active role for itself in this respect. As a result, Burkinabe researchers generally do not have adequate access to information about EU-sponsored research and innovation opportunities. - This coincides with the lack of priority for R&I, both at the Government and the EUD level. At the Government level priority may be changing, as the Government has recently established a National Competitive Fund for funding R&I in Burkina Faso.
JC 24 Enhanced networking of developing countries' researchers at regional and inter-national level	National level: - Fertipartenaires established relations with other national and regional projects intervening in the same thematic area (soil conservation and fertility management): the IFDC-led MIR project and the *Central African Council for Agricultural Research and Development (*CORAF/WECARD) project in Koumbia department (in Tuy province), which has used some of the CCV put in place by Fertipartenaires. The CORAF project has continued to promote intercropping (pulses and forage crops)

	) Through these projects, some achievements of Fertipartenaires have been scaled up. CORAF plays a role of coordinator and facilitator of information exchange in the region. Regional level:) Some of the R&I projects Burkinabe partners participate in have a regional coverage. These projects, some of which involve or are linked to CORAF, have contributed to strengthening regional networks.) The "Increasing yields of Millet and Sorghum" project has partly supported the development of research networks on Millet and Sorghum in West Africa. These networks have also developed exchanges with researchers in Tanzania and India who are now testing Eclipta Alba too. Not much budget seems to be available for networking however. Researchers are not well connected to experts with regard to protecting intellectual property in Burkina Faso. They have spoken about the need to do so but received notice that it costs a lot of money to register, so no action was taken.) UNDESERT (FP7): Collaboration with Niger, Benin, Senegal, Burkina Faso and Denmark, Germany, Italy. Lead institution is the University of Aarhus (Denmark). The database 'West African Plant Database' filled by the project existed already, so networking and content are definitely strengthened by this project. They work in partnership with the Africa Forest Forum. Clear added value: strengthening research networks; strengthening research capacities; North-South integration; improvement of the quality of scientific methods and publications; three PhDs. A quick revision of the articles published under the project (CORDIS database) showed that at least half the articles have an African first author, and all are co-authored by a mix of team members (Africa/EU). The *Atlas de la Biodiversité de l'Afrique de l'Ouest* (Vol II) is a very rich resource for those who seek a responsible management and use of natural resources in West Africa.) The 2010 IFAD review found little immediate benefits for end-users on the policy aspect of the ICRISAT 1 project. The main reason is that ICRISAT 1 policy proposals were not responding to a demand by those Regional Economic Communities and regional farmers' organisations like the *Reseau des Organisations Paysannes et des Producteurs Agricole de l'Afrique de l'Ouest* (ROPPA) responsible for seed harmonisation, bio safety and seed system protocols. As a result, the practical application of policies by farmers' organisations was quite low both at national and regional level. The evaluation found that the CGIAR failed to effectively connect with relevant regional organizations, such as the Economic Community Of West African States (ECOWAS); the *Union économique et monétaire ouest-africaine* (UEMOA); the *Conseil Ouest et Centre Africain pour la Recherche et le Développement Agricole/West* and, the *Central African Council for Agricultural Research and Development (CORAF/WECARD) and Comité permanent Inter-Etats de Lutte contre la Sécheresse dans le Sahel (CILSS)* that could have been instrumental in scaling up the improved policies to a regional level (p.39).) The regional organisations interviewed said that project results from ICRISAT 1 were not so strongly internalized by the units responsible for seed harmonisation, bio safety and seed system protocols. ICRISAT did forge close ties with FAO, seed breeders and the African Groundnut Council. Despite these close ties and most likely because of a lack of alignment with national priorities, little integration was found to exist between the ICRISAT project in Burkina Faso and the EU-funded FAO project on seed multiplication and distribution.) In the same study respondents found there was no formal platform for research exchange. An improvement was seen in the Innovation Platforms and also the Challenge Programme for Water and Food (CPWF) (EU funded, reviewed in 2012) where the International Water Management Institute (IWMI) shared a decade-worth of research results with partner organisations in Ghana and Burkina Faso. CORAF/WECARD and the International Food Policy Research Institute collaborated to contribute to the formulation of the Comprehensive Africa Agriculture Development Program (CAADP).

Higher Education

EQ 2 To what extent has DEVCO funding of R&I enabled research communities in partner countries to build up and develop their own R&I capacity, including the ability to actively engage in research networks (regional and international)?	
JC 24 Enhanced networking of developing countries' researchers at regional	National level:) The PIMASO project of the Intra-ACP Mobility indicated that the Intro-ACP contact in Brussels was also very effective to obtain financing for national innovation projects and to work with development associations in practice, as it

and inter-national level	provides a direct link with Brussels EU headquarters. Regional level: - Intra-ACP Mobility (PIMASO), 2011-2016, coordinated by 2IE (*Institut International d'Ingenerie de l'Eau et de l'Environnement*, Univ. de Ouagadougou). Introduced students exchange programme as in ERASMUS Mundus, between Francophone universities in Africa; now students can gain part of their credits in other universities and still obtain their diploma at their own. Its impact is large: it helps universities to (1) gain visibility of management and improve their laboratories (comes with the exchange of students); (2) co-promote doctoral students (82 MScs, 52 PhDs underway); (3) strengthen joint research and research networking; (4) harmonise and adapt curriculums to development needs; (5) recognize each other's credits; (6) exchange experiences between university personnel. The University of Montpellier is a technical partner, supporting the development and application of the various elements of the programme and sharing its experience with the different components of programmes like this in Europe (ERASMUS).

5.3 EQ 3: Instruments and modalities

FSNA sector

EQ 3 To what extent has DEVCO in its support to R&I used its available instruments in a way that maximizes their value?	
JC 31 Appropriateness of the financing modalities and types of funding under different EU instruments and the way they have been applied for enhancing R&I	National level: - From the situation in Burkina Faso it seems evident that using budget support when neither the Government nor the EU prioritises R&I for Development does not help to create good conditions for implementing R&I in development programmes. As seems to be happening now, this situation may change when Government develops a more comprehensive policy for agricultural transformation and casts research and innovation in a more prominent role. - Besides, there is a general sense among interviewees that both DG DEVCO procedures/RTD calls to prepare R&I proposals are overly complex, requiring unnecessary details and especially complicated logical frameworks and sets of indicators. Proposals need to provide too many details; deadlines sometimes not met by minutes due to electronic hazards; payment only follow approval of reports, which may take months when a small detail is missing or not approved by the many different people that seem to look at it. In Burkina Faso research is decentralised, which means that if electronic infrastructure is required they are 'amputated'. - Also the EU is perceived as too rigid when it comes to necessary modifications to the project and/or budget and as not very accessible in Burkina Faso. This is problematic if stakeholders have learned (through the project) that the original approach or timing might not be the most effective and they need to change course. This touches the very grain of what R&I projects are about: to act, to learn and to modify actions accordingly. - Besides, EU R&I funding is experienced as limiting on various accounts: o It provides too little room for creating incentives for extension agencies and farmer organisations to participate actively in a project, endangering future capitalization and scaling up of the innovations. o National and local NGOs face similar as EU fees do not cover the social security costs of their personnel. Therefore they can only participate if other donors are willing to pick up the additional bill. o Overhead costs are capped at 5% and, various reasonable lines of expenditure are not accepted by the EU as overhead. For example, it covers no personnel/ infrastructural costs, or even logistical costs, just strictly overhead on 'research activities'. Its contribution to institutional strengthening is therefore limited. o For many projects, no pre-financing was available, the initial disbursement of funds was much delayed or disbursements were experienced as erratic during the course of implementation. As a result local partners sometimes had to pre-finance project activities themselves. o Several interviewees mentioned that the EU projects do not finance equipment (e.g., office equipment) and vehicles (they only reimburse transportation expenses based on a kilometric rate, or in the case of equipment, the depreciation), which is a constraint when implementing projects. o Expenditure reporting, quality assessments and refunding procedures are

	deemed complex and time consuming. In some instances, project reports were evaluated successively by different persons (a first person made comments, another one reviewed answers and added new comments on the original report), which required a second round of answers and make the reporting and refunding process even more time-consuming. - In sum, in Burkina Faso where R&I institutions and organisations are generally weak, EU R&I projects require either strong national institutions – which are able to co-finance from their own means - or organizations whose other donors are willing to co-finance essential expenditures. - In the case of the Fertipartenaires project, funding were provided on time, except at the beginning of the project, when there were some delays in the provision of funds, but these issues were quickly addressed. Equipment was financed, including one car, two motorcycles, and furniture. - The financing under budget support for Fertipartenaires incentivised private sector financing as the EU (through CIRAD) provided 70% of the annual financing and the cotton producers union provided 30% of it. - For the reporting, CIRDES, one of Fertipartenaires' partners, helped the union of producers during the first two years of the project. - Monitoring and evaluation of EU R&I projects must be improved; on the one hand, M&E requirements (log frames, indicators) are bureaucratic, not very useful for project implementers; on the other hand, there is a lack of evaluation of outcomes, and of assessment of impacts after the projects. In comparison, DFID and USAID have better M&E systems in place (DFID has rigorous M&E; USAID trains researchers in monitoring and evaluation for its projects). - Online EU RTD procedures (applications, reporting, etc.) pose constraints in countries like Burkina Faso where Internet connectivity is weak as they require a lot of data and information and the website can be impractical (loss of the data entered if the connection is lost). - Important documents for a project should be made available in French, which was not always the case (e.g., ICRISAT1). Technical sheets were usually translated into local languages as part of project implementation.
JC 32 Strategic approach adopted to choosing different possible actors / channels with whom the EU can work to support R&I and how best to support them with the instruments and modalities available	<u>National level:</u> - In general, strategic thinking about partner and partnership choices seems well-developed. The EU seeks to find the right combination of partners to do the job; the Burkina government shows flexibility in allowing the EU and other donors to choose/select its partners. All R&I projects therefore work along the lines of a comprehensive multi-stakeholder approach, creating the necessary conditions for being demand-driven as well as scalable. - In the case of Fertipartenaires, the choice of project partners seems good, especially as CIRAD and CIRDES have been long-term partners. - Many interviewees displayed a certain dissatisfaction with the way in which EU-funded R&I projects balances its support between different complementary actors: o One interviewee reported that national research organisations sometimes had to compete with CGIAR centres for the EU calls for proposal. o Several respondents had the feeling that excessively large shares of the R&I project budgets were allocated to European/International research partners. o Some non-state actors involved in EU research projects noted that the government (the ministry of agriculture)/government agencies have absorbed a lot of the resources, but non-state actors have had access to much less. o Farmer organisations said: "Don't confuse farmers with their organisations": concrete benefits for farmers (over time) will not translate immediately into funding for farmer organisations to play their role in capitalising and scaling up innovation. - Involvement of the private sector in general was seen as minimal. Clearly, greater involvement of value chain operators, alongside national research organisations and CSOs could be beneficial. According to the MSRI this was one of the successes of the value chain and innovation platform approaches introduced in agricultural development in Burkina. It is helps to stimulate private companies to invest in processing, input production and distribution, storage, marketing and other services provision. - However, so far there appears to be a number of obstacles to taking "multi-stakeholder approaches" and working with the private sector. Many R&I projects are too small to obtain significant/transformational results (remark made by an interviewee involved in a soil fertility management project). R&I projects have become shorter (five to seven years before, three years and sometimes less now). Short durations make it difficult to obtain results (for example, it is difficult

	to put a PhD student on a project when the project is three years long). Projects do not necessarily have to be long, but there is a need for follow-up, sequenced projects. Another example are the innovation platforms supported by CORAF; the first year is for the establishment of these platforms; by the third year, platforms have just been implemented but more time is needed to obtain results. - Also, in the words of a farm organisation representative, donors and government should stop seeing farmers as simple beneficiaries, and see them for what they are: actors who do the *'mis en oeuvre'* of innovations and need '*accompagnement*' in order to professionalise. For this, projects should generate opportunities - also remunerated work opportunities - for farmers' organizations and other value chain actors, budgets should include funds for 'capitalisation' to support farmers/backstopping and collecting information needed for helping them to professionalise.
JC 33 Level of efforts taken to choose between and to combine different modalities and channels	National level: - The fact that the EUD is not involved in the programming of R&I support and that there is little coordination among donors in this area is not conducive to the combining different financing sources/modalities, leveraging one by another, or the mobilisation of more domestic and private resources.

5.4 EQ 4: DEVCO-RTD complementarity and coherence

FSNA sector

EQ 4 To what extent has EU support to R&I by DEVCO and by RTD been complementary and their collaboration promoted PCD?	

JC 41
Extent to which DGs DEVCO and RTD have formulated clear strategies on how they should cooperate in a complementary way and how the work of other relevant EU institutions (such as the EIB) is also complementary with their own
	National level:
	- There is no evidence of DGs DEVCO, RTD consciously implementing their cooperation in a complementary way.
	  o Research and innovation is not a priority in Burkina Faso: Development focuses on other, more urgent tasks.
	  o Interviewees suggest that there is little coordination between R&I programmes managed in Brussels (DEVCO or RTD) and development cooperation programmes managed by the EUD. Reportedly, RTD has shown little interest in cooperating with DEVCO and vice versa.
	  o National R&I coordinator: "We feel no coordination between the EU and its member states; we feel we have to do that, and we do it in order to create synergies and to benefit from the opportunities they make available".
	- This does not imply that synergy can never happen: In one case identified by the team, the European partner (DANIDA) originally helped identify the potential of *Eclipta Alba*.The *Increasing Yields of Millet and Sorghum* project was designed to follow up on their work and is therefore a good example of synergy between a Member State and the EU. However, it took three years (2008-2010) before the proposal was accepted and another three before the work could start (2013). Apart from the delay, a downside of the complex and lengthy procedure is the strong role the European partner is to play in leading the very complex process of obtaining EU financing. Till today no direct contact of Burkinabe partners with either Brussels or the EUD takes place.
	- A representative of a farmer organisation recognised that it would be better if the EUD had a more important role in the preparation and management of R&I projects in Burkina Faso.

JC 42 Degree to which DEVCO support addresses issues that could/would not have been better, or equally well, addressed through RTD and vice versa	National level: - The RTD-sponsored R&I project UNDESERT (in four West African countries including Burkina Faso) addresses issues related to global public goods, ecosystem conservation and rehabilitation in dry zones vulnerable to climate change, and carbon sequestration. - The field mission team has found examples of DEVCO supported R&I projects that continued from and built upon initial work of Burkinabe researchers and practitioners with support by bilateral agencies from EU Member States. In some cases complementary finance from bilateral funds continued to be provided. These synergies seemed to be the result of actions by project implementers rather than of systematic coordinated action at the EU level.
JC 43 Level at which DEVCO support has benefited from complementary action financed through	National level: - As mentioned earlier, there are several instances where state extension agents have been involved in EU-sponsored projects and played a role in disseminating innovations. Extension agents' time and transportation costs usually have to be compensated. One can say that to the extent that the EU

RTD and vice versa	provides budget support to the ministry of agriculture, the EU has supported this complementary "input", i.e., extension agents. However, it appears that the role of extension services could be further strengthened to stimulate the diffusion of new techniques and incremental improvements in these techniques after projects end. - Another possible area to strengthen to increase the impacts of R&I activities is the intellectual property rights (IPRs) policy. It appears that Burkina Faso's IPR policy is not conducive to the development of proprietary technologies coming from public research organisations. - The Government of Burkina Faso has a national fund for R&D (which was established in 2012-13) but it has not received budget support. - In Burkina Faso, the UNDESERT project has been implemented independently from DEVCO projects.
JC 44 Extent to which different mechanisms to promote PCD (ex-ante impact assessments, inter-service consultation, etc.) have been de-ployed and acted-upon	National level: - The field assessment did not show any evidence of mechanisms to promote PCD in the case of Burkina Faso

5.5 EQ 5: Transfer of R&I results into development processes

FSNA sector

EQ 5 To what extent has DEVCO support led to the transfer of R&I results into processes likely to impact on the achievement of EU development objectives?	
JC 51 Clear and logical thinking at sector level on how DEVCO support could ultimately lead through to research results being used in development processes	National level: - Clear and logical thinking leads to mainstreaming a multi-stakeholder approach to rural and agricultural development. Support to R&I is tied to this same approach. The intervention logic of the EU seems to underestimate the fact that national organisations often do not have the financial, material and human capacity necessary to take part in R&I projects. And that for each type of organisation (research, extension, private sector, NGO, farmers organisation, etc.) other constraints may be affecting their ability to participate in an R&I project fully. See JC 31. Or, in the words of one national policy maker: the EU R&I financial envelope seems to be based on a non-verified hypothesis that national structures are equipped and capable of implementing R&I projects. - See JC 11 concerning Fertipartenaires. - In the case of Fertipartenaires, the logical framework seems to have been well thought through. However, something that the project has insufficiently taken into account is the supply of animal manure. That is, to some extent, there was a lack of "system approach", which was an issue for at least another project (CIRAD-Wageningen University-INERA). - The Fertipartenaires project facilitated the elaboration of a land charter for the preservation of natural resources, notably the soil. However, progress in the implementation and dissemination of this charter and its good practices has been slow.
JC 53 Extent of external les-sons learning, sharing and uptake within the sectors supported in partner countries, and at international level	National level: - In several instances, publications, reports, databases, and technical sheets are produced, but, according to several interviewees (including a civil servant from the ministry of research and a representative of a major farmers organisation), a crucial problem is the lack of stocktaking and learning from R&I projects (e.g., through impact assessments), with consequently lessons learned not feeding into the extension system, on the practitioner side, or into policy dialogue. The involvement of national farmers and other agro-food value chain actors in the R&I policy dialogue would be useful (if that dialogue took place). The absence of financing for capitalisation, i.e. stocktaking and "up taking" activities, is a problem, but their absence from the programmes/projects is also a design issue. - The conservation agriculture project led by CIRAD, Wageningen University and INERA spawned an association that acted like a community of practice promoting the dissemination of the Zaï cropping technique. - R&I projects usually give researchers, students and technicians opportunities to take part in conferences and other events where they can the results of their activities. - "Capitalisation": the documentation and follow-up on research results within

	national structures is mentioned repeatedly as a constraint. Lessons learnt are shared within research groups and with stakeholders and farmers directly involved but are not made available to larger audiences of technicians and farmers. At the same time, it is indicated that generally R&I budgets do not allow for such documentation and follow-up, as only few communication and dissemination activities are generally allowed for. Monitoring and evaluation systems in place also do not capture longer term impact and change as a result of changes in farm practices possibly induced by project results.[14] Regional level: - In the case of Fertipartenaires, a study trip to the cotton-producing zone in Mali led to the transfer of a new technique to Burkina Faso. In the case of another project (implemented by CIRAD, INERA and Wageningen University) focusing on conservation agriculture, researchers and practitioners collaborated with other countries, including Madagascar. Collaboration among researchers and doctoral students in other countries are frequent among the DEVCO projects. In relation to the CIRAD-INERA-Wageningen University project, the regional network African Conservation Tillage Network emerged, although its activity level has remained low.
JC 54 Development processes and outcomes have been built on or used the results of research funded by DEVCO or shared through DEVCO supported research networks	National level: - Farmers' leader was very positive about EU support to research. He considers that EU support aligns with Burkinabe research policy and, that it contributes to developing practical solutions to the problems farmers face on a daily basis and provides solutions that are adapted to their conditions. "Such research aligns with our ambitions". More attention should be given to 'capitalising' on good agricultural practices/socialising them; widespread innovation/dissemination should not be left to spontaneous action. - The interview confirms that the basic institutions that are necessary for the *'mis en oeuvre'* and up-scaling of the results of research are very weak and not endowed with enough means to pro-actively cooperate with and take in findings of the research teams. This applies to farmer organisations, extension services (vulgarisation/animation), service providers, training/education services, private sector organisations, etc. In certain areas NGOs play this role successfully. - The fact that there has been little collaboration between the Fertipartenaires project and the public extension services/the parastatal for cotton seems to be a weakness (this is not to say that the project was insufficient in that respect as extension services may have failed to adequately engage in this project as well). Through their networks and dissemination channels, extension agents contributed to disseminate the practices promoted by Fertipartenaires. Closer collaboration with the public extension services, provided these are given sufficient resources (extension agents' time and transportation costs usually have to be compensated), could yield greater and more sustainable results (that is, a scaling up of the impacts). Yet, since the structural adjustment in the early 1990s, extension services have not regained the capacity they had before. More promising models give a greater role to the private sector (producers organisations or NGOs providing advisory services, or "innovation platforms"). Another example is the ICRISAT-3 project that developed improved millet and sorghum seeds. This project worked with a farmers organisation, which was involved in selecting attributes for the improved varieties (grain quality, hay quality, resistance to diseases, etc.) and in all other phases of the research. Another major component of the project was seed production. Producers were trained in seed production. However, there was little involvement of agro-dealers. - In the case of a project like Fertipartenaires, the continuation of the innovation and dissemination process is desirable and possible, but it requires financial support. - In relation to the project to *Increase yields of millet and sorghum* led by the University of Copenhagen, the Danish development agency Danida has financed another project to develop the use of plant extracts to protect seeds against pests (viruses and fungi). This project too was led by INERA, the *Institut de l'Environnement et Recherches Agricoles*.[15] It allowed for synergies between the two projects in the identification of plants containing substances useful for seed pest control. INERA has had a long-time collaboration with Danida and the

[14] An exception to mention is the on-going food security impact evaluation of Fertipartenaires conducted by CIRAD as part of a broader evaluation of its "research-action" approach.
[15] INERA is one of the four research institutes of the national research organisation CNRST. It specialises in agricultural and environmental research.

	University of Copenhagen. The EU-sponsored project allowed INERA to further develop the plant-based seed protection technologies and conduct tests and capacity building activities with agricultural producers (including for the production of the treatment products). The seed treatment technologies have yielded sizeable positive results in terms of yield (+17 to +25%). At the time of writing, however, there was not yet an industrial application of this technology. • In the case of the INSTAPA project, cooperation with food processing SMEs aimed at developing technologies and processes to enhance the nutritional content of food products. Students and SMEs were trained, but the impacts on the food value chains concerned seem limited so far. • Example of impact by Member States given by National Coordinator: SNV/Netherlands has had much impact with 'innovation platforms' and the multi-stakeholder approach to 'value chains'. They worked on Maize and stopped now, but what they built continues, we are now organising innovation platforms for other value chains/crops. The innovation platforms have influenced Burkinabe policy. DANIDA and the Netherlands also in the formation of technical staff. Luxembourg is more interested in supporting NGO's, which is fine too. In Burkina Faso, regional and local development institutions are weak, the link between research and extension is not working – during structural adjustment the development of extension services was stopped so that now we have only one agent per 20 villages. <u>Regional level:</u> • Within CAADP farmers perceive themselves as being more 'marionettes' than 'acteurs'. The Country Focal Person feels co-ownership of documents/policies/ agreements and is strongly involved in the West African Farmers Association, ROPPA as co-founder. • Most research projects lacked participation of farmers and their organisations. Linkages with other key actors and processes are often weak and the key actors and institutions often lack capacity (extension services, certification processes, NARS). Research is not responsive to farmers' needs and priorities (not aligned with national priorities, too linear in approach). Communication, like information of research results, is poorly channelled to end-users, donors and other interested actors like NGOs, Regional Economic Communities and Chambers of Agriculture. These hampering factors are also applicable to the ICRISAT project in Burkina Faso.

5.6 EQ 6: EU capacities

FSNA sector

EQ 6 To what extent have the EU external relations services ensured adequate capacities to conduct policy dialogue related to R&I and to support research and innovation in partner countries?	
JC 61 Extent to which EU internal capacity to manage R&I support and conduct policy dialogue is in place at the levels required	<u>National level:</u> • The capacity of the EU to manage R&I support and conduct policy dialogue does not appear to be a problem, as the EUD is generally not involved in EU R&I support programming and R&I is not an EU priority in cooperation with developing countries or an item for policy dialogue at the country level. • As a consequence, R&I partners experience no support from the EUD; some have sought to inform the EUD about their (FP7) project, but were told that was not necessary. National partners are surprised that the EUD does not even have the needed papers and forms available, nor is it able to provide advise on how to fulfil EU funding requirements. If support is given it is on an individual basis and not as part of the EUD mandate. One project remarked that the EUD had helped them to obtain some budgetary flexibility when they were confronted with necessary modifications in project expenditures.
JC 62 Extent to which R&I policy dialogue is operational at all levels	<u>National level:</u> • At the national level in Burkina Faso, R&I is not an item for policy dialogue. • Informal R&I dialogues, where they take place, are driven by research teams involved in projects.
JC 63 Extent to which the EU facilitates R&I activities at all levels	<u>National level:</u> • The partners involved in R&I projects are varied, representing most categories of relevant actors. However, there is little involvement of value chain operators (seed companies, food processors, etc.).

6 Conclusions

The main conclusion to be drawn from the field visit and interviews is that in Burkina Faso, where development challenges are daunting and readymade solutions are often not immediately available, research and innovation (R&I) is not a priority of EU development cooperation. While this seems in line with national policy, and with EU development policy that aligns to national priorities, it severely limits the possibilities the European Research Area has to actively support development processes in Burkina Faso. With the recent establishment of a National Fund for Research the Burkinabe Government seems to have altered its course and put more emphasis on the role of research and innovation for development.

Another main observation is that the few - DEVCO or RTD-supported - R&I projects active in FSNA in Burkina Faso do invest in linking up and collaborating with the provincial and local institutions and organisations that are responsible for wide-spread innovation beyond the immediate group of participants in the research project – i.e. farmers organisations, extension services and other farm services providers, NGOs, private sector operators, financial services to farmers, etc. However, these are generally very weak and overextended, while strengthening them is generally not part of the EU R&I project purpose. As a consequence, there is little evidence of scaling up innovations, even if most of the innovations developed and introduced seem to show a huge potential for it (natural pesticide, composting techniques, to name a few). A much stronger and more targeted investment in strengthening the weakest elements of the agricultural innovation system seems necessary to achieve the sustainable and inclusive impact from R&I sought by EU development policy. In the words of a Burkinabe policy maker: “Strengthening the research community is not enough; other institutions that are fundamental to achieving impact are too weak.”

Investing in these institutions alone, however, may not be sufficient for innovations to be widely adopted. In several instances, the application of innovations on a wide scale requires the supply of inputs or equipment or the development and commercialisation of new products. For this to happen, greater involvement of the private sector in the R&I process is crucial to develop economically viable strategies. Value chain actors can also contribute financial resources if the expected results of the research offer new commercial opportunities (see for example the financial contribution of cotton producers under the Fertipartenaires project). The sector-based innovation platforms that supported by some development partners have shown good results in terms of research capacity, sustainability and development outcomes.

Interviews revealed a list of drawbacks in the way funding for R&I is provided by the EU, both DEVCO and RTD. Programming, application and reporting procedures are seen as overly complex, excluding researchers based in marginal areas and budgets are experienced as favouring strong institutions with other donors willing to pay for essential costs that have to be made to achieve the impact. In the words of one concerned Burkinabe policy maker: “This means EU funding does not contribute to strengthening our institutions, it forces them to use their scarce means to complement EU funding.” In the view of national researchers it also contributes to a dominant role for European researchers where a research partnership of peers is intended.

Besides, the EU is seen as rigid when it comes to necessary modifications to the project and/or budget and it is not very accessible in Burkina Faso. This is problematic if stakeholders have learned (through the project) that the original approach or timing might not be the most effective and would prefer to change course. At the same time, there is lack of stocktaking and impact assessments of R&I activities, which, in the context of weak institutions as mentioned above, hinders learning and the scaling up of innovation.

Another observation that is repeatedly made is that the EU is too much focused on monitoring during the research project – with rigid reporting procedures and due payments to project partners made only if the report has been approved, which can take considerable time - and not enough on capitalising on the results for outcomes and impact. Many interviewees suggest that a larger share of R&I project budgets needs to be reserved - in fact, demanded - for ensuring that results are documented and shared widely, and that the research process is extended to include the verification and documentation of development outcomes and impact.

The FP7 funded UNDESERT research project provides a good example of potential for synergy between DEVCO and RTD funding: FP7 does not provide much room within the project to approach decision-makers systematically, it is mostly left to the own initiative of the research team that decides to participate in relevant meetings and conferences. There is more space for engaging with local stakeholders and forestry workers through ’base stations’ in chosen areas. However, if this project were to be ‘paired’ with a DEVCO development project to support both the local and the national interactions for scaling up of environmentally sustainable practices developed and piloted by the project, the impact of both projects may enhanced considerably.

7 Annexes

7.1 Annex 1: List of people interviewed

EU Delegation

Name	Position	Institution
Favero, Giorgia	Head, Infrastructure	EU Delegation
Impens, Wim	Head, Rural Development	EU Delegation

Government

Name	Position	Institution
Kyelem, Jean W.	DG Research	Ministère des Infrastructures, du Désenclavement et des Transports
Pouya W., Thierry	Director General PER	MARHASA
Taonda, Sibiri Jean-Baptiste	Special advisor to the Minister of Scientific Research and Innovation	Ministère de la Recherche Scientifique et de l'Innovation - SAPEP
Tonde, Patrice	Director General PV	MARHASA

Universities

Name	Position	Institution
Bayen, Philippe	Researcher	Université de Ougadougou
Kadeba, Abel	Researcher	Université de Ougadougou
Kam, Sié	Deputy Director	Université de Ougadougou, SEAMLETRE
Nacoulma, Blandine Marie Ivette	Researcher	Université de Ougadougou
Ouedraogo, Amadée	Researcher	Université de Ougadougou
Thiombiano, Adjima	Professor, Research Leader	Université de Ougadougou, UNDESERT
Soulama, Soungalo	Researcher	Université de Ougadougou
Traore, Salifou	Researcher	Université de Ougadougou

Research organisations

Name	Position	Institution
Blanchard, Mélanie	Researcher	CIRAD
Compaore, Alidou	DGA (Deputy Director General)	INERA
Gnankambary, Zacharia	Researcher	INERA
Minigou, Amos	Researcher	INERA
Neya, Sammuel	Head DES (M&E)	INERA
Ouattara Sonore, Laurencia	Researcher, Head Laboratory	IRSAT/DTA
Sanon, Moussa	Researcher	INERA
Sawadogo, Hamado	Researcher	INERA
Soalla, W. Romain	Researcher	INERA
Some, Léopold	Researcher	INERA
Traore, Hamidou	Director General	INERA
Traore, Karim	Researcher	INERA
Yaocuma, Hamma	Professor, Head of Research Department	2iE - Institut International d'Ingénierie de l'Eau et de l'Environnement
Zida, Elisabeth	Researcher, Head Phytopathology and Weed Laboratory	INERA

Private sector

Name	Position	Institution
Boynini, Boyun	President	UPPC-Tuy
N'Kambi, Nikiébo	Technical director	UPPC-Tuy
Ouedraogo, Saïdou	Administrative director	UPPC-Tuy
Tanni, François	Former president	UPPC-Tuy

Civil society, non-governmental and farmers organisations

Name	Position	Institution
Dao, Bassiaka	President	Confédération Paysanne du Faso
Kabore, B. Roger	President	AMSP/Kaya
Nikiema, Aimée	Head M&E/capitalization/gender	Confédération Paysanne du Faso
Ouedraogo, Ousséni	Chargé de Programme GRN	INADES-formation
Porgom Issoufou	Head of programme (Projet Farnas)	Confédération Paysanne du Faso
Zongo, Isidore	Welthungerhilfe	Welthungerhilfe

7.2 Annex 2: List of documents consulted

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Country Note – Ethiopia

by James Mackie, Essete Abebe Bekele and Matthias Deneckere on field mission from 26-30 October 2015.

Table of Contents

List of Tables

List of Acronyms

ACP	Group of African, Caribbean and Pacific states
AMCOST	African Ministerial Council on Science and Technology
AMESD	African Monitoring of Environment for Sustainable Development
AOSTI	African Observatory of Science, Technology and Innovation
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
AU	African Union
AUC	African Union Commission
AURG	African Union Research Grant
AXIS	African Internet Exchange System
B2B	Business-to-business
CAREN	Central Asian Research and Education Network
CEMAC	Economic and Monetary Community of Central Africa
CGIAR	Consultative Group on International Agricultural Research
CIP	Coffee Improvement Programme
COP 21	21st Conference of the Parties to the UN Framework Convention on Climate Change
CPA	Africa's Science & Technology Consolidated Plan of Action
CSA	Central Statistics Authority
CSE	Country Strategy Evaluation
CSP	Country Strategy Paper
DAAD	Deutscher Akademischer Austauschdienst
DCI	Development Cooperation Instrument
DFATD	Department of Foreign Affairs, Trade and Development of Canada
DG CONNECT	European Commission Directorate General for Communications Networks, Content & Technology
DG DEVCO	European Commission Directorate General for Development & Cooperation/EuropeAid
DG GROWTH	European Commission Directorate General Internal Market, Industry, Entrepreneurship and SMEs
DG RTD	European Commission Directorate General for Research & Innovation
EAMR	External Assistance Management Report
EC	European Commission
ECOWAS	Economic Community of West African States
EDCTP	European & Developing Countries Clinical Trials Partnership
EDF	European Development Fund
EIAR	Ethiopian Institute of Agricultural Research
ENPI	European Neighbourhood Policy Instrument
EnvCC	Environment and Climate Change
EO	Earth Observation
EPRDF	Ethiopian People's Revolutionary Democratic Front
EQ	Evaluation Question
ESA	European Space Agency
ESA-IO	Eastern and Southern Africa and Indian Ocean
ETB	Ethiopian Birr
EU	European Union
EUD	EU Delegation
EUR	Euro
FAO	Food and Agriculture Organisation of the United Nations
FP (6/7)	(6th/7th) Framework Programme for Research and Technological Development
FSP	Food Security Programme
FSNA	Food Security, Nutrition & Agriculture
GCCA-E	Global Climate Change Alliance pilot project in Ethiopia
GDP	Gross Domestic Product
GIS	Geographic Information Systems
GIZ	Gesellschaft für Internationale Zusammenarbeit
GMES	Global Monitoring for Environment and Security
GTP	Growth and Transformation Plan

HABP	Household Asset Building Programme
HLPD	High-Level Policy Dialogue
IFAD	International Fund for Agricultural Development
IGAD	Intergovernmental Authority on Development
IHERD	OECD Project on Higher Education and Research for Development
ILRI	International Livestock Research Centre
IOC	Indian Ocean Commission
IT	Information Technology
JAES	Joint Africa-EU Strategy
JARC	Jimma Agricultural Research Center
JC	Judgement Criteria
JRC	Joint Research Council
KfW	Kreditanstalt für Wiederafbau
LIC	Low-Income Country
MDGs	Millennium Development Goals
MESA	Monitoring for Environment and Security in Africa
MFI	Microfinance Institution
MIC	Middle-Income Country
MoU	Memorandum of Understanding
NEPAD	New Partnership for Africa's Development
NGO	Non-Governmental Organisation
NIP	National Indicative Programme
NIS	National innovation System
NREN	National Research and Education Network
OECD	Organisation for Economic Cooperation and Development
PASDEP	Plan for Accelerated and Sustained Development to End Poverty
PBS	Protection of Basic Services
PhD	Doctor of Philosophy
PIDA	Programme for Infrastructure Development in Africa
PSNP	Productive Safety Net Programme
REC	Regional Economic Community
RICTSP	Regional Information and Communication Technologies Support Programme
RIP	Regional Indicative Programme
RO	Research Organisation
RuSACCO	Rural Savings and Credit Cooperative
R&I	Research & Innovation
SADC	Southern African Development Community
SISS	Science, Information Society and Space
SME	Small and Medium-sized Enterprise
STI	Science, Technology & Innovation
STISA	Science, Technology and Innovation Strategy for Africa
S&T	Science & Technology
TeCAT	Technology Capability Accumulation and Transfer
TEIN	Trans-Eurasia Information Network
TVET	Technical and Vocational Education & Training
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa
UNEP	United Nations Environment Programme
USAID	United States Agency for International Develoment
USD	United States Dollar
WMO	World Meteorological Organisation

Note: The Evaluation uses the common acronym "**EC**" to refer to either the "Commission of the European Union" (post-Lisbon Treaty) or the "European Commission" (pre-Lisbon Treaty), as applicable.

1 Introduction

1.1 Mandate, scope and purpose of the evaluation

As spelt out in the Terms of Reference the general objectives of this evaluation are:

- To provide the relevant external cooperation services of the EU and the wider public with an independent assessment of the support provided to research and innovation for development over the period 2007-2013;
- To identify key lessons and forward-looking recommendations.

The thematic scope of the evaluation encompasses the EU support to Research and Innovation (R&I) in four key sectors: (i) Food Security, Nutrition and Agriculture (FSNA), (ii) Health, (iii) Environment and Climate Change (EnvCC), and (iv) Science, Information Society and Space (SISS) (henceforth "thematic sectors")

The specific objectives of this evaluation are to provide an overall judgement on the extent to which the EU development co-operation policy has adopted a strategic approach to support R&I in the thematic sectors, and whether the approach was appropriate to enhance capacity to reach development objectives in these fields. Moreover, the ToR specify that the conclusions and lessons learned are expected to specifically address areas of particular interest, namely:

- The support provided to capacity building in partner countries;
- The level of the transfer of research results into social or economic processes likely to impact on poverty reduction in the longer term;
- The appropriateness of instruments and modalities made available; and
- The approaches, notably *country* versus *regional* support, or *direct* support to research versus *indirect* support through sectoral programmes that include research components.

The legal scope of the evaluation is delineated by the activities supported by the European Comission's Directorate-General Development and Cooperation/EuropeAid (DEVCO) through its cooperation instruments: the European Development Fund (EDF), the Development Cooperation Instrument (DCI) – both geographic and thematic budget lines – and European Neighbourhood Policy Instrument (ENPI).

While the Directorate-General for Research & Innovation (RTD) implements activities supporting R&I in developing countries, its policies, strategies, programmes and activities are not included in the scope of the evaluation and hence not the object of in-depth analysis here. They are, however, considered from a contextual point of view, and analysed from a complementarity and synergy perspective, together with, for instance, the activities of EU member states, other donors or multilateral organisations.

The temporal scope of the evaluation is the period of 2007-2013 which corresponds to the last EU multi-annual budget period and to that of the 10th EDF. Equally this is the period of RTD's Seventh Framework Programme (FP7).

1.2 Purpose of the note

The ten Country Notes for this evaluation serve to provide a national level view of what DG DEVCO support to R&I entails on the ground. They validate and expand the documentary analysis using the evidence collected during the field mission and the individual responses of EU Delegations (EUDs) to the online survey.

The Country Note is structured as follows. The introduction in Section 1 explains the rationale for the choice of the country. Section 2 outlines the methods use. Section 3 spells out the country context for DEVCO support to R&I and Section 4 provides an overview of the key DEVCO interventions. Section 5 presents the field mission findings for each EQ. These findings are categorised for each sector, per JC and per geographic level (national, regional, global) as far as applicable. Section 6 draws out any overall conclusions about the EU's cooperation on R&I with the country concerned.

The dates of the visit to **Ethiopia** were: **26-30 October 2015.** The mission was conducted by James Mackie (Team leader), Essete Abebe Bekele (National consultant) and Matthias Deneckere (ECDPM).

The team would like to thank the staff of the EU Delegations for Ethiopia and for the African Union for their help availability and assistance as well as the representatives of the Government of Ethiopia, the African Union Commission and the various research organisations, universities and NGOs visited for their openness and willingness to engage.

1.3 Reasons for selecting this country for the Field Phase

A field mission to Ethiopia was considered relevant for two reasons.

On the one hand, it provided an opportunity to visit the African Union Headquarters and conduct interviews for the case study of the 8th Partnership on Science, Information Society and Space of the Joint Africa-EU Strategy (JAES). On the other hand, the mission enabled the evaluation team to collect data on country-specific examples of DEVCO-funded projects and programmes in an East African country, including the Global Climate Change Alliance pilot project in Ethiopia (GCCA-E) and the Coffee Improvement Programme (CIP), which contain research components. Moreover, The Livelihoods project is also seen as an interesting case of an innovative approach. In addition, there were several Ethiopian beneficiaries of grants under the EU;s 7th Framework Programme for Research and Technological Development (FP7), as well as two cases of participation in Erasmus Mundus at doctoral level.

For the African Union (AU) the team looked more specifically and the AU Research Grant (AURG) and MESA (Monitoring for Environment and Security in Africa) programmes.

To explicitly cover these two main purposes of this mission, the chapters of this report include, wherever appropriate, a specific section on the African Union separate from the text on Ethiopia.

1.4 Gaps of evidence addressed in the country

The specific purposes of the Ethiopia field mission were to:

- Collect views on DEVCO-funded projects and programmes in Ethiopia, viz. the CIP, the Livelihoods project and the GCCA-E, both from EUD officials, Ethiopian officials and implementing partners;
- Collect views from both EU and government on EU-Ethiopia cooperation in the field of R&I;
- Find specific instances in which EU-supported R&I projects contributed to policy dialogue by informing government positions;
- Collect examples of and hear views on how R&I support influenced EU development policy objectives in Ethiopia;
- Find examples and hear views related to the transfer of R&I results into development processes;
- Assess experiences from Ethiopian researchers in participating in FP7-funded research;
- Assess the complementarity between DEVCO and RTD-funded research, and the extent to which DEVCO action increased capacity of national institutions to participate in FP7;
- Identify the extent to which DEVCO-supported actions under the JAES 8th partnership (especially the AU Research Grants) were useful in terms of R&I and increased capacity of research institutions in Africa to participate in FP7;
- Assess how R&I support influenced EU development policy in Africa at the continental level;
- Hear local views and collect examples of impact;
- Hear EUD and local views on EU capacities.

2 Data collection methods (including limits and constraints)

The field visit to Addis Ababa, Ethiopia was planned to contact relevant organisations working at the country and continental levels took place from 26 October to 30 October 2015. A briefing was held with the EU Delegation to Ethiopia on 26 October and two debriefings with EUD Ethiopia and EUD AU on 30 October. The team planned to contact and conduct face-to-face interviews with representatives of a number of organisations and individual working both at the country and African Union levels.

During the week, 20 organisations were contacted and the team managed to conduct some 25 interviews with representatives from 15 of these. The plan to hold a focus-group discussion with FP7 project managers did not materialise due to poor responses and the fact that some of the identified contacts were based out of Addis Ababa. Instead a number of these persons were interviewed by phone or through email exchanges.

The evaluation team was able to gather the views of various Ethiopian government ministries, EU officials, international donors and other developmental partners operating in the country. The team interviewed contacts at the African Union Commission (AUC). In addition, the team was invited to the CAAST-Net Plus workshop with country focal points for the the EU's Horizon 2020 and the AU's Science and Technology department, with which the team's visit coincided. This and further one-on-one interactions with relevant participants of an AU Science & Technology (S&T) ministerial conference

gave the evaluation team the chance to have a closer look at the EU's support to R&I at the AUC level. For the EU, the evaluation team met representatives from the EUDs to Ethiopia and to the AU. The meeting with the two delegations helped corroborate some of the information gathered through desk research. Moreover, the evaluation team was able to gather additional Ethiopia and AU-specific information and documents from the delegations that were not easily accessible from EU headquarters. The EUD representatives also helped in contacting and identifying additional contacts for the data collection process.

The following challenges were faced during the field evaluation visit:

- Difficulty in getting hold of and arranging meetings with identified contacts, as responses to requests for interviews were slow and the team had to very flexible with its schedule. The support of the two EU delegations in fixing certain interviews was very helpful.
- The plan to hold a focus-group with FP7 grant holders failed. However, individual exchanges were held with several via phone calls, email and a face-to-face interview;
- Difficulty in getting EU member-state interviewees. The team sought to meet with Swedish, Italian and the Dutch representatives, but only the Dutch were forthcoming.
- As the evaluation team had only a week's time for the field visit, it was difficult to cover contacts residing outside Addis Ababa. This was particularly the case for university and research centre professors, as well as end beneficiaries;
- Erasmus Mundus PhD grantees and Intra-ACP grantees were not covered during the field visit

3 Country context

3.1 Overall description of country political, legal, and development context in relation to Research and Innovation (context in which the EU intervenes)

Ethiopia's economy has shown strong and broad based growth over the past decade, averaging 10.8% per year in 2003/04 - 2013/14 compared to the regional average of 4.8%.[16] The country has also made remarkable achievements in meeting many Millennium Development Goals (MDGs).[17] However, the drought it is currently experiencing is expected to affect the economic growth as it decrease the output from the agricultural sector which covers half of the economy.

Ethiopia followed a Plan for Accelerated and Sustained Development to End Poverty (PASDEP) from 2005-2010. One of the main pillars of this plan was the Food Security Program (FSP)[18]. From 2010 on two new programmes were developed the Productive Safety Net Program (PSNP) and the Household Asset Building Program (HABP)[19]. PSNP and HABP adopted a new approach to address chronic food security through transfers to chronically food insecure populations. PSNP enables such households to earn income through labour-intensive public works or by providing direct support to labour-poor households. HABP attempts to build up sustainable household assets by identifying appropriate technology packages and resources. The program has run as a multi donor program beyond the PASDEP period.[20] It is currently in its fourth phase (2014-2020)[21].

Central to the country's developmental approach is the Growth and Transformation Plan (GTP) devised by the government to propel the country towards a climate resilient middle income status by placing special emphasis on agriculture and rural development, industry, infrastructure, social and human development, as well as democratization and good governance.[22] The first and second cycles of the GTP run from 2010 to 2015 and from 2015 to 2020, respectively. Part of the plan is to increase the number of public universities by ten, in addition to the 30 that have already been established in the last decade.

[16] The World Bank. Ethiopia Country Overview. http://www.worldbank.org/en/country/ethiopia/overview
[17] ibid.
[18] Federal Democratic Republic of Ethiopia, September 2006, Building on Progress. A Plan for Accelerated and Sustained Development to End Poverty (PASDEP) (2005/06-2009/10).Volume I, Ministry of Finance and Economic Development (MoFED), Addis Ababa, Page 46.
[19] Ibid, Page 6
[20] African Development Bank Group. April 2011, Federal Democratic Republic of Ethiopia Country Strategy Paper 2011-2015. Page 32.
[21] http://www.worldbank.org/projects/P146883?lang=en.
[22] Federal Democratic Republic of Ethiopia, September 2010, Growth and Transformation Plan (Volume I: 2010/11 - 2014/15) (draft), Ministry of Finance and Economic Development.
http://www.iea.org/media/pams/ethiopia/Ethiopia_GTP_2010to2915.pdf.

3.1.1 R&I situation in the country

Ethiopia has issued two Science and Technology Policies since 2007. The first issued in 2007, was the National, Science, Technology and Innovation policy (STI), which was a revised version of the 1993 National Science and Technology Policy.[23] This policy, among other things, proposed the annual allocation of at least 1.5% of the country's Gross Domestic Product (GDP) to different STI activities in all sectors.[24]

The second STI policy was issued in 2012. The provisions of this policy direct all research and innovation activities in Ethiopia. It identifies the main research need of the country to be the resolution of major social and economic problems; achievement of national development objectives and meeting technology demand.

Universities, research institutes and Technical and Vocational Education & Training (TVET) institutions are recognized as the main actors in R&I. There are more than 30 universities in Ethiopia under the Ministry of Education. These are engaged in research and innovation activities in varying degrees alongside their teaching and learning activities. Some research is initiated and supported locally while a majority of research is done in collaboration with universities in other countries often in combination with masters and PhD studies.

Agriculture is among the most important sectors for research in the country and there are various research institutes specifically working in these two areas. These research institutes often link with external donors to fund their research activities. The TVET institutions focus on learning, adopting and utilizing foreign technology.

One of the most crucial problems for R&I in Ethiopia is the weak linkage between universities/research institutes and industry, which greatly hinders research outputs from making a meaningful impact on the country's development, thus Belete (2014) concludes "the inadequate supply of industrially applicable university knowledge and the weak alliance between university and industry actors were both noted as factors limiting the transfer of innovation to industrial enterprises."[25] The STI policy argues that the linkages should focus on improving the productivity of manufacturing and service providing enterprises. The other major challenge identified is brain drain due in part to the low salaries paid by the government. There are many qualified Ethiopians doing research in their field of specializations. However, most of them live abroad, as one interviewee pointed out during the mission.

3.1.2 R&I national policies, legal framework

Ethiopia

Ethiopia's 2012 STI policy gives general directions and major implementation strategies. The stated aim of the policy is: '[t]o see Ethiopia entrench the capabilities which enable rapid learning, adaptation and utilization of effective foreign technologies by the year 2022/23'[26]

The policy identifies technology transfer, human resource development, manufacturing and service providing enterprises, research, financing and incentive schemes, national quality infrastructure development, universities, research institutes, TVET institutions and industries linkage, intellectual property system, science and technology information, environmental development and protection, and international cooperation as the most critical issues.

The major objectives of the policy are to:

1. Establish and implement a coordinated and integrated general governance framework for building STI capacity;
2. Establish and implement an appropriate national Technology Capability Accumulation and Transfer (TeCAT) system;
3. Promote research that is geared towards technology learning and adaptation;
4. Develop, promote and commercialize useful indigenous knowledge and technologies;
5. Define the national science and technology landscape and strengthen linkages among the different actors in the national innovation system.

[23] UNESCO & African Union, 1 April 2009, S&T policy structure of Ethiopia. Kenya, Mombassa. http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/SC/pdf/sc_workshop_mombasa_lemecha_en.pdf

[24] Ethiopian Science and Technology Agency. National, Science, Technology and Innovation (STI) policy of Ethiopia. 2007, Addis Ababa (Page 4).

[25] Belete, Wondewossen, 2014, Towards University–Industry Innovation Linkages in Ethiopia, Innovation & Intellectual Property Collaborative Dynamics in Africa, 327

[26] The Federal Democratic Republic of Ethiopia. February 2012. Science, Technology and Innovation Policy, Addis Ababa, p.3.

6. Ensure implementation of STI activities in coordination with other economic and social development programs and plans;

Create a conducive environment to strengthen the role of the private sector in technology transfer activities sustainably.

The policy also focuses on encouraging cooperation with developed and developing countries as well as with various international and regional organisations with the objective of building national technological capabilities. The policy puts forward three strategies to achieve this. These are:

1. Ensure incorporation of STI capacity building elements in bilateral and multilateral agreements;
2. Strengthen exchange of professionals and scientists through South-South and North-South cooperation initiatives;
3. Initiate joint research programs with international partners, within Ethiopia, that have direct contribution to the national development agenda.

African Union

Africa's Science and Technology Consolidated Plan of Action (CPA) was adopted by African leaders in 2003. It consolidates S&T programmes of the AUC and the New Partnership for Africa's Development (NEPAD) in a single framework. Its overall goals are to enable Africa to harness and apply science, technology and related innovations in order to eradicate poverty and achieve sustainable development; and to ensure that Africa contributes to the global pool of scientific knowledge and technological innovations. It covers three areas: research and development; improving policy conditions and building innovation mechanisms; and implementation, governance and funding.[27]

Responding to an evaluation of the CPA, AU Heads of State and Government adopted the Science, Technology and Innovation Strategy for Africa – 2024 (STISA-2024)[28] in July 2014. The STISA-2024's mission is to "*accelerate Africa's transition to an innovation-led, Knowledge-based Economy*". It addresses six socio-economic priority areas, viz. eradication of hunger and ensuring food & nutrition security; disease prevention and control and ensuring well-being; communication; protection of our space; living together and building the community; and wealth creation. These priorities were chosen to cut across the AU's sectoral strategic frameworks and provide opportunities for synergies in accelerating Africa's transition to an innovation-led, knowledge-based economy within the overall framework of the AU's Agenda 2063. Agenda 2063 recognises STI as multi-functional tools and enablers for achieving continental development goals. The Agenda further emphasises that Africa's sustained growth, competitiveness and economic transformation requires sustained investment in new technologies and continuous innovation in areas such as agriculture, clean energy, education and health. It underscores the role of STI as a multi-functional tool for Africa's development, and thereby especially emphasises the need to strengthen STI infrastructure; enhance technical and professional competencies; promote entrepreneurship and innovation; and build an enabling environment for STI. It calls upon AU Member States and the Regional Economic Communities (RECs) to align their policies and initiatives to the STISA-2024 as a reference framework. It also calls for a political will and financial commitment from Member States that goes beyond the Khartoum Declaration of 1% GDP spending on research and development.

3.1.3 R&I institutional framework

Ethiopia

The Ethiopian STI policy identifies the primary focus in the implementation of the policy to be the establishment of a clear and effective STI governance structure. The National Science, Technology and Innovation Council (STI Council), established in June 2012 and now headed by the Deputy Prime Minister, is in charge of overseeing the implementation of the policy, for which the respective ministries are responsible. Membership of the council comprises government officials (including the ministries of Industry, Education, Agriculture, Environment and Forest and Communication and IT), scientists and prominent individuals from the private sector. The STI Council is currently evaluating, selecting and accepting research proposals to provide financial backing. In addition, it is setting up the National Research and Development Council which will streamline and fund strategic research works in universities and institutions. The focus of the National Research and Development Council will be exclusively on research and development work. It will identify research priority areas and thematic programmes in

[27] NEPAD. Advancing science and technology in Africa. http://www.nepad.org/humancapitaldevelopment/news/1581/advancing-science-and-technology-africa.
[28] Science, Technology and Innovation Strategy for Africa 2024. African Union Commission. Addis Ababa. http://hrst.au.int/en/sites/default/files/STISA-Published%20Book.pdf

accordance with the country's developmental needs, formulate research plans and evaluate research proposals to provide funds to strategic research works.[29]

The Ministry of Science and Technology grants the National Science, Technology and Innovation award to individuals on a competitive basis on different grounds, including research and innovation achievement. The Ministry also has two Science and Technology universities under it, which are not administered by the Ministry of Education. Students who join these universities go through a different curriculum from other universities in the country, that is designed to produce engineers that will support the industrial sector in the coming years.

African Union

Within the AU, it is the Department for Human Resources, Science & Technology, headed by the Commissioner for Human Resources, Science & Technology, that is responsible for AU policymaking in the field of R&I. It administers, inter alia, the AU Research Grants. In addition, other sectoral departments are involved when it comes to R&I activities in their respective sectors.

In 2003, the African Ministerial Council on Science and Technology (AMCOST) was established under the auspices of NEPAD and the AU. It is a specialised Technical Committee of the AU, composed of the Ministers in charge of S&T and their Senior Technical officials or experts. Ordinary meetings are held twice a year. AMCOST offers a high-level platform for developing policies and defining the priorities on science, technology and innovation for African development. AMCOST is tasked with leading the implementation of Africa's Science and Technology Consolidated Plan of Action (CPA).[30]

3.2 Description of EU strategic priorities for the country, especially in the areas of R&I and key thematic sectors

Ethiopia

How does EU support or promote R&I in the country?

There is no reference to EU support to R&I in the Country Strategy Paper (CSP)/National Indicative Programme (NIP) 2008-2013. However, it does identify possible support to capacity building programmes linked to natural resources management and health care.[31] The NIP 2014-2020 says that "Research and extension components will be integrated, where appropriate" regarding the strategy for the focal sector of agriculture and food security.[32] There have been only two Erasmus Mundus scholarships at PhD level (both academic staff, no doctorate or post-doc) granted to Ethiopian nationals, and 25 intra-ACP scholarships (all at doctoral level). Fourteen EduLink I and II projects involving Ethiopia have been funded, the majority FSNA-related.

Focal sectors and non-focal sectors (and mobility), period, overall funding amounts

The CSP/NIP (2008-2013) identifies three focal sectors: (i) transport and regional integration; (ii) rural development and food security, and; (iii) macroeconomic support and governance; as well as a non-focal sector with support for restoration and conservation of Ethiopia's cultural, biological and environmental heritage. The total amount of EU support (envelope A) is EUR 644 million.

Support to rural development and food security amounts to EUR 130 million (20%), with the main focus on support to the PSNP (EUR 100 million) addressing vulnerability and risk. Support to agricultural markets and livestock development (EUR 20 million) and management of natural resources (EUR 10 million) make up for the rest of the budget for this focal sector.

The most recent Country Strategy Evaluation (CSE) evaluates the previous 9th EDF (2004-2008). It does not refer to support to R&I, but does mention that Ethiopia participated in ten FP6 projects. Health and Education in the 9th EDF were supported in the framework of the Protection of Basic Services (PBS) Framework, and Food Security was supported through the PSNP. A shift from budget support to support through these programmes was necessary due to the events following the 2005 elections, when the EU decided to suspend its General Budget Support. However, alignment and co-

[29] WaltaInfo, 13 September 2015, National council for research to be established, http://www.waltainfo.com/index.php?option=com_content&view=article&id=10333:national-council-for-research-to-be-established&catid=52:national-news&Itemid=291.

[30] NEPAD. Advancing science and technology in Africa. http://www.nepad.org/humancapitaldevelopment/news/1581/advancing-science-and-technology-africa.

[31] Ethiopia - European Community, 9 December 2007, Country Strategy Paper and National Indicative Programme for the period 2008-2013. https://ec.europa.eu/europeaid/sites/devco/files/csp-nip-ethiopia-2008-2013_en.pdf

[32] Ethiopia- European Community, 9 December 2007, Country Strategy Paper and National Indicative Programme for the period 2008-2013, p. 13. https://ec.europa.eu/europeaid/sites/devco/files/csp-nip-ethiopia-2008-2013_en.pdf

ordination with government for both these programmes were very good. Support through the PBS was found to have improved the predictability of aid, making it less vulnerable to political volatility.

The External Assistance Management Report (EAMR) 2010 does not mention support to R&I. The EAMR 2013 (p. 12) notes that the Delegation is not well informed and consulted on certain regional or continental research related projects with an Ethiopian component. On the other hand it notes that the EUD has initiated collaboration on applied research with Consultative Group on International Agricultural Research (CGIAR) centres such as IWMI.

Food Security, Nutrition and Agriculture

Food Security and sustainable agriculture have been at the forefront of the EU country strategy for Ethiopia. The EU strategy shifted from a food security policy consisting mainly of responding to chronic hunger through emergency food aid towards the establishment of a productive safety net system, which represented a major change in the approach. Research and extension components are said to be integrated in the strategy that will be 'inspired by an agro-ecological approach'.

The CSP 2008-2013 stresses the importance of improving the information systems to strengthen the agricultural database. A contract was signed with the Food and Agriculture Organisation (FAO) in 2006 to carry out the Food Security Information System project for an amount of EUR 2 million. The EU also planned to partner with the Central Statistic Authority and the Disaster Prevention and Preparedness Agency on information systems for food security.

The food security-related R&I activities supported by the EU contribute to the EU development objectives, especially the MDGs on poverty reduction and food security.

Environment and Climate Change

Environment and Climate Change are supported through the focal sector of rural development and food security. The CSP 2008-2013 expects *management of natural resources, including restoration and preservation of degrading environmental conditions in rural Ethiopia* to contribute to rural development and food security. Environmental sustainability is also a cross-cutting theme and one of the areas where the European Community seeks to improve policy coherence. There is no mention of R&I related specifically to Environment and Climate change.

Science, Information Society and Space

The Science, Information Society and Space (SISS) sector mainly received support throught the *Regional Information and Communication Technologies Support Programme* (RICTSP), which aimed to strengthen the region's integration through more effective and efficient ICT reducing the cost of doing business, creating new economic opportunities and improving more generally the prospects for economic growth and reducing poverty. It was a programme with a regional scope. The RICTSP is consistent with the EU Regional Strategy Paper 2002-2007, running from 2004 to 2008. It aimed to increase economic growth and reduce poverty through higher levels of economic integration with a focus on trade.[33]

African Union: Joint Africa-EU Strategy

The Joint Africa-EU Strategy (JAES) was adopted by the EU and Africa's leaders at the Lisbon Summit in 2007. The JAES is a platform for both dialogue and collaboration between the EU and the African Union. Under the Strategy, a number of partnerships were agreed, of which 'Science, Information Society and Space' is the 8th Partnership.

How does the JAES support or promote R&I?

The objective of the partnership on Science Information Society and Space is to promote the development of knowledge-based societies in Africa. Development of STI are recognised as essential engines of socio-economic growth and sustainable development. Not only does meeting the MDGs require scientific and technological capacities, but knowledge and innovative ways of applying modern technology are crucial for competitiveness in the global economy. The Partnership thus aims to bridge the digital and scientific divide by harmonising policy and regulatory frameworks, upgrading capacity and strengthen collaborative links between African regional and sub-regional as well as European partners.

[33] Miller, J., Hesselmark, O., James, T., 13 June 2011, *Final Evaluation of Regional Information and Communication Technologies Support Programme. Final Report*, European Commission. (The evaluation was commissioned by the EC and covers the entire regional programme for the whole period. The evaluation was carried out two years after the end of the programme and was limited by the lack of availability of good data on outcomes).

The JAES strategy is accompanied by Action Plans. The First Action Plan (2008-2010) noted three priority actions under Partnership 8:

- Support S&T Capacity Building in Africa and Implement Africa's Science and Technology CPA (Science Pillar)
- Support the development of an inclusive Information Society in Africa (Information Society Pillar)
- Enhance Cooperation on Space Applications and Technology (Space Pillar).

These three priority pillars of the Partnership 8 remained in the Second Action Plan (2011-2013).

The JAES is also linked to the dialogue framework of Africa-EU relations with periodic Joint Summits, Commission-to-Commission dialogues and various other meetings. As part of this the two Unions held a 1st High-Level Policy Dialogue (HLPD) on STI in October 2011 and a 2nd HLPD on STI in November 2013 where the continental R&I programmes of both Unions were discussed and priorities for the next period were set.

HTSPE produced a Report on "Mapping Best Practice**"** in the JAES 8th Partnership in November 2013 at the time of the HLPD. The study talks about the prolific history and a "rich, multi-dimensional web of collaborations" between Europe and Africa on STI but without any overall coordination. The study covered 150 projects in its inventory for the period 2008-2012 covering a very broad spectrum but with an overall focus on Africa's development agenda. It highlights a number of issues on the 8th Partnership which could be further assessed during the field mission. In particular it identified the absence of an established joint funding mechanism as one of the most prominent gaps and barriers to effective collaboration.

Links with Commission R&I strategy and other R&I support programmes (including RTD)

The JAES and its partnerships involve not only the institutions (European Commission, African Union Commission) but is also a partnership between all Member States. The JAES Partnership 8 thus encompasses components that are funded by different sources going beyond the support of DG DEVCO, which is subject to the R&I Evaluation.

The GMES support under the Space Pillar has synergies with the African Monitoring of Environment for Sustainable Development (AMESD)[34] – EUR 21 million (9th EDF) - which was then followed by MESA[35] (10th EDF). Both are funded from the EDF Intra-ACP envelope and in part via the EDF RIPs.

Some projects for the 8th Partnership are also funded by DG RTD under the FP7 Call for Africa.

FP7 EU-Africa Related Projects[36] have involved about 800 African participations receiving about EUR 150 million**.** The FP7 Africa Call 2010 (EUR 67 million) focused on Food, Agriculture, Fisheries and Biotechnologies. DG RTD funding to the European and Developing Countries Clinical Trials Platform (EDCTP) also benefits Africa.

Features: scale, funding source, geographical coverage, time period

From EU institutions, no new instruments were developed, but existing ones were streamlined to provide funding under projects of the partnership. The bulk of the funding has come from the EDF Intra-ACP envelope. Projects funded under the JAES 8th Partnership involve about EUR 37 million in funding.

In order to implement the first Action Plan of the 8th JAES Partnership, the African Union Commission and the European Commission compiled a book of Lighthouse Projects in 2008, which contained 19 projects. These were in line with Africa's priorities Implementation Roadmap of the CPA. These projects were open for in-kind/ financial contributions from all sources. Six of the projects in the Lighthouse Projects book were chosen as "Early Deliverables" (two for each of the pillar) to be funded by the EU Commission and implemented together with the African Union.

In October 2008, six of the projects in the Lighthouse Projects book were chosen as "Early Deliverables" (two for each of the pillar) to be funded by the EU Commission from the EDF Intra-ACP envelope and implemented together with the African Union. A seventh was to be funded under FP7 Africa Call from DG RTD funds.

Science Pillar - Early Deliverables:

- Water and Food Security in Africa – Financed under the RTD FP7 Africa Call

[34] http://eeas.europa.eu/delegations/african_union/eu_african_union/development_cooperation/index_en.htm
[35] See separate Regional Programme Profile on MESA for this Evaluation.
[36] Magalhaes, Luis (European Co-Chair of JEG), May 2012, presentation to JAES 8th Partnership, JEG Meeting.

- African Research Grants – Financed with EUR 14.7 million from 10th EDF Intra-ACP Indicative Programme and staff to manage the grant were funded by the 9th EDF AUC Capacity Building Programme. These were handled through two calls for proposals: The 1st Call awarded nine projects in March 2012 and the 2nd Call for Proposals awarded grants in December 2012.
- Popularisation of Science and Technology (Nkrumah Scientific Awards for Woman Scientist/ Young Scientist and Continental African Scientist Awards) – funded from the 9th EDF AUC Capacity Building Programme

Information Society Pillar – Early Deliverables:

- Africa Connect – EUR 11.8 million under the ACP Connect Programme from the10th EDF Intra-ACP Facility
- African Internet Exchange System (AXIS) – grant of EUR 5.1 million awarded in 2010 through the EU-Africa Infrastructures Trust-fund (co-financed with Luxembourg).

Space Pillar – Early Deliverables:

- African Global Monitoring for Environment and Security (GMES and Africa) – approx. EUR 20 million assigned under the 10th EDF Intra-ACP Facility (Environment component)

4 Overview of EU-funded key interventions

Table 2 Overview of DEVCO-funded key interventions in Ethiopia

#	Sector	Contract title	CRIS number	Contractor	Year	Total amount contracted (in EUR)
1	FSNA	EIDWIAN-BIAS LTD. - SUPPLY OF COFFEE BY PRODUCTS RESEARCHGLASS WARE	c-186953	EIDAWN BIAS LIMITED	2006	44,190
2	SISS	Audit of Regional Information & Communications Technologies Support Programme-Programme Estimate 2006 IGAD, Conflict Prevention Mngt and Resolution-Start Up Prog. Estimate IGAD, Reg. Food Security and Risk Mgmt Prog. for Eastern & Sothern Africa	c-217022	PEAT MARWICK MITCHELL PARTNERSHIP	2009	24,000
3	FSNA	Supply of laboratory material and equipment - Lot 2: Equipment for biotechnology laboratory	c-220254	PRORAS SRL	2009	213,465
4	FSNA	EC Project to improve the livelihoods for most vulnerable households in Southern Ethiopia	c-282576	WORLD VISION DEUTSCHLAND EV	2011	1,876,556
5	EnvCC	GCCA-Ethiopia	c-281266	DEUTSCHE GESELLSCHAFT FUR INTERNATIONALE ZUSAMMENARBEIT (GIZ) GMBH	2011	8,500,000
6	FSNA	Coffee Improvement Programme IV	D-15643	Contracts #1 & #3 above	2006+ 2009	15,000,000
7	SISS	ACP Research for Sustainable Development – AU Research Grants	D-21575	AU Commission	2010	20,000,000
8	SISS	ACP Connect for Research and Education Networks	D-21576	AU Commission	2010	13,000,000
9	SISS	Regional Information and Communication Technologies Support Programme	D-16573	Multiple contracts	2006-2011	17,705,000
10	SISS	Monitoring for Environment and Security in Africa (MESA)	D-022553	AU Commission	2013-2017	37,000000

The EU also funds a number of international organisations and research centres, such as those in the global CGIAR system, with bases in Ethiopia.

ILRI (the International Livestock Research Centre) is a good example with one of its main African centres based in Addis. International Livestock Research Institute (ILRI) receives EU funding through multiple channels including through CGIAR, through regional bodies such as the RECs, or international bodies such as IFAD (International Fund for Agricultural Development), through Non-governmental organisations (NGOs) and multi-country donor projects and through FP7 funded research consortia. At the time of the visit the ILRI office in Addis had in their active portfolio some 17 different on-going projects with EU funding in Ethiopia with an estimated total EU input of EUR 8-9 million funds from DEVCO and a further EUR 1 million in FP7 projects from DG RTD.

FSNA sector

Programme #4: EC Project to improve the livelihoods for most vulnerable households in Southern Ethiopia (c-282576)

Description:

The EC project to improve the livelihoods for most vulnerable households in Southern Ethiopia project ('the Livelihoods project') aimed to contribute to a sustainable stabilisation of assets and accumulation of households in six selected Woredas by increasing and strengthening technical and financial services through Microfinance Institutions (MFIs) for poor and food-insecure as well as safe households, while also empowering households to adequately access those services. It was funded by a grant of EUR 2 million, which was used for capacity building, facilitation, and enabling access to financial services. Knowledge management and market research, value chains assessments, needs assessments etc. also constituted important components of the project. The project aimed to build capacity of the Household Assets Building Programme (HABP) of the Ethiopian government, while also being flexible and innovative in its implementation.

Rationale:

The project built on the PSNP and the HABP, which have allowed Ethiopia to handle the 2011 drought in the Horn of Africa. The EU decided to open up a call for proposals for innovative approaches to support the HABP to ensure that households are not only food-secure, but also economically self-sustaining. It was detected that chronically food-insecure households did not benefit from financial services from MFIs, which lacked resources that were tailored to the needs of the poorest households. As the overall objective of the HABP was to make households graduate from the safety net programme, there was a need to reach safe households as well. It therefore aimed to provide a bridge between the MFIs (as formal financial service providers) and the RuSACCOs (Rural Savings and Credit Cooperatives - farmer associations that act as semi-formal financial service providers) ensuring both access to finances and contact to households and leading RuSACCOs to become a stepping stone for rural poor to access MFIs.

Findings:

The Livelihoods project is a good example of a grassroots-level project. It is acknowledged by the government as a successful pilot in six woredas (districts), where it has been able to increase the number of households implementing livelihoods with improved business plans, increase households awareness on and demand of saving and credit from RusACCOs and Micro-Finance Institutes (MFIs), and increase the number of RuSACCOs. Interviews suggested mentioned that the project has managed to increase households' savings capacity for own purposes and built their business capacity, thus also contributing to poverty reduction and food security objectives, in a way that was strongly aligned with existing government initiatives. Key strengths of the project were its close linkage to existing government social protection programmes. Although there was some limited on-going applied and market research in the project the main real innovation in the project was in getting Microfinance Institutions and RuSACCOs, to work together rather than in competition, as this then made best use of the characteristics of each one: the finance of the MFIs and the membership network of the RuSACCOs in the extension and management of small scale household credit. Both the MFIs and RuSACCOs have indicated that they will continue this approach also after the project ended. As the government has expressed its interest in its uptake and upscaling to many more districts, prospects on sustainability of the innovative approach introduced by the project are promising. An operational manual has also been developed that is now used beyond the project.

Programme #6: Coffee Improvement Programme IV (D-15643 + c-186953 & c-220254)

Description:

The Coffee Improvement Programme (CIP) started under the 7th EDF, and reached its fourth phase under the 10th EDF (CIP IV). CIP IV aimed to improve the standard of living of small coffee growers by raising their incomes through improving the quality of coffee and increasing coffee yields. The improvement of coffee quality and yields was planned through:

a. Rehabilitation and reconstruction of research and training infrastructure;
b. Acquisition of hardware for research and training facilities;
c. Technical assistance for project management as coordination.

Coffee research and technology transfer constituted a very important component of the project.

A Programme Management Unit was responsible for day-to-day management of CIP IV. This PMU was housed in the Development Project Coordinating Department of the Coffee and Tea Authority. The types or approach of the research was not specified in the financing agreement, only that it is consistent with technical approaches "tried in other countries, appropriate and known elsewhere in the world" (Financing Agreement 2004, p. 6). In the annex, a short paragraph is dedicated to research, mainly prioritising the landrace development programme, suggesting re-editing funds to the Biodiversity Institute for the collection of genetic resources and de-prioritising work on coffee by-product utilisation and collation and statistical assessment of past field results (Annex A to D, p.3). The research components were implemented by the National Coffee Improvement Research Programme at Jimma Agricultural Research Center (JARC) of the Ethiopian Institute of Agricultural Research (EIAR) and other local research stations that carry out coffee improvement research.

Rationale:

According to data from the Central Statistical Agency[37], there are more than 3.22 million smallholder farmers that are involved in coffee production in Ethiopia. An additional 15-20 million people are dependent on the industry. Moreover, in 2013/14, coffee exports generated foreign exchange earnings of about USD 719 million for Ethiopia. As such, the coffee sector forms the highest source of employment and foreign reserves for the country. At the same time, the 'Coffee Sector Development Strategy for Ethiopia final report'[38] notes that the sector faces some hurdles, including a frequent restructuring of institutions responsible for the coffee sector; absence of appropriate institutional arrangements; low productivity; insufficient or lack of appropriate improved technologies; a weak extension system and weak research and extension linkages; and marketing constraints. Coffee farmers are also frequent victims of fluctuations in international market prices of coffee. As the same report notes that there is not much room left for acreage expansion or increases in population numbers in the traditional coffee-growing Woredas of Ethiopia, increasing productivity and added value are key. This underlines the importance of technology transfer packages to farmers as well as extension. The programme started in the period of the coffee berry disease, and focused on developing improved varieties. The rationale was that through research and technology transfer, resistance and productivity would improve, thereby contributing to food and livelihood security in Ethiopia.

Findings:

Coffee is the main export product of Ethiopia, and the EU has a long track record of support to the Coffee Sector. It is the only donor at scale, and (as confirmed by several Ethiopian officials during interviews) is well known for its support to the sector, including in rural communities. The continuity of the EU's commitment and its tailored approach are highly appreciated by stakeholders. Support through the CIP led to the development of eleven new varieties with increased resistance, which according to various officials contributed greatly to the productivity of the sector over the whole period of CIP, thereby contributing to poverty reduction and food security objectives. The varieties created through the programme are widely known and used among farmers (to the extent that are commonly referred to as 'CIP coffee'). The integrated approach, combining applied research on the one hand and extension activities and training courses offered at the JARC on the other, was also widely acknowledged as a major strength of the programme, as it enhanced its impact.

Overall, R&I and extension are two of the four main components of the CIP, and will continue to be important in the follow-up programme currently being developed. Applied research is a continuous process in CIP, as coffee needs to follow market demand and changing conditions. One interviewee stated that technology needs to get more attention under the CIP, with a special emphasis on the seed aspects and growing techniques that are able to deal with dwindling forests, which makes forest-grown coffee more difficult. Developing hybrid coffee varieties should also be considered. More support to infrastructure, research capacities and laboratory equipment is also required

CIP IV ended in 2010, after which there was a break for five years as the EU felt institutional changes to the coffee sector hampered progress. Most interviewees referred to the inability of the JARC to fully

[37] Central Statistical Authority 2013, cited in Herhaus, G., Tigneh, A. & Teketay, D., December 2014, Coffee Sector Development Strategy for Ethiopia. Final Report. Contract N° 2013/304567. AGRER Consortium & Delegation of the European Union to Ethiopia.
[38] Herhaus, G., Tigneh, A. & Teketay, D., December 2014, Coffee Sector Development Strategy for Ethiopia. Final Report. Contract N° 2013/304567. AGRER Consortium & Delegation of the European Union to Ethiopia.

utilise the budget allocated to enhance infrastructure because of internal procedures and institutional hurdles at the Ministry of Agriculture, who managed the budget centrally. The dismantling of the Ethiopian Tea & Coffee Authority significantly reduced Ethiopia's absorption capacity of EU support. As a result, 50% of the total EUR 15 million budget was sent back to the EU. According to a person interviewed, it would have been better if the EU allocated budgets to different organisations focusing on the coffee sector, rather than having it centrally managed by the government.

However, following high level exchanges the EU is now taking a renewed interest in supporting the sector under the 11th EDF and this is widely welcomed among stakeholders. The establishment of a new Tea and Coffee Authority under the Ministry of Agriculture, which would create a new body that would serve as focal point for programme implementation within the Ministry, responds to one of the key concerns and preconditions of the EU to restart support. Moreover, the EU has also provided support to the development of national coffee sector development strategy through a framework contract, another precondition set by the EU.

In conclusion a consistent story emerged from the interviews. It was apparent that the CIP was vital to the Ethiopian economy as coffee was such an important crop, the EU funding enabled a continuous process of research into new seed varieties, upgrading of husbandry technologies appropriate for different planting conditions around the country and introduction of new seeds to farmers through the government extension services. The CIP falls into the agriculture support focus of the CSP rather than any explicit commitment to R&I. However, applied R&I and transfer of results to coffee farmers are very much part of the CIP's success.

EnvCC sector

Programme #5: Global Climate Change Alliance – Ethiopia (GCCA-E)

Description:

The Global Climate Change Alliance in Ethiopia, or GCCA-E, is a tripartite project funded by the EU and managed the Ethiopian Ministry of Agriculture and GIZ. It is part of the GCCA, a global EU-funded programme in around 50 countries. The objective of GCCA-E is to pilot and test climate change-relevant agriculture interventions as well as their lock-in and delivery mechanisms.

Rationale:

The programme builds on existing flagship programmes of the Ethiopian Ministry of Agriculture, viz, the PSNP (for food insecure Woredas), the Sustainable Land Management Programme (for at risk Woredas), and the Agricultural Growth Programme (for high potential Woredas). Donors include the World Bank, KfW (Kreditanstalt für Wiederaufbau), DFATD (Department of Foreign Affairs, Trade and Development of Canada), and GIZ (Gezellschaft für Internationale Zusammenarbeit) (as implementing agency). The implementation covers three stages: i) community mobilising and planning, ii) soil and water conservation and rehabilitation, and iii) income-generating activities. The GCCA-E comes in during the last phase by introducing climate-smart income-generating activities in 34 woredas. According to FAO, climate-smart agriculture covers adaptation, mitigation and livelihoods. GCCA-E, however, primarily looks at the adaptation part.

Findings:

Overall, the GCCA-E is seen as a successful pilot that has managed to introduce innovations. At the same time, the impact of the project was constrained due to a limited follow-up. According to a representative of the implementing agency, testing proved to be difficult during implementation, including due to a lack of performance data, e.g. on harvest or survival rates of distributed seedlings. Data were generally limited to input data. The lack of performance follow-up shows a trade-off between development and research objectives: follow-up was weak because, from a development perspective, it was considered more important to shift priority to other farmers. Another weakness, according to the representative of the implementing agency, is that there has been no effort to pull all GCCA findings together. Still, monitoring missions have been positive, and the project was invited to showcase at the 21st Conference of the Parties to the UN Framework Convention on Climate Change (COP 21) in Paris. The project was only in a pilot stage. There will be no extension from the EU side, so upscaling is a responsibility of the Ethiopian government, which is currently looking for other donors.

SISS sector

Programme #7: African Union Research Grants:

Description:

The AU Research Grant programme is part of the JAES 8th partnership, and was funded through the Intra-ACP Envelope of the 10th EDF. It aims to ensure that science and technology in Africa are used as a catalyst for sustainable development, to ensure the gull participation of the African Member

States and African researchers in the implementation of the CPA, and to ensure intra-regional scientific research collaboration and cooperation that contributes to Africa's sustainable development. Further aims of the programme are the promotion of Inter-Africa and international cooperation in research and capacity building, and building Africa's research capacities through direct funding of the AU Science and Technology priorities.

The Innovation, Higher Education and Research for Development Programme of the Organisation for Economic Cooperation and Development (OECD) did a Case Study of the African Union Research Grants. The Report for this (no date) describes the AU programme (financed by the 10th EDF Intra-ACP envelope) as one of the lighthouse projects under the JAES 8th Partnership.

The AUC managed the programme through two open calls for proposals, inviting consortia of minimum three academic organisations/research centres from at least two African countries (excluding South Africa). RECs are considered as consortia and can apply directly. The focus is on socio-economic issues in the sectors of food security, sustainable energy and integrated water resources and waste management. This OECD report suggests that it is important to consider the longer-term sustainability of this Research Grants Programme because few funders are willing to fund research per se but rather prefer to see it having an impact beyond academia. They go on to conclude that "[e]ven if the emphasis in the current African Union Research Grants Programme is on managerial and operational aspects, it is unclear to what extent the projects are evaluated using qualitative defining markers of scientific excellence." They also suggest that the programme seems to assume that because the funded projects address socio-economic problems there will be uptake, whereas the experience of developed countries shows that it is important to facilitate this transfer from research to uptake.

The AUC Department for Science & Technology is responsible for managing the AU Research grants. They are funded by the EDF. It is the European Commission, however, that is responsible for doing the funding disbursements, (due to a earlier negative pillar assessment for the AUC). The AUC will be able to do authorize disbursements under the next call for proposals, as capacity to manage the Grants has been built up in the AUC. As noted by an AUC official during the mission, the assessment of proposals is done in several stages, involving both the AUC and European actors. A first administrative check is done by the AUC (whether all formal conditions and deadlines are met). This is followed by a scientific concept note assessment, done by an external European firm. Thirdly, a relevance assessment is done by the AUC, including the S&T Department and relevant sector departments.

Rationale:

According to the Decision form, "[t]he overall objective of this research programme is to ensure progress towards MDGs and strengthen international economic competitiveness of ACP countries through research. The specific objective is to provide support to research activities that contribute to the sustainable development of ACP countries and the fight against poverty." The AUC manages the African component of this wider ACP scheme. This involves a series of 20 contracts (total value: EUR 13.8 million) of between EUR 500,000 and EUR 750,000 for the African Union Research Grants Programme for which a first call for proposals was published in 2011, and a second one in 2012. The resulting contracts will end in December 2015 and December 2016.

Findings:

During the interviews, it was evident that AU Research Grants are seen by both EU and AU officials as a positive tool for capacity building and for providing a funding opportunity in Africa to encourage research tailored to the African context and needs. The programme is also seen as an enabler for networking across research communities over the African continent and promoting regional integration. However, other interviews showed that at least among the Ethiopian research community the AU Research Grants are not well known. Researchers who have experience with FP7 funding were less familiar with the AU Research Grants. This suggests that more quality proposals could have been submitted if the grant scheme would have been more widely known. African research institutions are also often not familiar with the European procedures and financial regulations. According to both AUC and EU officials, this has often led to delays in the signing of grant agreements, indicating a need for training and capacity building.

Under the two AURG calls, there was a problem of high wastage and unmet demand with only 20 grants being made (with a further 11 reserves) against the 450 bids received (i.e., a success rate of about 5%). Of these 20 proposals, five were led by European organisations, whereas 15 were from African ones (although activities always take place in Africa). The available funding is thus not adequate to meet the strong demand for Africa-focused research grants. Interviewees at both the EU and AUC agreed on the need to upscale the funding available and hope to be able to do so a bit in the next call. At the same time, they also indicated that the next call for proposals will be more focused, which should reduce the number of proposals submitted and limit wastage. In the longer term there is

also a sustainability issue as the EU intends to phase out its support and the AUC recognizes it will have to find alternative sources of funding. Given the evident demand and now that the capacity to manage these grants at the AUC has been built up, there is a strong incentive to keep the programme going.

Several people argued that these small research grants provide an opportunity to build capacity of researchers to move towards (more demanding) FP7 application. At the same time the procedures for the AURG are based on those of FP7 and are not particularly easier. The big advantage however is that the AURG is focused on African priorities whereas FP7 is not (except for the FP7 Africa Call in 2010) Nevertheless African research organisations and universities are often handicapped by poor institutions, limited administration capacity and experience for managing research grants. The AU Research grants therefore are sometimes seen as a useful intermediary step towards participation in FP7. However, this appears to be more of an assumption than a proven fact, given that there is as yet evidence available that illustrate that participation in the AURG increases the success rate under FP7.

Programme #8: Africa Connect

Description:

The Africa Connect programme proposes to build-up and Inter-connect NRENs (National Research & Education Networks) in ACP countries. These would also be linked to the European equivalent, GEANT, and the other networks in Asia (TEIN and CAREN), Latin America (@lis) and North Africa (EUMEDCONNECT) that the EU is supporting. In the ACP regions, progress on NRENs is at different stages – ACP Connect will therefore complement these and provide the link to GEANT. A major expected result of ACP Connect is to improve communication between universities, research institutes and centres and individual academics and researchers, thereby promoting networking and joint collaborative research projects. More specifically the six expected results are:

1. Improved regional interconnectivity for the research and education community,
2. Increased communication and collaboration between universities and research centres,
3. Increased use of online applications for research cooperation,
4. Increased institutional capacity of ACP NRENs and self-sustainability,
5. Needs of C@ribnet stakeholders identified and action plan developed,
6. Strategy for the connection of Research and Education.

The duration of the project will involve 12 months for the preparatory phase, 84 for execution. The ACP Groups of States will delegate the execution to the Commission. A Steering Group will include representatives of the ACP Secretariat, the European Commission, the AU Commission, DANTE and the NRENs when necessary. DANTE is a semi-public limited liability and non-profit making company founded by the European NRENs to implement international research and education networks on their behalf and is establishing GEANT and TEIN. The technical execution of the ACP Connect project is awarded to DANTE, justified on the basis of their semi-monopoly position. Mid-term and final evaluations are foreseen within the budget. DANTE is also responsible for visibility.

It is implemented by the NEPAD Agency in collaboration with the UN Economic Commission for Africa (UNECA). The Programme for Infrastructure Development in Africa (PIDA) has four priority sectors: water, Information and Communication Technology (ICT), energy and transport. Africa Connect falls under the ICT pillar. At EU level, Africa Connect was managed by DG CONNECT (European Commission Directorate General for Communications Networks, Content & Technology). An Action document for Africa Connect II is available now. From the EU, there will be a contribution of EUR 20 million. Whereas Africa Connect I focused on West and East Africa, Africa Connect II will focus more on Central Africa.

Rationale:

The programme addresses one aspect of MDG8.f: addressing the digital divide. It builds on the AU's PIDA. It puts the accent on the lack of access to modern information technologies and the negative impact this has on research, education and health. It is argued it is often also a cause of brain drain.

Findings:

Very little information was available in Addis at either the EUD or the AUC. It appears the AUC has limited influence over the Africa Connect programme which is administered from Brussels, rather than the EU Delegation, and there has been limited progress made. According to one interviewee, very little capacity building is being done. EU staff has been hired to support the AUC, e.g. in developing proposals, but the AUC has not learnt much in the process. On the EU side there is hope that the AUC can be more involved in the programme for instance in the Steering Board.

Programme #10: MESA

Description:

Once AMESD started, a continental level discussion was held with RECs, who agreed that they needed to continue after AMESD. This fed into the Inter-Africa Strategy on Meteorology. MESA had to concretise this strategy. The MESA programme therefore builds on AMESD (Africa Monitoring for Environment and Sustainable Development) and addresses the need for improved satellite and land-based Earth Observation monitoring, analysis and diffusion of information in support of environment, climate and food security policies, programming and decision-making in four regions of sub-Saharan Africa, namely Central African Economic and Monetary Community (CEMAC), the Economic Community of West African States (ECOWAS), the Eastern and Southern Africa and Indian Ocean region (ESA-IO) (incl. the Intergovernmental Authority on Development (IGAD) and the Indian Ocean Commission (IOC) and Southern African Development Community (SADC). In particular, MESA promises to mak)e a major contribution to the NEPAD Environmental Action Plan. The AUC has a coordinating role.

The general objective of MESA is "To support African decision-makers and planners in designing and implementing national, regional and continental policies and development plans towards sustainable development, thereby advancing the socioeconomic progress and well-being of African populations towards achievement of the MDGs." By supporting environment and climate objectives, MESA contributes to the JAES 6th Partnership on environment and climate change. At the same time, the project's reliance on proven satellite and land-based monitoring technology is consistent with the JAES 8th Partnership on Science, Information Society and Space. Finally, MESA contributes to a number of important EU-African commitments to environment and security objectives under international treaties and conventions, for example, in a range of multilateral environmental agreements and various climate change discussions and negotiations.

Rationale:

Space-based and *in situ* Earth Observation (EO) technologies and applications are recognized as powerful tools to support socio-economic development; however, many African countries lack the human, technical and/or financial resources needed to exploit space-based EO data and services for economic and sustainable development in a systematic manner. For monitoring such a large continent as Africa, where the *in situ* infrastructure is often inadequate, EO technologies are especially valuable.

According to the Action Fiche, the programme is expected to produce data and information directly usable by decision makers at national and regional level and even by the public. Various links are suggested with FP7 and Joint Research Council (JRC) projects, and the JRC is one of the implementing partners, but no mention is made of the data being used by researchers or for innovation. So while it seems very likely that the data ultimately generated by the infrastructure funded under MESA would be useful for research, this does not seem to have been an explicit consideration in the project planning.

AMESD and MESA are High-tech programmes, but as they are using existing technologies, their aim is rather to roll it out and make data available and usable for development purposes and R&I activities across Africa. The main entry point of MESA is satellite observation. It aims to provide access to satellite information free of charge. It has two main programmes, viz. a navigation programme (GALILEO) and COPERNICUS (which MESA relates to).

Findings:

According to both EU and AU officials, data provided under AMESD and MESA have proven to be highly relevant for development purposes, and provide a useful basis and scope for further R&I in relevant areas in both FSNA and EnvCC. While MESA is not a research project in itself, it supports innovation and provides data for African academics and decision-makers to which they previously did not have access. The demand and interest appears to be high, particularly in meteorological services, but also for agriculture and fisheries. For the environment sector, the uptake appears to be slower. One key to the success of the project has been the involvement of universities and research communities. They have been involved in pilot applications, capacity building to develop user skills, and are now using data for their own research. The coverage has also expanded under MESA. Specialised applications (e.g. coastal services) were first piloted under AMESD and then rolled out under MESA. One interviewee expressed concern that, despite this broadening in scope, MESA is facing budgetary reductions. No solution has yet been found for the sustainability of the projects after EU support ends. Another problem cited is the limited scope of EDF funding, which means that the services are not available in North African countries. In the future, however, MESA will be funded from the Pan-African Programme, which will allow first the extension of existing services to North Africa and then their further expansion.

5 Field mission findings, by relevant EQ

5.1 EQ 1: Development policy objectives

FSNA sector

EQ 1 To what extent has EU support to R&I through DEVCO been successful in promoting the overall development policy objectives of the EU?	
JC 11 Link between R&I activities and EU development objectives (as per European Consensus and Agenda for Change – MDGs, etc.)	National level: Overall, R&I activities in the field of FSNA funded in Ethiopia appear to be in line with EU development objectives. - Applied research under the CIP has contributed to the development of 11 new seed varieties with increased resistance. This has caused significant increases in productivity, and has helped avoiding the devastation of the Ethiopian coffee industry, thereby contributing to poverty reduction and food security objectives. The CIP is thus fully in line with EU development objectives. - The Livelihoods Project is consistent with EU development objectives: Through its innovative approach linking RuSACCOs with MFIs, it has been able to increase savings per member from ETB 5-30 per month to about ETB 30-100 per month in the course of the project, as noted in the project's final report.[39] RuSACCOs also increased their savings by 21% in eight months. Loans provided to households, moreover, increased from an average of ETB 500 to ETB 5000-30,000. In this way, the project has significantly contributed to poverty reduction and food security efforts in selected areas of Ethiopia. Regional level: - The objectives of ILRI as a major international research institute and part of the global CGIAR system are broadly aligned with the development objectives of the EU and ILRI is sensitive to the priorities pushed by the EU in the donor dialogue.
JC 12 Extent to which R&I has informed sector policy dialogue and sector support at national and regional levels	National level: In both the projects examined there is evidence of considerable policy dialogue involving both national and EU officials and researchers. - Applied research on coffee in the CIP is clearly widely discussed among officials and researchers alike and the results fed into the national extension services. - The Livelihoods project is an example of a project that has potential to influence policy. The project was finalised in October 2015 and results were presented to both Federal and Regional authorities in Ethiopia in a national learning forum. The regional Government and the Federal cooperative agency have stated that they consider scaling up the innovative approach in the region and in other areas of the country. According to an EU official, the Ministry of Agriculture plans to mainstream the approach. This suggests that the innovative approach adopted in the project has informed sector policy thinking bottom-up. It remains to be seen, however, to what extent the lessons learned will be effectively be incorporated in PSNP IV, which is starting soon.

EnvCC sector

EQ 1 To what extent has EU support to R&I through DEVCO been successful in promoting the overall development policy objectives of the EU?	
JC 12 Extent to which R&I has informed sector policy dialogue and sector support at national and regional levels	National level: - While the GCCA-E has introduced several innovations, there has been limited follow-up. The GCCA-E was a pilot project, and no follow-up project is foreseen. Sustaining the impact of the project will therefore depend on the Ethiopian government, which so far has not expressed any specific commitments.

[39] HEBDEZ Business & Consultancy PLC, 29 October 2015, EC project to improve the livelihood of the most vulnerable households in southern region. Generating best practices on new microfinance access model for a National Learning Platform (final report), World Vision Ethiopia, Addis Ababa.

SISS Sector

EQ 1 To what extent has EU support to R&I through DEVCO been successful in promoting the overall development policy objectives of the EU?	
JC 11 Link between R&I activities and EU development objectives (as per European Consensus and Agenda for Change – MDGs, etc.)	Regional level: There is strong evidence of a link between the R&I activities funded and EU development objectives - One of the main objectives of the AU Research Grants is to allow African researchers to conduct research that is of direct interest for Africa and its needs, e.g. in terms of agriculture or food security. The contracts need to be link to the priorities of the AU high-level dialogue. The nature of the projects funded show a strong link with the development objectives of the EU. - As stated in the final evaluation of the programme[40], AMESD was the first continental project that addressed needs for better environmental monitoring towards sustainable management of natural resources in five regions in Sub-Saharan Africa. It provides a valuable knowledge tool that strengthens African capacity to deliver on the mission and objectives of the AUC's policy on environmental protection and management. Many of the applications supported by AMESD and MESA have feed directly into link socio-economic activities in line with EU development objectives.
JC 12 Extent to which R&I has informed sector policy dialogue and sector support at national and regional levels	Regional level: Activities under the JAES 8th Partnership on SISS are strongly rooted in sector policy dialogue between the EU and the AU. This occurs at the continental level but there are also examples of R&I projects feeding into sector dialogue at regional and even national level. - For MESA, dialogue is taking place at several levels. The Steering Committee of MESA brings together the AUC, RECs and regional implementation, as well as a whole range of observers including the EU Delegation, DG GROWTH (Directorate General for the Internal Market, Industry, Entrepreneurship and SMEs), DG DEVCO, the JRC, ESA (European Space Agency), WMO (World Meteorological Organisation), UNDP (United Nations Development Programme), and UNEP (United Nations Environment Programme). This format allows for a broad dialogue with a wide range of stakeholders. - According to the final evaluation report of AMESD (2013), the programme has had positive impact at the policy level, as some decision-makers started to endorse the system of AMESD at an early stage to draft policies at national or regional levels for disaster management, food aid planning, priority zone identification etc. - Building on the experiences with MESA and AMESD, the AUC has recently adopted its own African Space Technology strategy (which itself relates to the STISA). Satellite-related projects are part of this strategy. This indicates a clear impact of EU-funded R&I activities on AU policies. - With the AU Research Grants, one result is that stakeholders' engagement in the process for all awarded projects have increased the connectivity between policymakers and researchers. An example is offered by a project in Senegal that developed local technologies for improving production and management of Jatropha. The project coordinator has regularly engaged in discussion with the government in setting country level strategies on biofuels and Jatropha.[41] In addition, the former rector of one of the partner institutes has been appointed to the Ministerial level, providing another opportunity for the project to discuss research findings with decision-makers.

[40] Pubellier, C., Brandolini, G. & Courboules, J., March 2014, Final evaluation of the AMESD Programme 2013 final report, Particip, Addis Ababa.
[41] Idinoba, M. & Etim, A., December 2012, Mise au point de technologies de production et d'utilisation durables de biocarburant de jatrophacurcas pour une reduction de la pauvreté rurale en Afrique de l'Ouest. Project monitoring report, African Union Commission, Addis Ababa.

5.2 EQ 2: Impact on partner country research communities

General

EQ 2 To what extent has DEVCO funding of R&I enabled research communities in partner countries to build up and develop their own R&I capacity, including the ability to actively engage in research networks (regional and international)?	
JC 21 Degree of alignment and coherence of DG DEVCO support to R&I with relevant policies and strategies	National level: - Overall, there seems to be little explicit alignment of EU activities with the national S&T strategy in Ethiopia and no particular intention to do so. However, the national policy has also developed more in the latter part of the period covered with the publication of a new S&T Strategy in 2012 only - At the sectoral level, projects and programmes are strongly aligned with relevant policy frameworks and strategies (see below).
JC 22 Increased focus of EU support on 'capacity building' and enhancing institutional sustainability	National level: - The EU academic mobility programmes are welcomed as a capacity building tool. Erasmus Mundus is well used at Masters level, though there were only two grantees at doctoral level. At the same time, several Ethiopian officials have expressed their concern about brain drain as a result of such mobility programmes and the low level of salaries in the country. Several of them suggested the use of sandwich programmes instead to ensure the capacity built returns to Ethiopia. - Support to the Central Statistics Authority (CSA) of Ethiopia was included in the CSP 2008-2013 yet it did not go ahead. The CSA is mandated to collect and disseminate statistics, but according to an EUD official, reports show that there still is a problem of harmonisation of data because of a lack of integration, largely due to limited political commitment. The EU tried to raise awareness at the Prime Minister's Office, yet without any response. The intention to support the CSA was therefore not implemented. - Several FP7 projects in which Ethiopian universities participated included capacity building components, that for instance allowed to train PhD researchers (e.g. the CLUVA project). However, cases of EU-supported PhD students are limited. Interviewees felt more were supported by German DAAD-scholarships.
JC 23 Improved access of developing countries' research communities to EU FP7 funding through RTD	National level: - There have been only 30 FP7-funded research projects in which Ethiopian partners were involved. - Ethiopian academics interviewed all agreed that it is challenging for Ethiopian researchers to apply for FP7 funding because they are not well networked nor informed about the EU procedures. Ethiopians receive little support in terms of grant writing skills and technical support and therefore need to rely on the expertise of European partners, often through already existing partnerships. The EU Delegation has, however, organised an information seminar on FP7, which Ethiopian researchers interviewed found very helpful. - Although there is no formal restriction for Ethiopian partners to participate in FP7, there are practical limits. As noted by several past Ethiopian FP7 grantees, these include a lack of proper research infrastructure, no experience with EU application procedures and financial regulations, and limited human resources. In many cases, Ethiopian partners are not involved in the early stages of the application procedure but are only brought y the European ROs at an advanced stage, which is a missed opportunity for them to build experience with the EU procedures. Regional level: - AU Research Grants are seen as stepping-stones towards participation in FP7, allowing African researchers to build experience in proposal writing and project management according to EU-like standards. However, this is an assumption, as the AURGs are still relatively new and there is as yet no evidence of participation in AU Research Grants improving the success rate in FP7 or Horizon 2020 bids.
JC 24 Enhanced networking of developing countries' researchers at regional and international level	National level: Networking remains a challenge among scientists in Africa but several of the projects reviewed did create opportunities for enhanced networking. - As one researcher noted, experienced researchers are often not retained (due to unattractive salaries), and current staff is therefore mostly young and inexperienced, limiting opportunities for experience sharing. The EIAR

	has aimed to address this problem through the National Agricultural Transformation Agency, by bringing experienced researchers together for three months to let them share experience with younger ones. Yet, funding remains a critical issue here. - ASARECA (Association for Strengthening Agricultural Research in Eastern and Central Africa) has been a useful programme to encourage networking of Ethiopian researchers across the East African region as in addition to research grants it has offered opportunities for regional scientific seminars and conferences. - Ethiopian researchers interviewed widely appreciate the opportunities offered by participation in FP7 Consortia to expand their collaboration with European and African research institutes and universities. At the same time, having a European partner is also a precondition for applying for FP7 grants, as Ethiopian researchers need to rely on their experience with the EU application procedures as well as their research infrastructure. While many Ethiopian researchers are interested in participating in FP7 grants, they are dependent on an invitation from a European partner or on existing partnerships. - Sustaining partnerships with other research organisations – whether European or African – remains a challenge. Due to the competitive nature of FP7/Horizon 2020, securing funding for a follow-up project is difficult so it is not always possible to continue successful collaborations from one project to another. - Cooperation between African research institutions themselves is rather limited, according to an Ethiopian academic interviewed. The reason is that international funding usually comes from the US or the EU, and therefore it is considered better to cooperate with European or American institutes. Thus, partnerships with African institutes are usually developed through European partners. <u>Regional level:</u> - The guidelines of the AU Research Grants require several African partners from different regions to be involved, with the possibility of having a European partner as well. In addition, two science forums were held for Grant Participants, although, according to AUC officials, their aim were more related to awareness-raising than to providing network opportunities. Under the 10th EDF, there have been 54 collaborative networks of Institutions with research to be conducted in 46 African countries. This helped stimulating a cross-African and North-South research collaboration, while creating a critical mass of multidisciplinary researchers and practitioners together with the public and private sector representatives in Africa and beyond.

FSNA sector

EQ 2 To what extent has DEVCO funding of R&I enabled research communities in partner countries to build up and develop their own R&I capacity, including the ability to actively engage in research networks (regional and international)?	
JC 21 Degree of alignment and coherence of DG DEVCO support to R&I with relevant policies and strategies	<u>National level:</u> Degree of alignment with government sectoral policies generally strong - EU support to coffee sector well aligned to government policy though over years there have been differences (gap in support after CPIV) and degree of focus can vary: For instance EIAR representative noted that there should be more support to technology and seed aspects of the coffee sector. The whole system needs to be strengthened, as most work focuses on grain and maize. Growing coffee seeds therefore needs a special arrangement. - The EU will also start funding Ethiopia's Agricultural Growth Programme through a Multi-Donor Trust Fund. Of the overall DEVCO funding available, EUR 50 to 55 million will be spent on research. This gives an indication that there will continue to be a high degree of dialogue and alignment with national policies in the future. - The DEVCO-funded Livelihoods project explicitly builds on existing government social safety net programmes, notably the PNSP and the

	HABP, bringing an innovative approach to contribute to their effective realisation. As stated in the project's final report[42], the microfinance model of the project also assists in the realisation of the rural development policy of Ethiopia through mobilisation of savings and increasing access to credit to support investment. Moreover, the project's approach also contributes to the goals of Ethiopia's Growth and Transformation Plan, which puts a major emphasis on cooperatives development as a means to ensure smallholder farmers access to improved agricultural technologies and markets. Regional level: • ILRI was conscious of a push from CGIAR donors (including the EU) to ensure that its work was better aligned with partners including African governments
JC 22 Increased focus of EU support on 'capacity building' and enhancing institutional sustainability	National level: Institutional sustainability and capacity building proved to be key priorities in the R&I interventions in the FSNA sector, which overall have appear to have had a significant impact. • According to both Ethiopian Government and EU officials, the CIP has significantly contributed to building capacity of researchers with programme funding. The combination of applied research on the one hand, and extension and training through the EIAR on the other, was widely viewed as positive and useful. • Institutional sustainability was one of the key concerns of the EU with regard to the CIP. Ethiopian interviewees also recognised the problems. Both the re-establishment of a national authority responsible for the sector and the preparation of a sector development strategy were preconditions for the EU to restart the CIP, allowing for more focused and less fragmented sector interventions and improved support to value chain development. The EU provided support to the development of such a strategy through a framework contract. • According to an Ethiopian official, the Ethiopian coffee sector will be able to be self-sustaining in the long run, though there is still a need for research on growth planting, soil test, and developing resistant coffee varieties. Another person interviewed highlighted the need to focus on technology. • The Livelihoods project final report shows some good indications of sustainability of the intervention outcome due to an increase focus on capacity building. Intensive training and knowledge sharing, presence of demand for financial services, having a favourable policy environment and institutional arrangement, and ownership by the implementers were key elements of the project that are likely to contribute to a further sustainability of the results. Capacity building, training and implementation support were provided to RuSACCO management and members, including on topics like business plan preparation, loan supervision, or saving mobilisation, as well as in-kind capacity support such as office furniture. In terms of sustainability, the final report of the project notes that also at the end of the project, the demand for financial services continues to be high among beneficiaries, and MFIs have expressed interest to scale up the approach. The B2B-linkage between MFIs and RuSACCOs has proven to be an effective system that is likely to remain in place. Moreover, the government of Ethiopia has expressed its intent to scale up the approach for mobilising saving and create access to credit for rural poor through its own institutions. Regional level: • ILRI sees capacity building in national research systems as an important priority and seeks to build capacity building opportunities into its research projects (PhD places, short term training, attachments, etc.)
JC 24 Enhanced networking of developing countries' researchers at regional and international level	Regional level: • ASARECA (Association for Strengthening Agricultural Research in Eastern and Central Africa), of which the Ethiopian Institute for Agricultural Research (EIAR) is the focal point, is seen as valuable in terms of networking and funding opportunities for agricultural research. It also fosters intra-regional cooperation between researchers in the field, according to a

[42] HEBDEZ Business & Consultancy PLC, 29 October 2015, EC project to improve the livelihood of the most vulnerable households in southern region. Generating best practices on new microfinance access model for a National Learning Platform (final report), World Vision Ethiopia, Addis Ababa.

	person interviewed. The centre of excellence arrangement among different regions allows for specialisation in accordance with each country's needs, while also facilitating knowledge-sharing. - ILRI encourages networking of researchers from different countries by bringing them together in multi-country projects.

SISS sector

EQ 2 To what extent has DEVCO funding of R&I enabled research communities in partner countries to build up and develop their own R&I capacity, including the ability to actively engage in research networks (regional and international)?	
JC 21 Degree of alignment and coherence of DG DEVCO support to R&I with relevant policies and strategies	Regional level: The 8th partnership of the JAES is aligned with and contributes to the realisation of the AU's Science, Technology and Innovation Strategy for Africa (STISA) 2024, adopted in 2014. - All persons interviewed agreed that one of the main objectives of the AU Research Grants is to allow African researchers to conduct research that is of direct interest for Africa and its needs, e.g. in terms of agriculture or food security. The contracts need to be linked to the priorities of the AU high-level dialogue and are therefore in principle aligned to the AU's priorities. - As stated by the AU Commissioner for Rural Economy and Agriculture during the 4th MESA programme Steering Committee in April 2015, MESA contributes to the implementation of the Integrated African Strategy on Meteorology, the advancement of the work of the Specialized Technical Committee on Agriculture, Rural Development, Water and Environment; and the African Ministerial Conference on Environment. In this way, MESA also contributes to the realisation of the development agendas of the RECs as well as the Agenda 2063 of the AU[43].
JC 22 Increased focus of EU support on 'capacity building' and enhancing institutional sustainability	Institutional sustainability and capacity building is clearly a major concern in the dialogue between the AU and the EU but finding sustainable funding once the EU support phases out is a critical issue. - Both EU and AUC officials expressed their satisfaction with the inter-institutional cooperation. However, an EU official noted that 'as long as the team as it is now can continue, we can continue good cooperation', indicating that the cooperation depends highly on personal relations, which staff turnover could threaten and possibly have negative effects for institutional sustainability. - Institutional sustainability is a major concern of both parties. One EU official interviewed noted that the EU ideally wishes to phase out AU Research Grant support and pushes the AUC to find other donors as well and encouraging the AUC to be self-sustaining. - Regarding Africa Connect, an AUC official noted that there is limited actual capacity building being done, stating that the AUC 'is not being taught to fish'. - AMESD and MESA contain a specific component on capacity building (a EUR 3 million service contract) with the aim of fostering research skills and use of data among African researchers by establishing a good network with universities, contributing to curricula development and training. Universities were also involved from the very beginning in designing, piloting and testing applications in training personnel to use the data. Under AMESD, various types of centres across Africa were set up to establish and run services. In MESA these are now being extended to ensure full coverage. The aim is to allow African countries to develop new services according to their needs. Under MESA, generic training is provided to the implementing centres through a service contract on topics such as management and maintenance of the stations, communication of results, and understanding Earth Observation and Geographic Information Systems (GIS). - As stated in the final evaluation report of AMESD[44], the programme has helped building capacities of regional and local institutions and partners in terms of technical knowhow an experience through training and workshops.
JC 24 Enhanced networking of developing countries' research-	Regional level: - According to one EU official, one of the achievements of AMESD and

[43] African Union Commission, July September 2015, *MESA News* Vol. 02, No. 02, AUC, Addis Ababa.
44 Pubellier, C., Brandolini, G. & Courboules, J., March 2014, Final evaluation of the AMESD Programme 2013 final report, Particip, Addis Ababa.

ers at regional and international level	MESA that it has created a good network of experts based in regional and national implementation centres. Regional steering committees are organised to encourage face-to-face interaction. There are peer review systems for each of the 18 themes. Several user seminars have been organised (three times under AMESD, and two so far under MESA). In addition, there is virtual communication and information-sharing. Four WMO training institutions in Africa have been provided with infrastructure and equipment. There are also national contact points (usually a political and a technical one) in every country that have the aim of promoting networking. However, according to an EU official, there is evidence that networking among scientists is not increasing as fast as it might, due to a lack of face-to-face meetings between national focal points. Yet overall, there appears to be a good cross-fertilisation across themes under MESA, bringing academics and other users together.

5.3 EQ 3: Instruments and modalities

General

EQ 3 To what extent has DG DEVCO in its support to R&I used its available instruments in a way that maximizes their value?

JC 31
Appropriateness of the financing modalities and types of funding under different EU instruments and the way they have been applied for enhancing R&I

National level:

- The main EU financing instruments used for supporting R&I in Ethiopia are:
  - EDF Funding
  - Erasmus Mundus (at Masters level – only two PhD grants)
  - Intra-ACP Research Grants
  - FP7/Horizon 2020
- Programme and project funding are the main modalities, with calls for proposals being extensively used
- Funding available under the AU Research Grants Programme for projects in Ethiopia is very limited. In contrast, there have been 30 FP7 projects that involved Ethiopian research organisations. The calls under FP7 and Horizon 2020 are, however, not necessarily the most relevant or appropriate for Ethiopia from a development perspective. One researcher had benefited from the FP7 Africa Call which he felt had created a real opportunity not usually available under FP7. AU Research Grants are nominally more tailored to Ethiopia's research needs and also offers more tailored capacity building opportunities, but did appear to be widely known.

Regional level

- Funding available for AU Research Grants is very limited. As a consequence, the success rate for applying is low, and many potentially interesting projects do not receive funding. Nevertheless, the AUC is happy with the grant system, as one AUC official stated that the amount of funding available is 'better than nothing'. The research grants are seen by the AUC as a good opportunity for African research organisations to invest in research capacities and conduct research relevant for Africa. At the same time, it is seen as a good preparation to be successful in FP7 calls, although there is no evidence that AURGs contribute to more success under FP7.
- Whether the AU Research Grants will remain sustainable as a funding modality remains to be seen. This will depend on the future of the Pan African Programme. The EU is pushing the AUC strongly to find other funding sources, including AU Member States, but this continues to be a struggle. Another suggestion would be to look for a Public-Private Partnership offering commercial sponsorship to beef up the budget of the AU Research Grant.
- ILRI uses EU funding through multiple channels and from a wide variety of instruments including:
  - *Channels*: global funding of CGIAR, funding through the UN system (IFAD), regional organisations (SADC), multi-donor consortia
  - *Instruments*: DCI, EDF (RIPs), Food Facility, FP7, etc.
- The variety of these channels and instruments by which EU funds reach ILRI creates complexity in their funding system which imposes overhead costs and creates risks that then have to be mitigated.
- The project modality with its three or four years is too short for some types of agricultural research that have longer cycles. For instance with cattle 6-7 years are required to produce any real results. This pushes actors

	working in this area to look for opportunities to fund projects with two 4+3 year phases. Medium to long-term commitment from a donor is therefore considered very helpful.
JC 32 Strategic approach adopted to choosing different possible actors / channels with whom the EU can work to support R&I and how best to support them with the instruments and modalities available	National level: • Research and development support for the coffee sector in Ethiopia has been critical for the sector. According to a person interviewed, applied research activities funded by the EU under the CIP provided the EIAR with an excellent alternative to government funding, which would have been difficult to get and does not meet their demands. The EIAR is therefore interested in a continuation of EU support to the CIP. EU funding modalities also proved to be flexible enough for the EIAR to use the funds efficiently. By linking it to European laboratories, it also provides access to research capacities. Regional level: • The EU funded ASARECA through a Multi-Donor Trust Fund (which includes all major donors including USAID), managed by the World Bank. This provided a modality of funding that allows maximising synergies at a regional scale. ASARECA provides research funds on a competitive basis in several East-African countries. The Centre of Excellence arrangement allowed for tailoring activities to other countries' needs (e.g. a centre in Kenya could work on crops in Ethiopia). Scientists also move around, creating a good opportunity for experience sharing. Overall, the funding modality therefore has proven to be useful to enhance R&I. Global level: • Large amounts of EU funding to R&I in the sector of agriculture and food security goes through the CGIARs, such as ILRI in Ethiopia. The EU has emphasised the need for reform for CGIARs, to increase impact and strengthen the partnership approach to mitigate risks. This seemed accepted by the CGIAR Centres themselves. • ILRI recognises the importance of working in partnerships but sees this as carrying a risk in terms of partners' ability to handle EU (and other donor) funding adequately according to financial rules – it therefore has to invest in mitigating measures to help partners meet requirements

5.4 EQ 4: DEVCO-RTD complementarity and coherence

General

EQ 4 To what extent has EU support to R&I by DG DEVCO and by DG RTD been complementary and their collaboration promoted PCD?	
JC 41 Extent to which DGs DEVCO and RTD have formulated clear strategies on how they should cooperate in a complementary way and how the work of other relevant EU institutions (such as the EIB) is also complementary with their own	National level: • The 2007-2013 CSP for Ethiopia does not prioritise R&I. At the same time, some of the selected sectors do recognise the importance of research, and several projects related to agriculture and EnvCC have research- and/or innovation-related components that contribute to development and poverty reduction objectives. • There is, however, no evidence that DEVCO and RTD coordinate in any meaningful way. Although there are contacts, the RTD S&T Counsellor in the EUD-AU does not appear to be involved with R&I elements of the programmes managed by EUD-Ethiopia. Regional level: • One of the main objectives of the AU Research Grants, in the words of an EU official, is to allow African researchers to conduct research that is of direct interest for Africa and its needs, e.g. in terms of agriculture or food security. In this sense, complementarity with FP7 is an explicit objective of the AU Research Grants in that they provide opportunities for African institutions to do research for Africa, unlike FP7. The one exception to this is of course the FP7 Africa Call.
JC 42 Degree to which DEVCO support addresses issues that could/would not have been better, or equally well, addressed through RTD and vice versa	National level: • Ethiopian universities have limited budgets for research, and salaries for researchers tend to be low. Many researchers therefore need to do additional consultancy work. FP7 grants are therefore welcome to accomplish research activities that would otherwise not have been available because of a lack of alternative funding opportunities. It has also been successfully used in some cases for skilled manpower development (through PhD funding).

	Regional level: - The AU Research Grants offer better opportunities to do research that respond to Africa-specific challenges than FP7. Still, under FP7, there was one call that was specifically focused on Africa. It had a total budget of EUR 72 million, half of which went to African partners, allowing them to do research of direct relevance to the African continent. For Horizon 2020, several stakeholders have expressed their wish to have another Africa call, which unfortunately did not make it so far.
JC 43 Level at which DEVCO support has benefited from complementary action financed through RTD and vice versa	National level: - Many university researchers in Ethiopia who were familiar with FP7, showed limited or no awareness on existing DEVCO-funded research grants such as the Intra-ACP grants or the African Union Research Grants. - Overall, there is no strong evidence of complementarity between DEVCO support and RTD funding though there is equally no evidence of duplication of effort.

5.5 EQ 5: Transfer of R&I results into development processes

FSNA sector

EQ 5 To what extent has DEVCO support led to the transfer of R&I results into processes likely to impact on the achievement of EU development objectives?	
JC 51 Clear and logical thinking at sector level on how DEVCO support could ultimately lead through to research results being used in development processes	National level: - Applied research activities under the CIP focused on the development of eleven improved coffee varieties that were more resistant to diseases to bring productivity gains in a sector that is key for Ethiopia's economic development. The focus on technology development and transfer for higher yields was also a specific objective of the CIP, and will likely continue to be an important component of the programme in the future. These innovations are then fed into the government's extension services and introduced to coffee farmers around the country.
JC 53 Extent of external lessons learning, sharing and uptake within the sectors supported in partner countries, and at international level	National level: Evidence suggests that there is a reasonably strong practice of learning, sharing and uptake of lessons from passed experiences within the FSNA sector in Ethiopia. - The Coffee Improvement Programme has a long history, and, various interviewees outlined how newer programmes built further on lessons learned from earlier programmes. A report on lessons learned from CIP IV has recently been submitted to the European Commission. - A lessons learned report of the Livelihoods project has been developed and presented in Addis Ababa, in the presence of government officials. The innovative approach of the Livelihoods project, viz., the synergy between financial products, the cost-effectiveness and the institutional arrangement of the model, combining capacity building and knowledge sharing, is a key lesson learned. Regional level: - Apparent that ILRI as a CGIAR Centre sees its work in an integrated fashion seeking to achieve a good balance of research, development, innovation and extension - It also places heavy emphasis on lesson learning across its projects and system both at the national and regional levels
JC 54 Development processes and outcomes have been built on or used the results of research funded by DEVCO or shared through DEVCO supported research networks	National level: Two projects studied on FSNA indicate substantial impact of R&I on development processes. Yet, applied research will need to continue to take place and be linked to extension services to maximise developmental potential. - Under the CIP, 11 new coffee varieties were developed. The combination of applied research and extension has maximised the impact of the programme on development processes. Interviewees mentioned that, farmers today use no other coffee varieties than the CIP varieties, indicating a strong uptake of research and innovation results by end users. - Even after the discontinuation of the CIP in 2010, the Ethiopian Ministry of

	Agriculture continued the seedling programme initiated under the CIPs. As mentioned by the CSDS final report,[45] this can be seen as a success story as it appears to have contributed to an increase in export volume, although the following increase in export volume must also be seen within a wider context, as world market prices during the same period also increased.) Ethiopian government representatives were present during the closing event of the Livelihoods project. They have expressed their interest in adopting the innovative approach of the project in its own Household Assets Building Programme, although at this stage, it remains to be seen how this will materialise. At the local level, also the RuSACCOs and MFIs have expressed their willingness to continue the cooperation, according to a representative of the project's implementing consortium. This is a strong indication that the innovations introduced by the project are being built upon for further development processes.

SISS sector

EQ 5 To what extent has DEVCO support led to the transfer of R&I results into processes likely to impact on the achievement of EU development objectives?	
JC 51 Clear and logical thinking at sector level on how DEVCO support could ultimately lead through to research results being used in development processes	Regional level: In examples studied AU-EU dialogue in JAES framework has clearly resulted in R&I and S&T based regional projects which are carefully thought through in terms of how they can be beneficial to development) The overall aim of AMESD and MESA was to make satellite data available to researchers and policymakers in various sectors important for development. Previously they had no access to this data. Thus, AMESD/MESA include support to meteorological services, the transport sector, preventive warning for droughts and weather forecasting, vegetation cover, etc. contributing to direct needs of local farmers. It also supports climate projections that could feed into climate change adaptation projects. An example of a service that is provided using MESA data is the mapping of potential fishing zones and monitoring of fishing vessel traffic to curb illegal, unregulated and unreported fishing in the ECOWAS and IOC regions, thereby contributing to food security of local fishermen through Earth Observation.) The AU Research Grants are usually focused on research and innovation projects that have a developmental impact as well.
JC 53 Extent of external lessons learning, sharing and uptake within the sectors supported in partner countries, and at international level	Regional level: Some networking and knowledge sharing does take place in the projects studied but there is certainly scope for more) The results of MESA were discussed during the recent MESA forum. Several national focal points came to present how they use MESA services, e.g. for wildlife protection in Kenya, algae bloom prevention, combatting illegal fishing in Western Africa, forestry services in IGAD etc. The forum therefore provided an opportunity for lessons learning and sharing with representatives of other countries.) The AU Research Grants do encourage knowledge sharing among the several consortia members involved. These are from several African and some European countries. Wider sharing of results is less apparent but as the first two cycles of grants come to their end some efforts are being made to advertise results more widely.
JC 54 Development processes and outcomes have been built on or used the results of research funded by DEVCO or shared through DEVCO supported research networks	Regional level: The importance of R&I results and S&T involved in supporting development processes is apparent in the projects studied) AMESD and MESA are important flagship projects that support innovation and provide data for African academics and decision-makers. Several new research projects are being set up in different African Research Organisations that make use of these data and contribute to development processes in Africa. Services provided using MESA data include wildlife protection in Kenya, algae bloom prevention, combatting illegal fishing in Western Africa, and forestry services in IGAD. A survey conducted during the MESA Forum indicated that 90% of the National Contact Points use the information from MESA and that 80% are satisfied to very satisfied with

[45] Herhaus, G., Tigneh, A. & Teketay, D., December 2014, Coffee Sector Development Strategy for Ethiopia. Final Report. Contract N° 2013/304567. AGRER Consortium & Delegation of the European Union to Ethiopia.

	MESA. - At the same time more could be done. There are for instance no clear procedures in place of how the results from MESA can feed into the NIPs. Another major problem is the lack of finance in some areas at national level to make the best use of data on all potential sectors. - Some of the impacts interviewees identified at regional level of the AU Research Grant programme are increases in productivity and food security, increased knowledge of Groundwater Resource in Basement rocks of Africa, improved waste water management, and capacity building through training of post-graduates.

5.6 EQ 6: EU capacities

General

EQ 6 To what extent have the EU external relations services ensured adequate capacities to conduct policy dialogue related to R&I and to support research and innovation in partner countries?	
JC 61 Extent to which EU internal capacity to manage R&I support and conduct policy dialogue is in place at the levels required	National level: At the EU Delegation to Ethiopia, there is no real capacity to deal with R&I issues except to the extent that the arise with other cooperation activities as part of support to a specific sector - There is no single staff member responsible for R&I specifically, although many staff members are dealing with R&I activities through other sectoral work (e.g. on food security). - The limited staffing designated to R&I limits the extent to which a policy dialogue on research and innovation can take place at a more structured and strategic level. Regional level: The EUD to the AU appears to have adequate capacity to engage with the AUC at the Addis level on the main R&I/S&T issues supported but capacity to cover the whole of Africa is severely limited - DG RTD has only one R&I S&T Counsellor responsible for cooperation with the whole of Africa. He is based at the EU Delegation to the AU. - The EUD-AU also had one staff member each dealing with the AURG and MESA, though both also had other responsibilities
JC 63 Extent to which the EU facilitates R&I activities at all levels	National level: The EU certainly facilitate R&I activities within the confines of the sectors which it supports (agriculture: example of coffee sector) but it does not engage more widely with the Government on R&I issues and its efforts to publicise the availability of EU research funds are limited. - There is neither an apparent EU engagement with the Ministry of Science and Technology nor explicit support to the Ethiopian Government's 2012 S&T Policy. - On the other hand, on a sectoral basis, the EU engages directly with the Ministry of Agriculture and is very supportive to agricultural (particularly coffee) research in the country over many years. - Limited efforts are also made to publicise EU research fund on a generic level. Thus the EU has organised a training workshop on FP7, which was welcomed by Ethiopian researchers and the wider research community in Addis. Regional level: - The EU engages actively with the African Union Commission on R&I and S&T both in terms of research policy, procedures for research grant management and actual funding which enables the AU to run its own, albeit small, research grant facility.

SISS sector

EQ 6 To what extent have the EU external relations services ensured adequate capacities to conduct policy dialogue related to R&I and to support research and innovation in partner countries?	
JC 61 Extent to which EU internal capacity to manage R&I support and conduct policy dialogue is in place at the levels required	Regional level: EU does have capacity in its EUD for the AU to manage the day to day contacts and dialogue with the AUC, but across Africa EU capacity to support dialogue on R&I is very limited. - There is only one EU S&T Counsellor for the whole of Africa (located in Addis). He works with R&I/S&T focal points in a handful of African

	countries) MESA national focal points are working primarily with the AUC, although they also meet regularly with the RECs. They often rely on the EU Delegations, although interview evidence suggests these are not well equipped to support them.

6 Conclusions

Ethiopia

The EU does not explicitly support Ethiopia on R&I and has no policy for engagement with the government's overarching S&T policy framework. Yet, within its support for specific sectors such as agriculture there is considerable R&I work. Thus, in the coffee sector the EU has been the only major donor to support the government's efforts to build up the sector and has done so over many years. Intrinsically, this has involved a continuing and very successful effort to develop and disseminate to small farmers new coffee varieties adapted to changing conditions and markets. At its very core therefore, this agriculture sector support involves considerable applied research and innovation work for development, which shows clear results in the continued viability and development of the coffee sector in the country and as its main export commodity.

The EU has also made other inputs to R&I through its grants for capacity development and academic research. The Erasmus Mundus programme is well used and much appreciated at Masters level but is not known at the research level with only two Erasmus Mundus PhD scholarships during the period. However, as these programmes are managed from Brussels, the EUD has no overview and very little information on the use of EU academic mobility programmes in the country and, in these circumstances, such scholarship programmes cannot really be said to contribute to and explicit or targeted support policy to build Ethiopian capacity for R&I.

There are a few FP7 project holders in the Ethiopian research community, but they all appear to be participants in research consortia established by European research organisations and no cases were identified where the Ethiopian RO was in the lead. Though the FP7 funds were welcomed when received and the scale of funding received was felt to be adequate and appropriate, the general orientation of FP7 was felt to not offer much opportunity for Ethiopian research priorities. The notable exception to this was the FP7 Africa Call, which offered a real opportunity for African researcher needs, which was appreciated. Interviews reconfirmed, that FP7 procedures both in terms of the application and administration were too onerous for Ethiopian RO capacities and a good reason to work in consortia with European ROs who could take care of these aspects.

Looking to the future, the EU could consider explicit support to R&I and S&T in Ethiopia. The government clearly feels this is an important area for its future development plans and, in recent years, it has made some effort to develop a clear institutional framework that the EU could engage with. Science & Technology is often a key area in cooperation between the EU and Middle-Income Countries, though not for LICs. At the same time, S&T can be a valuable element of a country's strategy for transformation from LICs to MICs which donors should be willing to support. If the EU would engage in R&I in Ethiopia beyond the sectoral level it is currently involved with, it could help the transformation of the country to MIC status, which is the government's longer-term goal.

African Union

Since its agreement in 2007, the Joint Africa-EU Strategy has had a prominent commitment to cooperation on S&T as outlined in the 8th Partnership on Science, Information Society and Space. Serious efforts have been made to implement this with 'lighthouse' projects under each of the three pillars of the Partnership. The EU has also put in place the capacity to manage the dialogue and support on S&T and has indeed supported the AUC in creating its own capacity for this. The two projects considered by the team, the AU Research Grants and the MESA, are both showing very promising results with outputs that are in much demand. In both cases, however, sustainability beyond the next period of EU funding is open to question as alternative longer-term strategies for financing have yet to be found.

The AU Research Grants provides an interesting vehicle for the EU to support academic and applied research in Africa that is oriented to African needs and with increased ownership by African researchers and organisations. Both African and European ROs have responded well to the AURG and, as the first cohort of funded projects reaches their end, there are positive signs than many useful and developmentally valuable results have been achieved. The value of such a window for African R&I is amply demonstrated by the number of applications received for the two calls but also by the perceived value of the FP7 Africa Call in comparison with the FP7 calls which are generally seen as not answering African needs. A serious effort has also been made by both the EU and the AUC to build capacity in the

AUC to manage the AURG calls to a standard similar to those of DG RTD calls, so it is imperative to build on this and find a longer-term solution to the continued funding beyond the next calls currently in preparation. Within the framework of the JAES, a strong argument can be made to not just see this as a development issue to be funded by DEVCO administered DCI/Pan-African funds, but also as a joint AU-EU commitment to R&I on global challenges that could potentially be funded from the EU Budget for R&I itself.

The MESA project is not a research or innovation project in itself as the technology is already well established, but it is clearly an enabler of extensive research and innovation across the continent. It brings existing EU technology and satellite data to the continent in a manner that can have a major impact on development in many vital sectors. It is apparent that uptake of this data is both very widespread across the continent and very varied in the applications it is being used for. African ROs are starting to build their own research projects based on this data, which they did not have access to in the past. Government services are using it for forecasting and planning in many areas such as meteorology, agriculture, fisheries, transport, environment and climate change mitigation. The potential impact of the project on R&I for development is therefore huge. Again, given the value of this work, the question of finding a sustainable solution for on-going funding beyond the immediate cycle that is provided for is very important and needs to be examined seriously by both Commissions.

7 Annexes

7.1 Annex 1: List of people interviewed

EU Delegation

Name	Position	Institution
Fox, Stephan	Attaché, MESA	Delegation of the European Union to the African Union
Hendrix, Ron	Attaché, AU Research Grants	Delegation of the European Union to the African Union
Hogan, Stéphane	Research and Innovation Counsellor	Delegation of the European Union to the African Union
Lechiguero, Luis	Food Security	Delegation of the European Union to Ethiopia
Morbin, Daniele	Attaché, Rural Development and Food Security Section	Delegation of the European Union to Ethiopia
Mulatu (Dr.), Eshetu	Programme Manager- Rural Development and Food security	Delegation of the European Union to Ethiopia
Semenigus, Alemaheyu	International Aid/Cooperation Officer – Operations 2	Delegation of the European Union to Ethiopia

AU Commission

Name	Position	Institution
Brown, Robert	Technical Development Specialist, MESA Programme / Human Dynamics Public Sector Consulting	African Union Commission
Getachew , Abereham	Monitoring and Evaluation Officer, MESA Programme	African Union Commission
Idinoba, Monica	Department of Human Resources, Science and Technology	African Union Commission
Masheleni, Hambini	Department of Human Resources, Science and Technology	African Union Commission
Ouedrago (Dr.), Mohama	Acting Director, Department of Human Resources, Science and Technology	African Union Commission
Wasambo (Dr.) , Jolly	Project Coordinator, Department of Rural Economy and Agriculture	African Union Commission
Yedalay, Moctar	Head of Information Society Division	African Union Commission

Government

Name	Position	Institution
Abraham (Dr.), Adane	Science Adviser to the Minister+ Part time Academic Staff at Addis Ababa University of Science and Technology	Ministry of Science and Technology
Amene , Fikru	Director, Coffee, Tea and Spices Development Department	Ministry of Agriculture and Rural Development of Ethiopia
Bedasso, Negash Tola	Director, International Relations and Cooperation Directorate	Ministry of Science and Technology
Beyene, Belachew	Head, National Authorising Office, Deputy National Authorising Officer	Ministry of Finance and Development (MOFED)
Mekuria (Dr.), Getahun	Director General, Capacity-building Directorate and Policy Study Directorate	Ministry of Science and Technology

Universities, research organisations and NGOs

Name	Position	Institution
Diemer, Ute	Project Manager	World Vision, Germany
Diro, Ermias (via email)	FP7 Project participant	Gonder University
Kufa (Dr.), Taye (by phone and email)	Director, Jimma Coffee Research Centre	Jimma Agricultural Research Institute

Name	Position	Institution
Maru, Shimekit	Project Manager	World Vision, Ethiopia
Mengistu (Dr.) , Fentahun	Director General	Ethiopian Institute of Agricultural Research
Moyo, Siboniso	Programme Leader, Animal Science for Sustainable Productivity, Director General's Representative in Ethiopia	International Livestock Research Institute (ILRI)
Tushune, Kora (via email)	Vice President of Jimma University	Jimma University
Woldemariam (Dr.), Kifle Woldearegay (via telephone)	Partner in FP7-funded WAHARA project (Water Harvesting for Rainfed Africa: investing in dryland agriculture for growth and resilience)	Mekele University
Yeshitila (Dr.), Kumelachew	Director, Climate Change and Urban Vulnerability (CLUVA) FP7 project and Chair holder of Eco-System and Environmental Planning Chair	Addis Ababa, University, Ethiopian Institute of Architecture Urban Design and City Development (EiABC)

EU Member State Embassies and agencies

Name	Position	Institution
Deichert (Dr.), Georg	Senior Advisor, Sustainable Land management Programme (SLM)	GIZ
Nibbering, Jan Willem	First Secretary Food Security	The Embassy of the Kingdom of the Netherlands

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Country Note – India

By James Mackie, Amit Kumar and Eunike Spierings on field mission from 1-6 November 2015.

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List of Acronyms

ASEAN	Association of Southeast Asian Nations
BTC	Business and Technology Centre
CCT	Carbon capture technologies
CII	Confederation for Indian Industry
CRIS	Common RELEX Information System
CSE	Country Strategy Evaluation
CSP	Country Strategy Paper
DBT	Department of Biotechnology
DCI	Development Cooperation Instrument
DEVCO	Directorate-General Development and Cooperation/EuropeAid
DFID	Department for International Development
DG	Directorate-General
DST	Department of Science and Technology
EACEA	Education, Audiovisual and Culture Executive Agency
EAMR	External Assistance Management Report
EBTC	European Business and Technology Centre
EC	European Commission
ECDPM	European Centre for Development Policy Management
EDF	European Development Fund
EEAS	European External Action Service
EIB	European Investment Bank
EM	Erasmus Mundus
ENPI	European Neighbourhood Policy Instrument
EnvCC	Environment and Climate Change
EPO	European Patent Office
EQ	Evaluation Questions
ERA	European Research Area
EU	European Union
EUD	EU Delegation
EUR	Euro
FP7	7th Framework Programme for Research and Technological Development
FSNA	Food Security, Nutrition and Agriculture
GDP	Gross Domestic Product
GITA	Global Innovation and Technology Alliance
GoI	Government of India
GSO	*Group of Senior Officials*
HE	Higher Education
HEI	Higher Education Institutions
ICT	Information and Communication Technologies
IPR	Intellectual property rights
JC	Judgement Criterion
MDG	Millennium Development Goal
MS	Member State
MSME	Micro, small and medium enterprises
MTR	Mid-term review
NGO	Non-government organisation
NRDC	National Research and Development Corporation
PCD	Policy Coherence for Development
PhD	Philosophy Doctor
PP-AP	Pilot Projects and Preparatory Actions
PSC	Policy support component
RO	Research organisation
ROM	Result-oriented monitoring
RTD	Directorate-General for Research & Innovation
SCP	Sustainable consumption and production

SDG	Sustainable Development Goal
SFIC	Strategic Forum for International Cooperation in Research and Innovation
SIAM	Society of Indian Automobile Manufacturers
SIDA	*Swedish* International Development Cooperation *Agency*
SISS	Science, Information Society and Space
SME	Small and medium sized enterprises
S&T	Science and Technology
STI	Science, Technology and Innovation
ToR	Terms of Reference
UK	United Kingdom
UNEP	United Nations Environment Programme
US	United States
USD	US Dollar

Note: The Evaluation uses the common acronym "**EC**" to refer to either the "Commission of the European Union" (post-Lisbon Treaty) or the "European Commission" (pre-Lisbon Treaty), as applicable.

1 Introduction

1.1 Mandate, scope and purpose of the evaluation

As spelt out in the Terms of Reference the general objectives of this evaluation are:

- To provide the relevant external cooperation services of the EU and the wider public with an independent assessment of the support provided to research and innovation for development over the period 2007-2013;
- To identify key lessons and forward-looking recommendations.

The thematic scope of the evaluation encompasses the EU support to Research and Innovation (R&I) in four key sectors: (i) Food Security, Nutrition and Agriculture (FSNA), (ii) Health, (iii) Environment and Climate Change (EnvCC), and (iv) Science, Information Society and Space (SISS) (henceforth "thematic sectors")

The specific objectives of this evaluation are to provide an overall judgement on the extent to which the EU development co-operation policy has adopted a strategic approach to support R&I in the thematic sectors, and whether the approach was appropriate to enhance capacity to reach development objectives in these fields. Moreover, the ToR specify that the conclusions and lessons learned are expected to specifically address areas of particular interest, namely:

- The support provided to capacity building in partner countries;
- The level of the transfer of research results into social or economic processes likely to impact on poverty reduction in the longer term;
- The appropriateness of instruments and modalities made available; and
- The approaches, notably *country* versus *regional* support, or *direct* support to research versus *indirect* support through sectoral programmes that include research components.

The legal scope of the evaluation is delineated by the activities supported by the European Comission's Directorate-General Development and Cooperation/EuropeAid (DEVCO) through its cooperation instruments: the European Development Fund (EDF), the Development Cooperation Instrument (DCI) – both geographic and thematic budget lines – and European Neighbourhood Policy Instrument (ENPI).

While the Directorate-General for Research & Innovation (RTD) implements activities supporting R&I in developing countries, its policies, strategies, programmes and activities are not included in the scope of the evaluation and hence not the object of in-depth analysis here. They are, however, considered from a contextual point of view, and analysed from a complementarity and synergy perspective, together with, for instance, the activities of EU member states, other donors or multilateral organisations.

The temporal scope of the evaluation is the period of 2007-2013 which corresponds to the last EU multi-annual budget period and to that of the 10th EDF. Equally this is the period of RTD's Seventh Framework Programme (FP7).

1.2 Purpose of the note

The ten Country Notes for this evaluation serve to provide a national level view of what DG DEVCO support to R&I entails on the ground. They validate and expand the documentary analysis using the evidence collected during the field mission and the individual responses of EU Delegations (EUDs) to the online survey.

The Country Note is structured as follows. The introduction in Section 1 explains the rationale for the choice of the country. Section 2 outlines the methods use. Section 3 spells out the country context for DEVCO support to R&I and Section 4 provides an overview of the key DEVCO interventions. Section 5 presents the field mission findings for each EQ. These findings are categorised for each sector, per JC and per geographic level (national, regional, global) as far as applicable. Section 6 draws out any overall conclusions about the EU's cooperation on R&I with the country concerned.

The dates of the mission to India were: 1-6 November 2015. The mission was conducted by: James Mackie (team leader), Amit Kumar (national consultant) and Eunike Spierings (ECDPM).

The team would like to thank the staff of the EU Delegation for India for their availability and assistance as well as the representatives of the Government of India and the various research organisations, universities and NGOs visited for their openness and willingness to engage.

1.3 Reasons for selecting this country for the Field Phase

The field mission to India was considered relevant, as there is a relatively long history of EU-India co-operation and high-level policy dialogue particularly on Science and Technology (S&T). EU-India S&T Agreements were signed in 2002 and again in 2007 and the EUD has an S&T counsellor. This makes the nature of cooperation in R&I between the EU and India fundamentally different from cooperation with other poorer developing countries. The India visit also enabled the evaluation team to collect data on a country that, in the terms of the Agenda for Change, is expected to 'graduate' with DEVCO funding and staff capacity in the EUD being actively reduced. With greater involvement of DG RTD and a reduced role for DG DEVCO India is therefore an interesting case to study the complementarity between the two DGs.

India is a major emerging country with strong R&I capacities in many SISS fields including Information and Communication Technologies (ICT), space and other advanced technologies. The two DEVCO contracts extracted are quite specific but both are still on-going. In the SISS sector, this is the European Business and Technology Centre (EBTC), established for the European business and scientific community. And in EnvCC sector, it is the ACIDLOOP project, as part of the SWITCH-Asia programme. The SWITCH-Asia programme is relevant as within its environmental focus, the programme supports the capacity-building for technological, managerial and social innovation. Moreover, quite a number of Indian researchers participate in projects under the FP7 and India is a major user of the Erasmus Mundus (EM) Action 2 scholarships. This means there is potential for strong links between the Commission R&I strategy and other R&I support programmes including RTD. India has important Erasmus Mundus programmes with five different consortia of Indian and European universities successful in the two Calls for Proposals (for academic years 2008/09 and 2009/10). So far around 900 Indian students/scholars received a scholarship under this EM allocation of EUR 28 million.

1.4 Gaps of evidence addressed in the country

The specific purposes of the India field mission were to:

- Collect views from both EU and government on EU-India cooperation in the field of R&I in the context of the S&T Agreement;
- Study the impact of the high-level political dialogue on S&T on R&I cooperation practice;
- Collect views on two DEVCO-funded projects in India; the European Business and Technology Centre (EBTC) and the ACIDLOOP project, both from EUD officials, national officials and implementing partners;
- Find examples and hear views related to the transfer of R&I results into development processes;
- Assess experiences from Indian researchers in participating in FP7-funded research;
- Assess the complementarity between DEVCO and RTD-funded research, and the extent to which DEVCO action increased capacity of national institutions to participate in FP7;
- Hear local views and collect examples of impact;
- Hear EUD and local views on EU capacities.

2 Data collection methods (including limits and constraints)

The data collection method used in the India Field mission consisted of personal interviews with all the relevant actors viz. EU Delegation, Indian government senior officials, specific project partners, academicians, researchers and private sector.

In the case of EUD, the field mission team met the Head of the Delegation, S&T Counsellor, EURAXESS Links and other relevant staffs to get their perspectives on India-EU partnership.

To understand the views of related Indian government ministries/departments, the team met senior officials from the Department of Science and Technology, Department of Biotechnology, and Ministry of Micro, Small and Medium Enterprises. Among the interviewees, fortunately the team could meet the former Secretary of the Ministry of S&T, who held the office from 2003 to 2013, the period matching the evaluation period.

From the selected focus projects for this current evaluation i.e. EBTC and ACIDLOOP, all the relevant people were interviewed. For EBTC, the team talked to the EBTC Director himself and also EUROCHAMBERS and EBTC partners such as the Confederation for Indian Industry (CII) and the National Research and Development Corporation (NRDC).

For ACIDLOOP project, there were discussions with the project coordinator from the Energy & Resources Institute and other partners such as Stenum Asia, the Society of Indian Automobile Manufac-

turers and Assist. These were partly conducted at the SWITCH-Asia Networking Event in Delhi at which senior officials of the Government of India (GoI) also spoke on S&T policy.

To capture the views and insights of FP7 project holders and EM Action 2 contacts, about half a dozen academicians and researchers from premier Indian universities and research institutions such as Jawaharlal Nehru University, Delhi University and Research and Information System for Developing Countries were interviewed. The team also met European Studies course coordinator in one of the Indian universities.

To have an outlook on EU member states S&T collaboration with India, the team met a senior researcher at Indo-French Centre for the promotion of Advanced Research. The EU-India Think Tanks Seminar hosted by the EU Delegation provided another opportunity to speak to Indian researchers in different fields and hear presentations on EU-India cooperation notably in research.

3 Country context

3.1 Overall description of country political, legal, and development context in relation to Research and Innovation (context in which the EU intervenes)

3.1.1 R&I situation in the country

Research and innovation have been integral part of national science policies of India ever since independence. The Department of Science and Technology (DST) at the Ministry of S&T is the nodal agency to formulate policies related to scientific research and innovation in India. The first science policy document i.e. the Scientific Policy Resolution of 1958 did mention as one of its aims was to *'ensure an adequate supply, within the country, of research scientists of the highest quality and to recognize their work as an important component of the strength of the nation'* (DST, 1958).

The next S&T policy document i.e. the Technology Policy Statement of 1983, categorically recognized that *'the spirit of innovation and invention is the driving force behind all technological change....the system rewards and incentives will be strengthened for inventions, innovations and technological breakthroughs and their utilization'* (DST, 1983).

It has been realized quite early by the Indian government that it was only through the scientific approach and the use of scientific knowledge that the reasonable material and cultural amenities and services can be provided for every member of the community; and in the pursuit of fostering S&T in the country, the government started formulated plans and policies; and established various institutions in order to build/develop capacity in terms of both infrastructure and human resources.

Sectors such as agriculture, water, health, education, industry, energy including renewable energy, communication and transportation have been accorded priority by the government. Key leverage technologies such as information technology, biotechnology and materials science and technology have been given special importance with financial support by the national government in recent years. For instance, in case of nanotechnology, the government has initiated Nano Mission under the DST since 2007 with dedicated funding.

In terms of output indicators such as number of papers, since 2000, India has almost quadrupled its scholarly output. And it is also one the world's leading filers of patents. In terms of spending per researcher, India spends about USD 150,000, which is probably not too far from the optimal levels. However, in terms of gross R&D funding it has remained low at about 0.9% of GDP since 2005. India also ranks low in terms of full-time researchers with only about four researchers per 10,000 labour force (Van Noorden, 2015).

Nonetheless, the R&I in India are seen as a significant player in fostering the economic and social development of the nation.

3.1.2 R&I national policies, legal framework

The Department of S&T (DST) is entrusted with the formulation and execution of national policy related to S&T and R&I. For the period 2007-2013, there are two S&T policy documents which can be of interest. The first one is the Science and Technology Policy of 2003, where the government, recognizing the changing context of scientific enterprise, enunciated as one of its policy objectives was to encourage research and innovation in the areas of relevance for the economy and society, particularly by promoting public and private sector collaboration. It also stated that the international S&T cooperation would be promoted towards achieving the goals of national development and security and noted that the common goals could be effectively addressed by pooling both material and intellectual resources through international collaborative programmes (DST, 2003).

The second one is the Science, Technology and Innovation Policy of 2013, which calls for 'science, technology and innovation for the people'. It states that a strong and viable science, research and innovation system for high technology-led path for India is the goal of the new Science, Technology and Innovation (STI) policy. It also states that the participation in global R&D infrastructure will be encouraged and facilitated (DST, 2013).

One of the major differences from the 2003 policy document to 2013 policy document has been the explicit acknowledgement of the role of innovation in fostering development in the 2013 document. Among other things the Science, Technology and Innovation Policy of 2013, calls for 'science, technology and innovation for the people'. It states that a strong and viable science, research and innovation system for high technology-led path for India is the goal of the new STI policy. It also states that the participation in global R&D infrastructure will be encouraged and facilitated (DST, 2013).

Apart from DST, there are also other departments/ministries in India which formulate policies related to research and innovation in specific sector such as health, agriculture, electronics etc. For instance, Ministry of Health and Family Welfare comes out with policies related to health research in India. Similarly, Ministry of Agriculture and Farmers Welfare brings out policies related to agricultural research in India.

A National Innovation Act is being contemplated to facilitate public, private or public-private partnership initiatives for building an Innovation support system to encourage Innovation in India. Also recently, a White Paper on Stimulation of Investment of Private Sector into Research and Development in India was released for comments by the DST.

3.1.3 R&I institutional framework (who does what)

The overall broad national development plans, prior to 2015, were made by the Planning Commission of India (since 2015, this has been replaced by new planning body called National Institution for Transforming India Aayog). Taking the cue from these broad national five-year plans, the respective departments/ministries draft their plans.

There are various institutions involved in the R&I in their respective domain. However, the nodal agency for the formulation of S&T and R&I policies and funding in India is the Department of S&T. It covers almost all the sectors except atomic energy, space and defence Research & Development (R&D). The atomic energy R&D is looked after the separate Department of Atomic Energy. Similarly, the space R&D is done by Department of Space. So wide is the S&T infrastructure in India today that it encompasses S&T organisations under the central (Federal) government, state government as well as public and private sectors working in areas as diverse as agriculture and healthcare on the one hand and nuclear and space research on the other. Significant contributors are the large number of institutes/undertakings functioning under the central government S&T departments.

Though the DST makes national S&T policies, the other domain specific ministries such as health, agriculture, industrial R&D policies and programmes are also made by the respective ministries such as Ministry of Health, Ministry of Agriculture etc.

In general terms, it can be said that the national policy on S&T acts as guidance document to other ministries to formulate their respective policies to address the national goals and priorities as enunciated in the national policy.

The three main departments of the Ministry of Science & Technology engaged in scientific research and innovation are as follows:

1. *Department of Science and Technology (DST):* The DST is engaged in the formulation of S&T related policies and promotion of R&D through Extra Mural Research Schemes, that is funding R&D in organisations beyond the Ministry's own research institutes. Among the various departments and arms of the government, the DST has emerged as the major source of Extra Mural Research funding in the country.
2. *Department of Biotechnology (DBT):* The overall strategy for DBT is to 'accelerate the pace of research, innovation and development to advance biotechnology as a strategic area by taking India's strengths in foundational sciences to globally competitive levels and expanding the application of biotechnologies for overall growth of the bio-economy within the framework of inclusive development'.
3. *Department of Scientific and Industrial Research:* The thrust of the Department of Scientific & Industrial Research is to promote industrial research, technology development and transfer to enable India to emerge as a global industrial research and innovation hub. The emphasis is on attracting industrial research in the country through industry and institution-centric motivational measures and incentives, creating an enabling environment for the development of new innovations to channel benefits to the people.

Apart from these departments, there are other departments/ministries who are also involved in developing the R&I institutional framework within their domain such as health, agriculture, ICT, electronics etc. At the same time in many R&I projects, various ministries works together with the DST, pooling the funds and human resources. DST also takes on board the suggestions from other ministries while formulating the policy, related to both national and international cooperation.

3.2 Description of EU strategic priorities for the country, especially in the areas of R&I and key thematic sectors

As an emerging economy and a large country with global ambitions, India has a rather different place in EU cooperation on R&I than other developing countries. As described below, EU-India cooperation in R&I was already formalized in an S&T Agreement in 2002 and DG RTD maintains a full time S&T Counsellor in the EUD. On the DEVCO side, the Agenda for Change in 2011 initiated DEVCO's graduation policy. For India this means DCI geographic funding is being wound up and the only remaining possible DEVCO funding for the country is that from the DCI thematic programmes. Given the S&T Agreement and the graduation policy it is relevant for this evaluation to consider the DG RTD interventions in India so as to be able to assess the nature of the complementarity role DEVCO funding might be able to play in supporting R&I in an emerging economy.

How does EU support or promote R&I in the country?

EU collaboration with India on R&I goes back to well before the period for this evaluation. A first S&T Agreement was signed in 2002 and a new one in 2007. An EU-India ST Ministerial was held at the time (New Delhi, 7-8 February 2007) at which EU and India both reiterated their strong commitment to further enhance S&T collaboration.

For the historical record it is also worth noting that the Country Strategy Evaluation (CSE) for 1991-2005, the period prior to that covered by this evaluation, during which EU co-operation focused on other areas than R&I (health, education, environment and rural development, trade and economic co-operation, governance and aid effectiveness), never the less concludes that: *"…programmes and projects to promote cross-cultural economic co-operation and academic/scientific exchanges are highly appropriate responses to the increasing diversity and maturity of EU-India relations. These interventions have the potential for high and sustainable visibility."* This led to recommendation: *"The EC should invest more in activities that reflect this diversity and maturity in relations"*. Yet, despite this highlighting the importance of EU-India science collaboration the CSE contains no references to research financed by EU funding. However, this changes in the next country strategy period and the CSP 2007-2013 MTR Report (April 2010) identifies quite a number of EU-India agreements where research is included in the objectives covered.

Other parts of the Commission are also very interested in cooperation with India on R&I. The European External Action Service (EEAS) sees it as a prime target for what it calls 'Science Diplomacy'[46] and DG GROW is very interested in Indian researchers and entrepreneurs' capacity for innovation[47] within the framework of the 'Indo-Europe Research and Innovation Partnership' discussed at the India-EU Summit in February 2012.

What emerges from this is an overall picture of considerable Commission interest and commitment to R&I cooperation with India, but although significant DEVCO managed funds have gone into supporting this over the period 2007-2013, there is also a growing involvement of other DGs in this cooperation and the EU's support in R&I therefore seems to be gradually transiting from one that is development cooperation based to a more diversified partnership less reliant on development funds. This would be in line with the policy on graduation adopted in the EUs' Agenda for Change (2011) policy statement that sees cooperation with emerging economies such as India in a different light.

Also, both the EU and India increasingly emphasise innovation, the EU started the "Innovation Union" initiative[48] and India started the Decade of Innovation initiative and published its Science, Technology and Innovation policy in 2013. This new STI Policy envisioned having India in the top five global scien-

[46] Science Diplomacy is the term used by EEAS to denote the diplomatic value to Europe of collaborating with researchers in other countries not just in terms of promoting excellence in research but also in encouraging spin-offs and innovation that can feed into economic growth in both countries. They argue that Indian (or indeed African) researchers who have had support from the EU over time will tend to come back to the EU for further partnerships, equipment and technology throughout their careers.

[47] Internal Commission papers indicate that DG GROW is, for instance, interested in such ideas as 'Frugal Innovation' emerging from India (e.g. Navi Radjou, Dr. Jaideep Prabhu Dr. Simone Ahuja and Kevin Roberts (2012). Jugaad Innovation: Think Frugal, Be Flexible, Generate Breakthrough Growth)

[48] http://ec.europa.eu/research/innovation-union/index_en.cfm

tific powers by 2020. Some of the key ambitions of the policy are to attain the target of 2% of GDP in research and development in the first five years and to enhance innovation through a public-private partnership mode of private sector participating in research and development.[49]

Focal sectors and non-focal sectors

In the CSP 2007-2013, under the Joint Action Plan agreed at 6th EU-India Summit on 7 September 2005, dialogues and actions are envisaged for areas where the EU and India have jointly identified scope for enhanced cooperation leading to better governance and policy-making. The Action Plan foresees economic sectoral dialogues in a variety of sectors and the strengthening of activities in academic and education exchanges. The CSP focuses on two priorities, namely: (i) support for the social sectors (health and education), and (ii) Support to the economic, academic, civil society and cultural activities foreseen in the Action Plan.

The higher education component includes a programme, particularly at post-graduate level, under Erasmus Mundus Action 2 in the 2011-2013 period (CSP MTR report) with the aim (i.e.) to promote science and research co-operation.

The CSP 2007-2013 MTR Report (April 2010) concluded that only minor adjustments are required in the National Indicative Programme for 2011-2013. Priority 2 should focus on a limited number of sectors such as higher education, energy, environment, science, research and innovation, where policy dialogue between the EU and India is continuing in the context of the Joint Action Plan and which are highly relevant to achieve the Millennium Development Goals (MDGs) and the targets set in the Indian 11th Five-Year Plan. Support to higher education will also include expanding further Indian use of EM Action 2 scholarships.

The Brussels Communication of 31 May 2012 on the Indo-European Research and Innovation Partnership, called for mobilising industrial partners, particularly small- and medium-sized enterprises (SMEs), in this field.

Health

The CSP 2007-2013 identifies in the Indian Health sector key weaknesses in terms of policy dialogue, programme efficiency and disbursement. In the future Health Programme, the EC will particularly look at how these issues could be mainstreamed into the sector support for health. The CSP 2007-2013 makes the following comment: “The EC also responds to the global AIDS epidemic through the framework programmes for research” (funds for fundamental research and advanced clinical research e.g. European and Developing Countries Clinical Trials Platform programme on clinical trials).

The India-EU and Member States *Group of Senior Officials* (GSO) for Research and Innovation agreed in October 2013 to focus the Indo-European Partnership on R&I on three areas, one of them being Health, the other two water and energy (see below).[50]

Environment and Climate Change

The Joint Work Programme for EU-India Co-operation on Energy, Research, Clean Development and Climate Change, signed in September 2008 reiterated joint commitment to closer co-operation (MTR Report).

The Strategic Forum for International Cooperation in Research and Innovation (SFIC) for the Member States and the EC worked with India as a first partner country and launched in 2010 an India Pilot Initiative on water and bio-resources challenges. Since then the India-EU and Member States *Group of Senior Officials* (GSO) for Research and Innovation agreed in October 2013 to focus the Indo-European Partnership on R&I on water and energy as two of the three key areas.[51]

Science, Information Society and Space; Higher Education

In the CSP 2007-2013 the main objective of EC co-operation in Higher Education with India is to enhance international co-operation capacity of Indian universities by facilitating transfer of know-how and good practices in the field of student and academic staff mobility. EU will contribute to financing a mo-

[49] See http://erawatch.jrc.ec.europa.eu/erawatch/opencms/information/country_pages/in/highlights/highlight_0002 and, for more details, also http://www.indianembassy.ru/index.php/science-technology/s-t-policy-of-india.

[50] Delegation of the European Union to India Research & Innovation Section, March 2015, Overview of EU and member states Research and Innovation cooperation with India. http://eeas.europa.eu/delegations/india/ documents/snt_update_26_oct_12/overview_of_research_and_innovation_coop_july_2012.pdf

[51] Delegation of the European Union to India Research & Innovation Section, March 2015, Overview of EU and member states Research and Innovation cooperation with India, http://eeas.europa.eu/delegations/india/ documents/snt_update_26_oct_12/overview_of_research_and_innovation_coop_july_2012.pdf.

bility scheme between European universities holding an Erasmus Charter and Indian universities to complement existing programmes in the field of higher education. To include doctorate and post-doctorate mobility opportunities and academic staff exchanges for *i.e.* research. Higher co-operation activities will be funded under the Asia and Latin America regional programming.

It is also proposed that European Study Centres and Centres for Contemporary Indian Studies would be created in India and EU, to develop academic links, promote knowledge on both regions and mutual understanding. Centres could support joint research on topics of common interest in Joint Action Plan.

As indicated above the India-EU GSO for Research and Innovation agreed in October 2013 to focus on three areas (health, water and energy) to which ICT and bio-economy might be added.[52]

4 Overview of EU-funded key interventions

Table 3 Overview of EU-funded key interventions in India

#	Sector	Programme/contract title	CRIS number	Contractor	Year	Total amount contracted (in EUR)
DG DEVCO support						
1	EnvCC	Sustainable production through market penetration of closed loop technologies in the metal finishing industry (ACIDLOOP)	c-263160	THE ENERGY AND RESOURCE INSTITUTE	2011	1,916,055
2	EnvCC	Promotion of a sustained CCT capacity in India	c-243966	VENTURE EAST CONSULTING LIMITED LBG	2010	495,957
3	SISS	The European Business and Technology Centre in India (EBTC)	c-160241	EUROCHAMBRES-ASSOCIATION DES CHAMBRES DE COMMERCE ET D'INDUSTRIE EUROPEENNES ASSOCIATION INTERNATIONALE	2008	6,586,578
4	SISS	Collaboration in Research and Development of New Curriculum in Sound & Vibration	c-111000	KUNGLIGA TEKNISKA HOEGSKOLAN	2005	725,633
5	Other	International best practice exchange leading to innovation in Sarva Shiksha Abhiyan (SSA II)	c-220646	THE SAVE THE CHILDREN FUND LBG	2010	2,750,400
6	Other	Human Resource Development in Law and Economics for India and Europe	c-103854	UNIVERSITAT HAMBURG	2005	185,334
7	Higher Education	Erasmus Mundus Action 2				
8	Higher Education	India EU-Study Centres programme – Erasmus Mundus				
DG RTD Support						
9		FP7 Coordinated calls				
10		FP7 Open calls				
11		ERA-Net schemes				
12		EURAXESS-LINKS				

The above table starts with a list of all the contracts financed by DEVCO identified in the inventory for this evaluation (interventions 1 to 7). Six contracts were identified in the range of EUR 185,000 to EUR 6.5 million with the EnvCC and SISS sectors having two each. The other two contracts (num-

[52] Delegation of the European Union to India Research & Innovation Section, March 2015, Overview of EU and member states Research and Innovation cooperation with India, http://eeas.europa.eu/delegations/india/ documents/snt_update_26_oct_12/overview_of_research_and_innovation_coop_july_2012.pdf.

ber 5 and 6) were outside the sectors of interest to this evaluation, and the 8th one was mentioned in the survey answers of the EUD for India but did not appear in the inventory. Two of the largest, ACIDLOOP (programme #1, EnvCC) and the European Business & Technology Centre EBTC (programme #3, SISS) were selected for the field study. Two of interventions in the table are DEVCO-supported regional and global programmes relevant to R&I, namely: ACIDLOOP (#1) which is funded through the SWITCH-Asia regional programme and the global Erasmus Mundus Action 2 (#7).

The second part of the table lists DG RTD programmes identified during the visit. These include the FP7 programme, which consists of the regular open calls and the India-specific coordinated calls under the S&T Agreement. The two FP7 programmes are, together with the ERA-Net schemes and the EURAXESS-LINKS programme, all fully or partially financed by RTD. The overall context for this funding for R&I is given by the bilateral S&T Agreement between the EU and India which is why these RTD interventions are included. RTD implements the S&T Agreement and especially the coordinated calls set important parameters for R&I cooperation between India and EU. As DEVCO support in India is scaled down under the graduation policy, it becomes increasingly important to have a complete picture of RTD's work in the country so as to be able to understand the potential complementarity of any remaining support from DEVCO.

This section discusses first the DEVCO-financed programmes #1, #3, #7 and #8, before turning to the RTD implemented and financed schemes #9, #10, #11 and #12. These eight programmes are those that were covered in the field mission.

EnvCC sector

Programme #1: SWITCH-Asia – project: ACIDLOOP[53]

Description:

The SWITCH-Asia programme aims to introduce and establish sustainable production and consumption practices in Asian economies. In this way, the SWITCH-Asia programme aspires to address the issue that despite the growing global importance of Asia for industrial manufacturing, worsening environmental degradation and increasing greenhouse gas emissions are threatening to undermine the benefits of this robust economic growth. Moreover, the scale and pace of environmental degradation and greenhouse gas emissions are becoming both a matter of significant concern both for the region as well as for the globe.

For the overall R&I evaluation 43 SWITCH-Asia projects conducted in four Asian countries, China, India, Philippines and Vietnam, were selected because of their reporting period. Several projects covered by the sample apply an approach to promote cleaner production practices, while also aiming to generate and develop the materials, processes and skills required to mainstream these Sustainable Production Practices into organisational routines by upscaling pilot public-private partnerships. This also concerns the one project studied in India; the *"Sustainable production through market penetration of closed loop technologies in the metal finishing industry" (ACIDLOOP***)** (*c-263160*). ACIDLOOP is a project aiming at sustainable production through market penetration of closed loop technologies in the metal finishing industry. It set out to introduce acid recovery technology and resource efficiency in production. Here, the transfer of technology – organised in terms of constructing demonstration plants – was accompanied by extensive training and capacity building of Indian staff (*c-263160* 2nd interim report).[54]

The contract for ACIDLOOP of EUR 1.9 million was signed December 2011, for the period February 2012 to January 2016. ACIDLOOP covers SMEs active in the metal finishing industry in the urban regions of New Delhi & Ludhiana; Pune & Ahmedabad; Hyderabad & Madurai. ACIDLOOP has three main implementing partners in India: The Energy & Resources Institute (TERI), Asia Sustainable Development Society (STENUM Asia) and the Society of Indian Automobile Manufacturers (SIAM). The other implementing partners of the ACIDLOOP project are Aldephi in Berlin, VDEh-Betriebsforschungsinstitut GmbH in Düsseldorf, Austria Recycling Verein zur Förderung von Recycling und Umweltschutz in Österreich in Wien, and Asia Society for Social Improvement and Sustainable Transformation, Inc (ASSIST) in Chennai, India.

Rationale:

The underlying rationale for the SWITCH-Asia programme is to serve development and poverty-reduction policy objectives (as stipulated in DCI regulations) while ensuring that the socio-economic development in Asia is environmentally and socially sustainable (as outlined in the Regional Strategy

[53] This project is also listed in SWITCH-Asia Regional Programme profile.
[54] SWITCH-Asia: http://www.SWITCH-Asia.eu, ACIDLOOP: http://www.ACIDLOOP.in/.

for Asia, *D-19803* Action Fiche revised). The overall objectives of the ACIDLOOP project are to improve urban environmental quality in selected Indian urban regions, to improve living conditions in the target regions and improved production technologies. Specifically the four-year project aims to introduce technology innovation and resource efficiency in the metal finishing companies (SMEs) that would lead to improved environmental quality and combat pollution through advanced water treatment measures and energy efficient processes.

Findings:

The ACIDLOOP project appears to be a successful project by all accounts. The introduction of technology innovation and resource efficiency in metal finishing companies is clearly relevant and its implementation in the four years has been efficient. Moreover, the project implementers noted a project like this needs three to five years as the kind of groundwork done in the past years (adapting the technology, having clear examples) really requires time to develop. The project is effective in disseminating adapted technologies, it most probably has sustainable results and it has a direct impact on smallholder entrepreneurs.

Consortium partners included European partners for the resource efficiency techniques. The EU suppliers gave a three week training course in Europe on resource efficient technologies. The Society of Indian Automobile Manufacturers was involved as the metal finishing process is very relevant for the component suppliers in the automobile industry. The project focused on waste water, acid recovery and resource efficiency. The project did not result in a changed technology, but rather making substantial savings in resources and materials used. The project managed to get 22.8% reduction in materials and 21.15% reduction in energy. The introduction and application of the technologies had to be customised. The aim was to show on a relative small scale that the technologies work. The adaptation of the technology for India was needed to make them suitable for Indian conditions, for example because the waste water in India contained far more oil compared to Europe.

ACIDLOOP had a strong and intensive capacity building component at all different levels; training of the teams – extension workers, training of 100 SME owners and a series of worker training programmes. Extension workers visited all individual sites to make specific suggestions to each company involved in the project and it was important to show the immediate benefits. Initially the entrepreneurs really needed to be convinced, and trust had to be built, but they got more interested when they saw the results. Training had to be innovative and customised in terms of approach and topics as well as logistically to do it at times that suited SMEs and training had to done in local languages. Training also had to be repeated several times and in between use had to be monitored; the project used a lot of participatory exercises, and had to be practical for workers to see the value. For communication with SME owners WhatsApp was found to be the best tool as the owners do everything on their smart phones. SME owners were very positive when they saw the savings.

Working through the small-scale manufacturers associations was most effective, and at manufacturers site it was effective when the results could be shown. The take up has been good among the hundred manufacturers involved. In total the ACIDLOOP project trained staff of 664 Micro, small and medium enterprises 12 locations; of them 385 were trained with specific skills and 100 SMEs continued in the further cooperation. Tailor made dissemination of the technology using innovative methods was therefore a vital component of the project and is also expected to contribute to sustainability.

The organisation of SWITCH-Asia with a large number of small calls does limit the continuity of all the various projects, but the EC was obliged to work with Calls for Proposals. Currently the ACIDLOOP project aims to ensure its ccontinuity by preparing didactic materials that can be used for further training: both booklets and via smartphones as a tool. Also the costs still have to further reduced to an acceptable level so it becomes viable for MSMEs. The project managers hope that at an institutional level manufacturer associations will pick up the technology and then disseminate it to their members (e.g. Association of Metal Finishers, or SIAM – Automotive manufacturers). The next step for the project would be to convert the concept of ACIDLOOP into a commercial venture, or an Indian agency might pick it up and build a business case, of which the project holders seemed confident. The idea is that this would be a marketable service in its own right that another MSME might pick up and sell: e.g. with a mobile unit the SME could go round all the metal finishers and treat their effluent as a mobile service. The other option would be to have a follow-up project approved and aim for a much higher impact in the region.

The focus of ACIDLOOP is more on innovation than on research, it aimed to get new technologies accepted, and involved only a small amount of applied research for adaptation. This kind of innovation work does not seem to fit in RTD funding which is more focused on future solutions, novelty and excellent research. While ACIDLOOP is about demonstrating already existing solutions, demonstrating them and lead those to implementation. That is clearly much better suited to DEVCO funding (DCI), and alternative sources of funding are not apparent: as DST is not interested in the more applied research and innovation side but is rather more focused on fundamental research, and MSME would be

better but does not have the international cooperation links. The documentation and interviews provide no evidence of links with other R&I support programmes.

Overall, the case for DEVCO funding is very good, it fits well with the EU's concerns with EnvCC, there is a clear link to the SDGs, to SCP, to innovation and getting technology accepted, and to encouraging SMEs. However, such a project can only serve as a small example of better practice and EU is limited in what it can do in terms of supporting scaling-up because of its graduation policy. This means there are no geographic funds in India that can take over from where SWITCH-Asia funding has to stop, making it all the more important that the original project factors in sustainability considerations from the start.

SWITCH-Asia also involved some degree of policy dialogue but in the case of ACIDLOOP this was only of a limited scale and apparently not the key focus. This was explained by some interviewees as due to the lack of interest shown by relevant government departments but also by the rather small scale of the project which makes it unrealistic to have impact on policy. The policy dialogue that did take place involved a broad range of actors at the local level, including associations, industries, regulatory bodies, banks and, depending on the region, the pollution control board. It was an open dialogue, in which each of the actors highlighted their concerns and according to the project implementers the dialogue made companies more receptive to standards.

The institution- and network-building dimensions of the SWITCH-Asia programme created the organisational pathways for knowledge generated in HEIs and ROs to make an impact on development processes, and at the level of ACIDLOOP, although links among the partners involved were strong, there was no clear link identified towards HE or research (such as Erasmus Mundus or the Framework Programmes) and the practical application of this knowledge for sustainable growth and poverty-alleviation. A recent evaluation of the regional strategy for Asia (published in 2013) found that while the SWITCH-Asia Network Facility had greatly improved the visibility of the programme, it is the grant funded projects that show most promise of meaningful impact: here, "two-thirds of the grant projects are expected to achieve their target in terms of small and medium enterprises (SMEs) applying SCP practices" (Regional Strategy Evaluation Asia 2013, Vol. 1, p. 39). The PSC component, the evaluation contends, has had "modest" impact on national policy frameworks for SCP.

SISS sector

Programme #3: European Business and Technology Centre (EBTC)

Description:

The mission of the European Business and Technology Centre (EBTC) is to assist the business and research communities – in Europe and India – in promoting cooperation and generating new business opportunities (also through technology transfer), with a focus on energy, biotechnology, environment and transport and more generally on removing trade constraints. As the initial Grant Contract 2008 states the aim of the European Business & Technology Centre is to "develop a Centre that will become *the* reference point for promoting European clean technologies in India, and will be recognised for the quality of its services, its knowledge of the Indian market and its capacity to reach out to the entire European business and research community". The EBTC would essentially cater to needs of EU operators in India focussing on Business and Science & Technology sectors (EBTC 2007 Action Fiche).

Further to the EC Decision of 20 December 2007, a call for proposals for the establishment of an EBTC was launched in May 2008. A proposal from Eurochambres was selected and a grant contract for EBTC I signed. Follow up contracts for EBTC II & III were signed in December 2008 and 2009. The initial budget of the project was EUR 8.65 million, with EC contribution of EUR 7 million. The EBTC I contract was EUR 7 million, with an operational duration of 60 months as from date of implementation Grant Award. The further two contracts of EUR 5 million each EBTC II (2008, *c-17678*) and EBTC III (2009, *c-224022*) made the total EC contribution EUR 16.6 million (EBTC I+II+III) for the period 10/2008 to 02/2017.

EBTC would complement efforts of existing MS bilateral chambers of Commerce in India (EBTC 2007 Action Fiche). Efforts were made to draw lessons from other similar initiatives in Russia and Japan. The latter was a DG Enterprise initiative. Also from a European Business and Information Centre in Mumbai that was closed down as it had not been successful.

EBTC would encourage greater use of (clean, safe and efficient) EU technologies and standards in India. Main activities should include: exchange of know-how and information, seminars, intelligence gathering, networking through events, consultations and dialogue sessions, sector studies, project facilitation, encouraging EU researchers' participation in Indian funded research and regular syntheses of Indian S&T policy. A Project Steering Committee would involve the main stakeholders and be chaired by EUD. Monitoring systems are to be put in place, visibility guidelines to be followed.

Rationale:

The overall objective of establishing an EBTC is to improve links between European and Indian business and with S&T stakeholders involving business, industry and public bodies with a view to promote the EU interests and tap the fast-growing Indian economy. The specific objective is to provide an effective "'interface" between public policy and private actors to facilitate exchanges, partnerships and joint initiatives between European and Indian companies, in particular SMEs, business executives and researchers/ scientists targeting the identified sectors.

Findings:

The funding for the EBTC was the result of a Preparatory Action from the European Parliament agreed during the Marseille EU-India summit in 2008, and the extra budget is managed by DEVCO. The approach of the project seems solid, both the matching service and the adaptive approach and tie up with Indian local universities and technology colleges who can test and adapt technologies and are interested to cooperate appear well thought through. However, there was apparently no adequate feasibility study which probably contributed to a poorly designed ToR that did not identify some of the obstacles to be overcome.

In addition to its main office in Delhi, EBTC opened three regional offices (Mumbai, Bengaluru & Kolkata) to expand its geographical network and further enhance and consolidate services as well as a new European Technology Experience Centre in Bengaluru to showcase equipment from European firms. The 2013 MTR of EBTC found a good foundation with sound linkages in India and EU were established and competent staff was appointed. There were question marks over the funding sustainability, yet there was no phasing out or exit strategy. Coordination and complementarity among stakeholders were not ideal and needed to be improved.

EBTC analyses suggest that in certain sectors there are a lot of competences in Europe and a lot of need for these in India, for example to comply with pollution regulations. But EBTC sees a huge gap, a mismatch at micro level: European SMEs underestimate the requirements needed to adapt their business model, their technologies and their mindset to Indian conditions. Technologies developed for the European market are in some cases far too complex for the Indian market, which would require to downsize good techniques, to fit India's price sensitive market. To adapt technologies, a first partnership might need to consist of researchers, or companies doing combined research and technology development, as SMEs cannot absorb such high levels of upstream costs. Which is why EBTC started a European technology experience centre, virtually displaying technologies at universities and in business colleges to get feedback on what needs to be adapted to make it fit for India.

But, a number of contradictions in the project design have dogged the EBTC project from the start. EBTC did not manage to get the right institutional set up in place. The aim of the EBTC was to become self-sustainable, but under Indian law it was never allowed to receive foreign contributions. This apparently means the EBTC is not able to invoice its services to both European businesses and Indian companies willing to pay for their services, and thus will never be able to become self-sustainable. As a result of this it appears there is no other solution but to close down the project as of January 2016.

An essential element of EBTC programme was to be complementary to the existing work of EU Member States, but a mapping was done of these activities was not carried out till fairly late in the days. It is also worth noting that several Indian institutes are active in the same R&I field, the National Research Development Corporation (NRDC), a government institute, but also the Foundation for Innovation and Technology Transfer and the Confederation for Indian Industry (CII) which is a technology partner supporting partnerships with companies and supporting pilot projects. In such a complex playing field the real added value of EBTC was not clear among interviewees and seemed to require better definition. At the same, the original tender specified that only European organisations could apply. Thus EBTC could only work informally with Indian partners rather than involve them institutionally. Yet from interviews it was apparent that various potential Indian partners were clearly interested in the concept and also had a positive impression of EBTC. However, they also noted that the partnership with EBTC was not well structured or sustained, and more linked to individual events. No clear partnership goals were set and they had the impression that no clear idea existed on the strategy of EBTC, which meant for example that some of them found they could not play the role they would have liked to, for example by bringing in the right partners around Indian processes.

The EBTC was supposed to create partnerships to enhance collaborations to contribute to development. However, it also emerged that there were difficulties at the European end to get SMEs, involved and to convince national and local level chambers of commerce to participate though recently this was said to be picking up.

On various sides therefore interviewees indicated that while the concept seemed good they found the EBTC achievements did not match expectations. EBTC was able to raise the visibility of EU business

and technology in India and can showcase a handful of examples, after seven years, one being outlined in the text in Box 2 below.

Box 2 The EBTC process: Assisting an European SME to access the Indian market

A German SME, sunfire GmbH, approached EBTC and the Fraunhofer Centre for International Management and Knowledge Economy for help to produce and market in India a solid oxide fuel cell stack technology that they own and sell in Europe. Fraunhofer and EBTC provided basic information on the Indian market which persuaded sunfire to explore further. They signed up for a virtual display of their technology in an EBTC demonstration centre and joined a business delegation to India involving various B2B meetings arranged by EBTC.

In the course of this process sunfire learned the technology would not operate efficiently in India due to various factors. EBTC therefore arranged for collaboration with Thiagarajar College of Engineering in Madurai to work with sunfire to adapt the technology to Indian conditions. In the meantime, EBTC also helped with IPR issues, finding a potential client for the technology and adapting the sunfire business model for Indian conditions. The client provided guidance on required performance criteria and price to make the product appealing for the very prices sensitive Indian market.

The whole process, from first contact to an adapted technology accepted by a potential client, with a business model, but not including manufacturer identification, distributor identification, or IPR management, lasted 16 months. EBTC provided knowledge, contacts, expert advice and logistical support throughout.

Source: EBTC project note

The Intellectual Property dimension seems to be an interesting and relevant area of work for EBTC, especially in the tie up with the European Patent Office (EPO). European IPRs are not automatically valid in India, and existing patents in India are not digitally accessible. However, the Confederation of Indian Industry also works on IPR issues with the EPO, and EPO itself has been active in building capacity of different partners and work on awareness raising. Which means it is not clear to what extend there is an overlap or complementarity with the work by EBTC. Some actors noted that the IPR issues play a role in some sectors such as in pharmaceuticals or agriculture but are not really a major issue for SMEs.

A range of suggestions were made on how to build on the concept of the EBTC, for example, to link up with the GoI's flagship programmes. The new Indian government under President Modi has created considerable new momentum both for research and for commercialisation, around several national flagship programmes (including for example: Building 100 smart cities, Rejuvenating the Ganga river, Developing cities along the river's bank, Skill India, Skilling 300 million youth by 2022, Providing affordable power and housing to all and Digital India). It was suggested that there was considerable potential for EU firms to bid for components of these major projects as there were many relevant European technologies. Indian interviewees were interested in EBTC's current work on technology and environment. However, currently EU-India R&I cooperation is more focused on fundamental research, but it is exactly the connection from research to business that is important here.

Moreover EBTC felt it could get European firms to access these flagship programmes through their contacts and based on the assumption it would be easier for the GoI to deal with EBTC, rather than with 28 Member States separately. EBTC would then be able to gather all the various relevant technologies from across the EU and help ensure the GoI would get access to the best technologies by providing a knowledge bank, or one platform through which India could access European experience. At the same several interviewees felt there was a strong competition element between EBTC and the commercial promotion work of EU Member State embassies. It is not clear whether many Indian actors really saw the added value of a *European-wide* approach as they were used to dealing with individual EU member state embassies. Moreover, Indian embassies in Europe also liaise with companies and support Indian firms with advice and the CII has its own relations and structures in the UK and in Germany.

Another suggestion made was to engage with entrepreneurs in India and EU, matching SMEs and facilitating industry contacts on both sides, to develop an industry driven programme focused on innovation. It was noted by some respondents that for the technology adaptation process financing is a prerequisite and to access European technologies these have to be promoted, with demonstration centres creating a market. EBTC could help to identify such opportunities in India. Also the Ministry for MSME was interested in the concept and identified 15 priority sectors in which external support would be welcomed. It was suggested EBTC work should therefore be working with the MSME Ministry. And among other ideas it was suggested that the project might have worked out better as a joint project with Indian leadership knowledgeable about the Indian R&I sector.

The original overall design of EBTC was also considered by some to be too much of a one-way concept of bringing technologies to India. While the Indian government certainly aims to increase technology transfer to Europe for specific sectors, like aviation, there is also potential in the other direction. Thus EBTC could be the vehicle for this or rather one could have a matching 'Indian BTC' in Brussels as a reference point for European industry. Selecting technologies and arranging the pricing part from Europe would be a relevant role according to Indian partners.

The EBTC project is not so much about research but more about innovation and getting new technologies adopted. This approach fits better under DEVCO funding, as DG RTD is unlikely to fund this kind of long-term research collaboration. Yet DG RTD is apparently asking for EBTC services and mentions EBTC's involvement in "brokerage" events organized by the NEW INDIGO (INNO INDIGO as from 2014) Partnership Programme with the purpose of promoting the networking of R&I stakeholders, and in particular industry, with a perspective to enhancing the concrete exploitation of research results [55,56]. In the light of the DEVCO graduation policy the Partnership instrument is probably the only solution to funding such projects in India in the future.

Indian partners suggested EBTC could also be a counterpart of the Global Innovation and Technology Alliance (GITA)[57] a joint DST and CII initiative. As Indian SMEs look for access to EU, the EBTC could facilitate this via the GITA. Indian SMEs really need one contact point in Europe, rather than in India. In fact, EBTC respondents also suggested they would have an advising role both to the EU-India GSO in the context of the S&T Agreement and also towards GITA. However, there was also a sense that RTD had not been inclined to involve EBTC.

Higher Education

Programme #7: Erasmus Mundus Action 2

Description:

Erasmus Mundus is the EU's global academic mobility programme. The Erasmus Mundus is a scholarship programme supporting the mobility of Master students, doctoral students, post-docs and members of staff from partner countries around the world to spend time studying and researching at European HEIs. The programme provides mobility in three distinct actions. Action 2 establishes partnerships between HEIs in Europe and partner countries and provides scholarships for mobility within these partnership networks. In 2007-2008, 77 doctorate, 37 post-doctorate and 52 member of faculty from Indian HEIs benefitted from Erasmus Mundus mobility, and these numbers increased up to 326 doctorate, 143 post-doctorate and 197 members of staff that received mobility grants under EM Action 2 from 2009-2012. These mobility grants amounted to EUR 23.5 million. Details are given in Table 4 below.

Table 4 Erasmus Mundus Action 2 scholarships for Indian nationals (2007-2012)

Period	Doctorate		Post-doctorate		Staff		All categories	
	Number of persons	Total value of scholarships received (EUR)	Number of persons	Total value of scholarships received (EUR)	Number of persons	Total value of scholarships received (EUR)	**Number of persons**	**Total value of scholarships received (EUR)**
2007-2008	77	3,944,075	37	830,750	52	384,675	**166**	**5,159,500**
2009-2012	326	14,597,414	143	2,555,125	197	1,163,925	**666**	**18,316,464**
2007-2012	**403**	**18,541,489**	**180**	**3,385,875**	**249**	**1,548,600**	**832**	**23,475,964**

Source: EACEA

[55] Delegation of the European Union to India Research & Innovation Section, March 2015, Overview of EU and member states Research and Innovation cooperation with India, http://eeas.europa.eu/delegations/india/ documents/snt_update_26_oct_12/overview_of_research_and_innovation_coop_july_2012.pdf

[56] Group of Senior Officials, 31 May 2012, Brussels Communiqué The Indo-European Research and Innovation Partnership Shared Vision & Pathways, https://ec.europa.eu/research/iscp/pdf/policy/brussels_communique-0313.pdf.

[57] GITA http://gita.org.in.

Rationale:

The programme "…aims to enhance the quality of European higher education and to promote dialogue and understanding between people and cultures through cooperation with Third-Countries"[58].

Findings:

India is a significant participant in the Erasmus Mundus programme, however, at an Indian scale, the interviewees all underlined the size of this programme is rather small.

Interviewees noted that the focus of Erasmus, especially at Masters level, is really on individuals, supporting their development and careers. As students could benefit from the programme but could go anywhere after their studies, the lack of benefits of the programme to the institutes involved was seen as a shortcoming. Moreover, one academic interviewee felt that the best students were not selected. A stronger involvement of the institutes in the selection process was therefore suggested, for instance by nominating several students from which the EM administrators could then select final candidates. The academic links are found to be very poor and the Erasmus programme thus had no institutional capacity building impact.

At doctoral level and beyond this is less the case as Erasmus is then seen as a route to building up contacts and networks and doctoral students can be more easily tied down to institutions. In that sense Erasmus is also seen as a useful route into networks useful for FP7.

Erasmus is one of several opportunities offered to Indian individual researchers, others include the Marie Skłodowska-Curie actions (supporting the mobility of researchers), under FP7 about 1,600 Indian researchers took Marie Curie fellowships; and grants of the European Research Council (focusing on fundamental research); under FP7, 173 Indian nationals applied for an European Research Council grant, of which 18 received one.[59]

Programme #8: The India-EU Study Centres Programme

In the online survey conducted by the evaluation team, the EUD for India added a programme to create European Study Centres and Centres for Contemporary Indian Studies in India and EU. This India-EU Study Centres Programme, funded under Erasmus Mundus, formed an integral part of the India-EU Joint Action Plan which was adopted by the EU and India in September 2005, following the decision to foster an India-EU Strategic Partnership, which was agreed upon on November 8, 2004. The programme aimed to promote a better understanding of the EU in India and vice versa through academic and other forms of cooperation. The programme goal was to strengthen existing study centres and establish new ones focusing on EU studies in India as well as on contemporary Indian studies in Europe. The programme provided for technical assistance aimed at academic, administrative and institutional capabilities. The last call for expressions of interest was published in 2009, and the programme awarded six grants to consortia of universities for the establishment of new EU-India study centres. Four of these centres were to be established in India (Mumbai, Delhi, Chennai and Manipal) and two in the EU (Aarhus, Denmark and Warsaw, Poland). One of them is the Centre for European Studies of the Jawaharlal Nehru University, which is one of the oldest independent centres for EU studies in India, founded in 1964. According to an Indian interviewee, this is the only one centre in India that is still open as it was already part of an existing institute, as opposed to the centres started in the context of the programme which lasted for only three years.[60]

S&T Agreement

Programme #9: FP7 coordinated calls

Description:

A first EU-India Agreement on scientific and technological cooperation was concluded in 2001 during the 2nd India-EU Summit and renewed in 2007 during the 8th India-EU Summit.[61] Joint Action Plans have been drawn up and EU-India summits in S&T are held in order to promote this cooperation. The

[58] Erasmus Mundus 2009-2013 website: http://eacea.ec.europa.eu/erasmus_mundus/programme/about_erasmus_mundus_en.php.

[59] EUD website on collaborative research opportunities: http://eeas.europa.eu/delegations/india/eu_india/ research_innovation/20140822_01_en.htm

[60] Websites on the India-EU Study Centres Programme; http://erasmus.iescp.net/index.php/iescp and http://eeas.europa.eu/delegations/india/press_corner/all_news/news/2010/20100129_01_en.htm and http://www.sasnet. lu.se/education/ india-eu-study-centres-programme-iescp.

[61] Agreement for scientific and technological cooperation between the European Community and the Government of the Republic of India, L 213/30, 9.8.2002, http://trade.ec.europa.eu/doclib/docs/2003/july/tradoc_113341.pdf.

Directorate General for Research and Innovation of the European Commission implements it on the European side, and the Department of Science and Technology on the Indian side. Annual Joint Steering Committee meetings review and oversee the activities carried out under this framework.

The 2005 India-EU Joint Action Plan, updated in 2010, ensured S&T got strategic importance in the cooperation agenda. In 2006, during the 3rd India-EU Joint S&T Steering Committee meeting in Brussels, agreement was reached on three core principals in the S&T collaboration; 'Reciprocity', 'Parity', and 'Co-investment of resources' as well as an exclusive Intellectual Property Rights (IPR) sharing agreement in the collaborative projects.

During an EU-India S&T Ministerial in New Delhi (7-8 February 2007) EU and India both reiterated their strong commitment to further enhance ST collaboration. "*Underlined that S&T cooperation between the EU and India should be based on the principles of symmetry, reciprocity, mutual interest and, where appropriate, the co-investment of resources in joint actions*".[62] It provided for an annual commitment of EUR 5 million from each side for India-S&T collaboration, based on Coordinated joint calls for proposals. In the India-EU Joint Statement of 30 November 2007[63] it was agreed that effort should be consented towards the creation of **joint infrastructure** for advanced research and **funding systems for symmetric programmes** for promotion of S&T collaboration.[64]

After the establishment of the Strategic Forum for International Cooperation in Research and Innovation (SFIC) for the Member States and the EC, India was the first partner country identified for closer cooperation in 2009. Within this framework an India-EU/Member States (MS) conference was organised in New Delhi in 2010. It called for more coordinated India-EU/MS R&I activities, in particular to address global societal challenges, and the India Pilot Initiative on water and bio-resources challenges was launched. The 2010 Conference on Strategic Roadmap for Research & Innovation endorsed among others coherence between bilateral and multilateral cooperation with MS and EU at large, and resulted in the agreement to double the co-investment level to 10 million from both sides.[65]

The 2012 India-EU and MS Joint Declaration on Research & Innovation Cooperation signed during the 12th India-EU Summit called for building an Indo-European Research and Innovation Partnership with enhanced scale, scope and impact, address common societal challenges, more synergies between India, the EU and its Member States and to focus on affordable innovations involving SMEs and deployable technologies. The 2012 Ministerial meeting resulted in the Brussels Communiqué[66], which called to "*Jointly define the scope and develop a Strategic Research & Innovation Agenda – a White Paper - on a medium to long term India-EU/Member States Partnership for accelerated sustainable and inclusive growth, and new pathways focusing on societal challenges of common interest (such as sustainable environment and water, bio-economy, agriculture, energy and transport, health, ICT) as well as covering the whole innovation chain from research to development and the deployment of innovative and affordable solutions*."

Also, the Brussels Communiqué notes the ambition to "*Establish a Group of Senior Officials (GSO) composed of officials from India, the Member States and the European Commission with a view to streamline the governance of Indo-European cooperation in its bid to identify the most effective mechanisms to provide solutions to major societal challenges of common interest*." [67] The India-EU and Member States GSO for Research and Innovation was set up. The GSO helped to guide, coordinate and monitor the implementation of the Indo-European partnership and facilitate the coordination of different mechanisms. During its first meeting in October 2013 the GSO agreed to focus the IndoEuropean Partnership on R&I on three priority fields, building on the preparatory work carried out by 3 the-

[62] India–EU Ministerial Conference, 7– 8 February 2007, The New Delhi Communiqué, New Delhi, in: Annex 3 of the Concept Paper Member States/European Commission partnership for international S&T cooperation: The India Pilot Initiative, http://www.eurosfaire.prd.fr/7pc/doc/1291910352_india_pilot_initiative_concept_note.pdf.

[63] India-EU Joint Statement of 30 November 2007: http://www.newindigo.eu/attach/8_joint_statement.pdf.

[64] New INDIGO website, http://www.newindigo.eu/npp/.

[65] *Landmarks of India-EU S&T Relations (as November 6, 2015)*' received from International Multilateral & Regional Cooperation Division, Department of Science and Technology, Government of India, and website RTD: http://ec.europa.eu/research/iscp/index.cfm?pg=india.

[66] Group of Senior Officials, 31 May 2012, Brussels Communiqué The Indo-European Research and Innovation Partnership Shared Vision & Pathways, https://ec.europa.eu/research/iscp/pdf/policy/brussels_communique-0313.pdf

[67] Group of Senior Officials, 31 May 2012, Brussels Communiqué: The Indo-European Research and Innovation Partnership Shared Vision & Pathways, https://ec.europa.eu/research/iscp/pdf/policy/brussels_communique-0313.pdf.

matic working groups: health, water and energy (to which ICT and bio-economy might be added). This work was carried out, and resulted in the identification of priorities in the 3 areas.[68]

Rationale:

The EU-India Agreement on scientific and technological cooperation is the cornerstone of EU research and innovation cooperation with India.

Findings:

The EU-India S&T Agreement seems to be quite progressive in its underlying principles. Also the annex on Intellectual Property Rights is noted to be exclusive in terms of shared ownership.[69]

Under the 7th EU framework programme (2007-2013), in addition to the open calls (see the section below), also five coordinated calls for proposals have been organised with a total budget of EUR 60 million co-funded by India and the EU.[70] These calls roughly had equal participation and focused on areas such as computational materials science (1st India-EU Coordinated Joint Call for Proposals 2008), solar energy research (2nd India-EU Coordinated Joint Call for Proposals 2009), and water related challenges (3rd India-EU Coordinated Joint Call for Proposals 2011; double amount of co-funding). In 2013 the New Indigo Call was launched on Energy based on co-investment and the 1st meeting was held.[71]

Indian respondents emphasised the importance of a parity driven process for the coordinated calls, and for the intellectual property issues, in which both sides are involved in all steps; based on shared criteria; a common agenda; a shared selection process and shared monitoring. Both sides fund their scientists, but they work collaboratively, coherently, exchange their labs, their work and their students. The coordinated calls were considered to be more relevant and more applied in comparison with other research calls. DST wants to be sure the calls are of interest for India, that Indians can indeed be selected, and safeguard there is enough space for mobility to ensure there capacity development and whether the time frame is sufficient. DST cannot just work with an EU template, which would ignore the EU-India relations.

DG RTD reviewed the functioning of the 2007 S&T Agreement with an external study covering the period 2007-2011.[72] The report recorded a number of FP7 coordinated calls in a variety of areas (ICT, renewable energy, biotechnology, waste management, water and neurodegenerative diseases) that were launched during the period. The review identified various weaknesses to FP7 (see section below) but also notes Indian participation is strong when calls are coordinated. Indian researchers are most present in projects that relate to India's development needs (e.g. Health and Environment) or in areas where India has a known comparative advantage (e.g. ICT). The report recommends greater and enhanced use of coordinated calls, greater efforts to mobilise stakeholders, joint promotion of inclusive technology and enhancing the involvement of the private sector.

The Department of Science and Technology has had an important proactive role in setting new parameters for the S&T cooperation with the EU. Interviews during the field mission largely confirmed the difference between the coordinated and open calls. The coordinated calls based on parity, reciprocity and equity are far more interesting for Indian researchers in terms of topics. EUD respondents also assessed the coordinated calls to be very collaborative, drafted jointly and with a very symmetrical selection balancing EU and Indian involvement. These were found to be strategic, ensuring strong Indian involvement.

The DBT department of the Indian Ministry for S&T mainly cooperates with DG RTD and only has limited contacts with the EUD. They also felt India should and could fund its own research, and expressed interest in more joint calls. The very large coordinated calls were seen as very nice experiences to build contacts, to meet people, and access additional funding.

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[68] Delegation of the European Union to India Research & Innovation Section, March 2015, Overview of EU and member states Research and Innovation cooperation with India. http://eeas.europa.eu/delegations/ india/documents/snt_update_26_oct_12/overview_of_research_and_innovation_coop_july_2012.pdf

[69] Agreement for scientific and technological cooperation between the European Community and the Government of the Republic of India, L 213/30, 9.8.2002, http://trade.ec.europa.eu/doclib/docs/2003/july/tradoc_113341.pdf.

[70] EUD website on collaborative research opportunities: http://eeas.europa.eu/delegations/india/eu_india/ research_innovation/20140822_01_en.htm

[71] Document 'Landmarks of India-EU S&T Relations (as November 6, 2015)' received from International Multilateral & Regional Cooperation Division, Department of Science and Technology, Government of India, and website RTD: http://ec.europa.eu/research/iscp/index.cfm?pg=india.

[72] Review of S&T cooperation Agreement between the EU and the Government of the Republic of India, 2007-2011, 2012, DG RTD Directorate D International Cooperation, Brussels

The Research topics of the coordinated calls are focused on fundamental research and science, and seem to have little or no link to DEVCO interventions and R&I interests. RTD is focused on excellent research, not on applied research. In RTD international cooperation has been mainstreamed which did not improve the relative position of developing countries in RTD, as it is merely seen as complicating the work.

The strong determination to launch the Indo-Europe R&I partnership in 2012 and the GSO process was not followed up by implementation according to the EUD. The EU leadership was lacking, and there is a disconnection between the high level partnership and the funding agencies.

Following the five coordinated calls for proposals under the FP7 programme, also under Horizon 2020 a number of coordinated calls should be organised jointly with Indian authorities, with EU and India funding its own participants.[73] However, interviewees from EUD side suggested the experience with the previous coordinated calls was rather negative and too cumbersome to repeat with an understaffed EUD. The slow delivery of funding from Indian side delayed projects with six months to even a year, so for new coordinated calls smooth funding must be guaranteed. DST acknowledges the hindrance they experienced with the fixed time scales and aims to develop a common standard operating procedure for joint calls to improve issues with visas and funding, in line with the DST financial rules.

In the EUD guide on Indo-European on Research & Innovation cooperation under Horizon 2020 the future development of coordinated calls is not formulated very optimistic. In the list of 'key opportunities for Indian research organisations and individual researchers' mentions '*Collaborative projects resulting from "coordinated calls for proposals" under H2020 (in collaboration with Indian authorities/agencies) (if any)*".[74] Indian authorities said they are ready to invest in research, and suggest new joint calls could include applied research as there is a clear push from the GoI to aim for more integrated processes for innovative technology deployment and moving to more applied research for daily life issues.

Programme #10: FP7 Open calls

Description:

In addition to the joint projects as a result of the five coordinated calls for proposals under the India – EU S&T Agreement, Indian researchers could also participate in the FP7. As a general principle, FP7 was open to participation from any country in the world. The procedures for participation and funding possibilities varied for different groups of countries. Participants from the International Cooperation Partner Countries (e.g. Russia and other Eastern European and Central Asian states, developing countries, Mediterranean partner countries, Western Balkans countries) were entitled to funding under the same conditions as EU Member States. The only restriction for them was that consortia first had to have the required minimum number of participants from Member States or associated countries.[75]

Rationale:

FP7 was the EU's main instrument for funding research in Europe for 2007-2013, the current programme is Horizon 2020, but many of the FP7 projects are still running.

Findings:

Indian researchers participate reasonably prominently in the Framework Programme through the general opening mechanism. For India there are over 150 successful applications in the focal sectors of this evaluation (and in total 200 projects published in a catalogue).[76] Over a third of these are in the Health sector, while all the three sectors have 30 or just over successful applications each (see Table 5 below. Indian participation in the EU Framework Programmes has been steadily increasing, in FP7 India ranked fourth in terms of participation (more than 200 projects included Indian participants), and

[73] EUD website on collaborative research opportunities: http://eeas.europa.eu/delegations/india/eu_india/ research_innovation/20140822_01_en.htm

[74] EUD Research & Innovation Section India, 2015, Indo-European Research & Innovation cooperation under HorizonHorizon 2020 the European Union's Framework Programme for Research & Innovation (2014-2020) and under other schemes: A guide for Indian users. http://eeas.europa.eu/delegations/india/documents/h2020_brochure-india-aug_2014.pdf.

[75] FP7 website, http://ec.europa.eu/research/fp7/index_en.cfm.

[76] See the catalogue of all collaborative R&D projects.

third in total amount of EU financial contribution received (approx. EUR 41 million went directly to Indian entities).[77] One respondent found the FP7 to be an immense booster for the research community.

In India, the EU and its Member States conducted large awareness-raising and information campaigns in 2011, 2012 and 2014 in connection with FP7 and Horizon 2020.[78]

Table 5 FP7 applicants by sector/FP7 priority area in India

Sector/ FP7 priority area	Number of successful FP7 applicants	Success rate FP7 applicants	Requested EC contribution by successful FP7 applicants (in million EUR)
FSNA [a]	32	21.77%	2.48
Health	58	26.73%	16.2
EnvCC	36	17.14%	4.91
SISS [b]	30	14.71%	2.96

[a] Corresponds to FP7 area Food, Agriculture and Fisheries, and Biotechnology.
[b] Includes the following FP7 areas: Science in Society; Information and Communication Technologies; Space; Joint Technology Initiatives.

Source: RTD country profile (application figures as of 06/10/2014)

In the DG RTD external review of the functioning of the 2007 S&T Agreement, covering the period 2007-2011, FP7 is also included.[79] Among other things this review identified various weaknesses (FP7 is too EU-driven, complexity of procedures, lack of mutual knowledge in the EU and in India on how innovation and other concepts are understood). The result of these weaknesses is that Indian participation is limited particularly when calls are open rather than coordinated. Also at EUD level, the open FP7 calls are not found to be very strategic for India, but are rather seen as random funding opportunities with relatively small involvement of Indians.

FP7 project holders in India did not seem to consider FP7 as difficult to access. However, all are participants of large research consortia established by European research organisations, no cases were identified where an Indian Research Organisation (RO) was in the lead. Indian researchers also seem not to be interested in taking the lead, as this was seen as complex, requiring quite some knowledge and implied a lot of extra work. Having a European partner seemed to be almost a precondition to apply for FP7 grants, as Indian researchers generally said they did not have the experience with the EU application procedures and they needed European ROs to take the lead in those aspects. Interviews thus reconfirmed that FP7 procedures both in terms of the application and administration were also in India found too onerous.

The general orientation of FP7 was felt not to offer much opportunity for Indian research priorities. FP7 is assessed as essentially of interest of EU, benefitting the EU community, and not contributing to Indian S&T. As one researcher put it, 'ultimately it is an EU project'. Still, in one case it was noted that as FP7 research results are well shared via the research partner portal, the data is of 'immense importance' for researchers and policy makers. This is therefore where Indian researchers can derive benefit, for example research data on environmental issues that were found to be interesting for India.

The Research topics of FP7 are focused on fundamental research and science, and have little or no link to the DEVCO interventions and more applied R&I interests. Indian interviewees also found that FP7 calls offers very few opportunities for commercialising research results. FP7 only has funding for matchmaking, but not to push for the commercialisation of technologies. According to some respondents the research focus did shift a bit to an approach where joining hands with industries became more important. As FP7 research is directed to Europe, an interviewee suggested the technology transfer in India has to be arranged for by Indian research bodies. And for that a partner approach is needed to tie up with industries to drive the adoption process of research results to ensure their use in society.

[77] EUD Research & Innovation Section India, 2015, Indo-European Research & Innovation cooperation under Horizon 2020, the European Union's Framework Programme for Research & Innovation (2014-2020) and under other schemes: A guide for Indian users. http://eeas.europa.eu/delegations/india/documents/h2020_ brochure-india-aug_2014.pdf.

[78] Delegation of the European Union to India Research & Innovation Section, March 2015, Overview of EU and member states Research and Innovation cooperation with India. http://eeas.europa.eu/delegations/india/ documents/snt_update_26_oct_12/overview_of_research_and_innovation_coop_july_2012.pdf

[79] Review of S&T cooperation Agreement between the EU and the Government of the Republic of India, 2007-2011, 2012, DG RTD Directorate D International Cooperation, Brussels.

Indian researchers interviewed appreciated the opportunities offered by participation in FP7 consortia to expand their collaboration with research institutes and universities beyond India. Researchers found FP7 offered interesting opportunities to connect, to travel, to increase visibility, to access networks and for their personal development and career. However, the EU funding norms are not well adapted to the international context. This causes problems with financial regulations and national auditors, and different norms, travel policies of institutes and visa issues hamper international mobility.

Indian researchers generally got invited either through existing relations or partnerships – often researchers were already involved in FP 6, 5 and even 4 – and through their published research. All researchers seemed to be invited, and only in the case of one interviewee did a researcher proactively seek to join an FP7 research project.

On the whole however the FP7 funds were welcomed for what they were and the scale of funding received was felt to be adequate and appropriate. FP7 has enough space for capacity development and the PhD positions it facilitates are a real advantage. Though one researcher found the FP7 process so tedious that it was a reason to not get involved again, which could mean the FP7 programme is constraining itself to a few experienced institutes.

Indian researchers also seemed to see FP7 as one of many opportunities for research funding. The significance of FP7 is even considered to be reducing as there is research funding from international agencies and international foundations (Rockefeller, Gates, Ford foundation), from DST and many European countries spend Official Development Assistance budgets on research, like DFID, SIDA, International Development Research Centre and there are bilateral research opportunities (US, Canada, Germany, UK, Japan and Australia). In this perspective, FP7 is certainly not seen as the most interesting option, mainly because of the EU focus of the topics and the additional bureaucracy that is considered tedious in terms of accountability.

One other example covered was the Indo-French Centre for the promotion of Advanced Research which has a longstanding experience of almost thirty years in facilitating cooperation between India and France in research. It has a flexible structure and is based on an equal partnership with an equal funding investment and a scientific council of both French and Indian researchers as members. There is an informal agreement with the EUD to exchange information on research, and to make the commercial links, the Centre works with the chamber of commerce and the Confederation of Indian Industry.

The new Framework Programme for research and innovation, Horizon 2020, started in 2014. Again it features international collaboration, and as in FP7, Indian research organisations (both from the public and private sectors) and researchers have opportunities to participate in this new programme, in collaborative projects (mainly for applied research, resulting from 'open calls for proposals'), in collaborative projects from the coordinated calls discussed in the S&T section above, or in collaborative projects launched by the multilateral Inno Indigo funding platform, an ERA-Net scheme (see next section) [80]

However, under Horizon 2020, funding has become "selective" (i.e., not automatic) for participants from emerging countries, including India. This means "f*unding will be available (in respect of their participation in a certain project) only: 1) when specified in the Work Programme, or 2) when their participation is deemed by the European Commission to be essential in the project, or 3) when provided for under a bilateral scientific and technological agreement (which is not the case today, insofar as India is concerned)*".[81] As there is no automatic funding for India, the expectation is that there will be a big drop in classical research funding, though, as there are hundreds of calls on so many topics, it is also suggested there should be some interesting ones for Indian researchers. Several Indian researchers noted they had little or no access to Horizon 2020 and it was seen as to lacking a real international dimension. Only one Ministry department sounded confident to find ways to be partners in co-funding collaborative projects, which was also confirmed by the EUD.

[80] EUD Research & Innovation Section India, 2015, Indo-European Research & Innovation cooperation under Horizon 2020, the European Union's Framework Programme for Research & Innovation (2014-2020) and under other schemes: A guide for Indian users. http://eeas.europa.eu/delegations/india/documents/ h2020_brochure-india-aug_2014.pdf.

[81] EUD Research & Innovation Section India, 2015, Indo-European Research & Innovation cooperation under Horizon 2020, the European Union's Framework Programme for Research & Innovation (2014-2020) and under other schemes: A guide for Indian users. http://eeas.europa.eu/delegations/india/documents/ h2020_brochure-india-aug_2014.pdf, p.15.

Programme #11: ERA-Net schemes

Description:

In addition to the FP7 research funding and the EU-India coordinated calls for proposals, RTD also has trilateral and multilateral R&I initiatives. ERA-Net schemes aim to develop and strengthen coherence and coordination across Europe of public research programmes conducted at national or regional level in Member States and Associated States as well as coordination with developing countries. This is to be achieved through the networking of research activities conducted at national or regional level, and the mutual opening of national and regional research programmes.[82] The New Indigo Partnership Programme[83], was an ERA-Net scheme to support Indian-European multilateral research and networking projects.

Rationale:

The India-EU Joint Statement of 30 November 2007[84] stated that leaders would welcome strengthened partnership initiatives such as joint projects with co-investment of resources in selected fields of mutual priority. At the time India had longstanding scientific cooperation with European countries, especially France, Germany and UK. While at the European level, these R&D relationships with India were not harmonised. Also, at **multilateral level there was only limited S&T cooperation** between the European Union and India. [85] The New Indigo initiative (2009-2013) provided a framework **to allow the scientific community and institutions** of India to access the European Research Area, and the Euro-Indian S&T cooperation to fully benefit from the new networking tools which have been set up, notably the FP7.

Findings:

The main objective of the ERA-net schemes with India under FP7 was to enhance the European-Indian research cooperation. These ensure EU MS are involved directly rather than through the EU and provide for more flexibility as not each member has to join in funding each time. These are geographical funds with one call per year and started in parallel with the S&T Agreement. The first one, New Indigo (2009 -2013), implemented schemes for joint multilateral calls for proposals for excellent research. New Indigo was funded by more than ten EU member states as well as Indian authorities (DST, DBT) while administration is arranged by DG RTD. It intended to strengthen the international dimension of the European Research Area (ERA) by providing a networking platform for Indian and European S&T organisations.[86] The calls developed from simple networking and mobility funding towards the funding of research projects with Small and Middle size enterprises (SME) involvement. While the Department of Biotechnology of the Ministry of Science & Technology took the first steps in cooperating with the EU on research, and was the first Indian partner signing an Indian specific Indigo call, ERA-Net for India, with 7 or 8 partners, later on the Department for Science and Technology also joined. By the end of 2013 four multilateral calls were held under ERA-Net, and these were each extended because they were so successful.

The extension of this programme since 2013, called Inno-Indigo[87], is also an ERA-Net project and a multilateral funding programme which runs from 2013 till 2016 with 10 EU MS, Turkey and India involved. From the Indian side Council of Scientific and Industrial Research is the coordinator, and DBT and the Global Innovation and Technology Alliance (GITA) are partners too.[88] GITA is a fund implementing programmes in India covering the whole spectrum of technology and innovation. It has bilateral industrial R&D funding programmes with several countries involved including e.g. Spain, Finland and the UK. [89] GITA involves companies and funding is shared between both bilateral governments involved and the industry as a good risk sharing approach. GITA takes the lead to conduct specific projects and takes them near commercialisation, the grant is conditional on success. Right now this is at bilateral basis, and the European level could be interesting but coordination might be problematic.

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[82] Coordination of Research Activities, ERA-NET scheme, http://www.cordis.europa.eu/coordination/era-net.htm.
[83] New INDIGO website, http://www.newindigo.eu/npp/.
[84] India-EU Joint Statement of 30 November 2007: http://www.newindigo.eu/attach/8_joint_statement.pdf.
[85] New INDIGO website, http://www.newindigo.eu/npp/.
[86] New INDIGO leaflet, http://www.newindigo.eu/attach/New_INDIGO_Leaflet_A4.pdf.
[87] INNO-INDIGO factsheet, November 2013, FP7-INCO-2013-3, http://www.newindigo.eu/attach/131107_INNOINDIGO_Factsheet.pdf.
[88] EUD website on collaborative research opportunities: http://eeas.europa.eu/delegations/india/eu_india/ research_innovation/20140822_01_en.htm
[89] EUD Research & Innovation Section India, 2015, Indo-European Research & Innovation cooperation under Horizon 2020 the European Union's Framework Programme for Research & Innovation (2014-2020) and under other schemes. A guide for Indian users. http://eeas.europa.eu/delegations/india/documents/h2020_brochure-india-aug_2014.pdf.

ERA-Nets are seen by Indian respondents as really focussing on India, and as it is a requirement to have an Indian partner, this releases untapped Indian potential. It also opens up avenues to partner with EU, leading to scientist-to-scientist contacts at PhD and postdoc level and as an interviewee said, these will last a lifetime. The EU was also found an interesting region to cooperate with, having a rich heritage of science in all different member states, for which ERA-Nets form a powerful tool as research cooperation is a form if science diplomacy, not looking at politics. Inno-Indigo terminates in 2016 and the hope is that these multilateral funding schemes will continue, although EC will not continue its administrative and assisting role.

Programme #12: EURAXESS-LINKS

EURAXESS-LINKS INDIA is since 2011 the Indian branch of EURAXESS Links, an RTD project which aims to promote mobility within the European Research Area (ERA) countries. EURAXESS-LINKS INDIA provides information and assistance for European researchers active in India and Indian researchers wishing to collaborate and/or pursue a career in Europe. EURAXESS-LINKS INDIA communicates both online via its website and monthly newsletter, as well as via networking events, information days, higher education fairs, workshops and during road shows. It shares information about research in Europe, job vacancies, European research policy, opportunities for research funding, international collaboration and trans-national mobility. EURAXESS has a job portal, it organises events, it has a networking tool and also organises a science competition. Thanks to a good collaboration with the EUD and in specific the person working on education (who left and was not replaced), the India EURAXESS office also distributed information about the Erasmus Mundus programme. Now EURAXESS still works closely with R&I councillors who join their monthly meetings to be aware and to communicate and enhance visibility of events organised, and to disseminate new research opportunities and calls, for example in Inno Indigo. The office is very accessible. It supports individuals with their EU-India related research mobility and a clear interest is noted in Europe, together with the US, Australia, and Japan which are all the preferred destinations. One Indian respondent noted these kind of road shows aim for the good Indian students and take them to Europe. It is not possible to judge about the added value in relation to the scale of India and the efficiency as different EU MS also have their outreach mechanisms to promote their research. and in that context also under-resourced.

Under Horizon 2020 both the EM and Marie Curie are open as individual grants, although several Indian respondents do not see these as strategic.

5 Field mission findings, by relevant EQ

The tables below with the field mission evidence for each EQ also include relevant evidence on the impact of RTD interventions. As explained above the India-EU relationship in R&I is fundamentally different from other developing countries. The S&T Agreement between India and the EU managed by RTD sets the overall context of the R&I cooperation with India and under the Agenda for Change's graduation policy, DEVCO support to R&I is decreasing. To understand the complementarity of DEVCO and RTD interventions in R&I it therefore becomes useful to look at the potential relevance of RTD contributions under each evaluation question. RTD interventions have therefore been taken into account especially in the general rather than the sector specific tables below. Moreover, to clearly distinguish between DEVCO and RTD interventions all findings related to RTD are put in *italics*.

5.1 EQ 1: Development policy objectives

General

EQ 1 To what extent has EU support to R&I through DEVCO been successful in promoting the overall development policy objectives of the EU?	
JC 11 Link between R&I activities and EU development objectives (as per European Consensus and Agenda for Change – MDGs, etc.)	National level: *Some of the R&I activities funded by RTD under the S&T Agreement with India are in line with EU development objectives, but that is not their principal objective.* - *From a development point of view it is positive to note that the coordinated calls are aligned with Indian government priorities.* - *The coordinated calls allow Indian researchers to conduct research that is also of direct interest for India. The coordinated calls covered several sectors e.g. computational material science, solar energy, water related challenges and energy, and since 2012 focus R&I areas for the Indo-European R&I partnership are health, water and energy. Some of these sectors are in line with the MDGs.* - *However, the projects funded through the coordinated calls are focused on fundamental research, and not directly aimed at the development objectives of the EU. Still, research areas as water, health and energy may contribute to the MDGs.*
JC 12 Extent to which R&I has informed sector policy dialogue and sector support at national and regional levels	National level: The S&T Agreement played a strong role in the sector policy dialogue and sector support at national level involving EU and Indian officials. However, this seems to have mostly involved DG RTD and only to a very limited extent DEVCO/EEAS officials. The introduction of the DEVCO graduation policy seems to have largely led to a dead end for the latter and there is little sign of a new DEVCO contribution to support to R&I emerging from the S&T dialogue. - The S&T Agreement of 2001, and renewed in 2007, has strongly influenced the S&T cooperation between India and the EU. It has been progressive in defining three underlying principals for the S&T cooperation (symmetry, reciprocity and mutual interests) as well as co-investment of resources. - *This influenced S&T policies of both RTD and DST and resulted in coordinated research calls with a total budget of EUR 60 million co-invested by both EU and India focused on joint priorities.* - Since 2009 India also got involved as a partner to the Strategic Forum for International Cooperation in Research and Innovation (SFIC) (composed of EU MS and EC) which resulted in the R&I investment for coordinated calls being doubled (in 2010). - The Indo-European R&I partnership started in 2012 with a jointly defined R&I agenda and focus work on health, water and energy. - The Group of Senior Officials from India, EU MS and EC was established to guide this partnership. - The Joint Steering Committee guides the S&T process at technical top level from both EU and India side. - *FP7 played some role in financing policy dialogue through the Capacities Programme (INCO-NET at regional level, BILAT at bilateral level; Acces4EU, ERA-NET, and INCO-NCP) which engaged in policy dialogue through events such as priority-setting workshops with the aim of identifying common research topics. INDIGO-POLICY is a EU-funded project (under the BILAT scheme) which started in November 2013 and is intended to provide support to policy initiatives regarding EU-India R&I collaboration.*[90]

EnvCC sector

EQ 1 To what extent has EU support to R&I through DEVCO been successful in promoting the overall development policy objectives of the EU?	
JC 11 Link between R&I activities and EU development objectives (as per European Consensus and	National level: Overall, the R&I activity in the field of the EnvCC funded in India is in line with EU development objectives. - SWITCH-Asia aims to serve development and poverty reduction policy objectives, while ensuring that the socio-economic development in Asia is

[90] Delegation of the European Union to India Research & Innovation Section, March 2015, Overview of EU and member states Research and Innovation cooperation with India. http://eeas.europa.eu/delegations/india/ documents/snt_update_26_oct_12/overview_of_research_and_innovation_coop_july_2012.pdf

Agenda for Change – MDGs, etc.)	environmentally and socially sustainable. The SWITCH-Asia programme thus pursues both environmental and poverty-reduction objectives through building innovation capacity and green innovation systems. - The ACIDLOOP project, which is a part of SWITCH-Asia, introduced technology innovation and resource efficiency in the metal finishing companies (SMEs) which has improved production technologies through advanced water treatment measures and improved resource and energy efficient processes among hundred metal finishing SMEs, which contributed to improved environmental quality and combating pollution. The ACIDLOOP project is thus fully in line with EU development objectives. - ACIDLOOP fits well with the EU's concerns with EnvCC, there is a clear link to the SDG, to SCP, to innovation and getting technology accepted, and to encouraging SMEs.
JC 12 Extent to which R&I has informed sector policy dialogue and sector support at national and regional levels	National level: In the SWITCH-Asia programme policy dialogue is one of the three intervention strategies. However, within the ACIDLOOP project, this dialogue dimension is rather marginal and took place at a local level. - The ACIDLOOP project in its approach and findings in terms of technology innovations and more resource efficient production processes for the metal finishing industry, could potentially influence policy. It did so at a local level, involving SMEs, business associations and local government. Overall for SWITCH-Asia the policy support component was assessed having a "modest" impact on national policy frameworks for SCP. - The project will be finalised this year and results are to be shared within the SWITCH-Asia programme which has a strong networking component. The developed tools and processes for clean and sustainable technologies and their applications form a strong business case and could therefore in future feed in SME businesses.

SISS sector

EQ 1 To what extent has EU support to R&I through DEVCO been successful in promoting the overall development policy objectives of the EU?	
JC 11 Link between R&I activities and EU development objectives (as per European Consensus and Agenda for Change – MDGs, etc.)	National level: The R&I activities funded for EBTC are to some extent in line with EU development objectives in the areas of energy and environment. - EBTC aimed to promote cooperation and generate new business opportunities also through technology transfer in the areas of energy, biotechnology and environment. As far as technology transfer took place in the areas of energy and environment these could be contributing to the MDGs. - Some interviewees questioned whether EBTC's work would fit under the development objectives as it is ultimately about European business getting access to the Indian market.
JC 12 Extent to which R&I has informed sector policy dialogue and sector support at national and regional levels	National level: The R&I project in the SISS sector has not particularly been informing sector policy dialogue due to difficulties in the set up as well as lack of alignment in terms of goal setting with relevant S&T public bodies. - The EBTC did aim to improve links also with S&T stakeholders, including business, industry and public bodies to provide an effective 'interface' between public policy and private actors. It seems EBTC has been mainly successful in the area of energy and environment. - As the EC announced very recently that the EBTC would be closed down, follow-up is not ensured which means sustaining the work initiated by the project will depend entirely on the various actors involved apparently with little or no preparation for this.

5.2 EQ 2: Impact on partner country research communities

General

EQ 2 To what extent has DEVCO funding of R&I enabled research communities in partner countries to build up and develop their own R&I capacity, including the ability to actively engage in research networks (regional and international)?	
JC 21 Degree of alignment and coherence of DG	National level: The S&T Agreement strongly enhanced the collaboration and alignment of R&I between India and the EU which also shows there is real interest in collaboration

DEVCO support to R&I with relevant policies and strategies	between the two. - In the DEVCO support no explicit link is made to national S&T strategies and no evidence of any coordination was found between DEVCO and DST. - *The S&T Agreement through the coordinated calls strongly improved and assured alignment of EU research calls from RTD with the national S&T priorities of India. One of the objectives of these calls is that they should serve the interests of both India and the EU. Also the New INDIGO and INNO Indigo, both RTD ERA-Net schemes, were aligned. On the other hand, the FP7 calls were never intended to align with the policies of any of the third countries that could get involved.*
JC 22 Increased focus of EU support on 'capacity building' and enhancing institutional sustainability	National level: - *DG RTD interventions did create relevant capacity building opportunities, though mostly at an individual level and less so in terms of enhancing institutional sustainability.* - India was a significant participant in the Erasmus Mundus programme and the EU academic mobility programmes are welcomed as an individual capacity building tool. However, Indian university staff emphasised that the capacity building was entirely focused on the individual level and could be made more beneficial to institutions as well, if these were better involved. - *Participation in FP7 projects did apparently contribute to capacity building of research staff, as there was space to hire PhD researchers and other research staff.* - *Depending on the FP7 research projects some did indeed seem to contribute to enhanced institutional sustainability, though other research projects appeared to be more one-off endeavours with little follow-up among and within the institutions.* - In terms of IPR there is a problem of harmonisation of data because of a lack of integration of systems. Not only the EBTC but also the Confederation of Indian Industry work on IPR issues with the EPO.
JC 23 Improved access of developing countries' research communities to EU FP7 funding through RTD Summary assessments by sector	National level: - Indian researchers participated rather prominently in FP7 through the general opening mechanism – over 150 successful applications in this evaluation's focal sectors (which existed in addition to the coordinated calls as well as the New Indigo and Inno Indigo calls). Indian participation has also been steadily increasing. - Indian researchers did not find accessing FP7 particularly difficult, and generally seemed to be invited to joint consortia by their European contacts. Indian researchers were however not interested in leading FP7 consortia, mainly because of the complexity of the procedures and the extra work this would involve. - This reluctance seems also related to the many other funding opportunities Indian researchers have from other bilateral funders, and given that FP7 calls were found to be rather EU-driven in their orientation, the FP7 calls seemed not to be most interesting option for Indian academics.
JC 24 Enhanced networking of developing countries' researchers at regional and inter-national level	National level: *Networking in R&I between EU and India and beyond was clearly enhanced by the various research calls from DG RTD.* - *The coordinated EU-India calls under the S&T Agreement, the New Indigo and the Inno Indigo calls as a result of a multilateral cooperation between India, EC and EU MS, as well as the FP7 open calls all created, and enhanced networking opportunities for Indian academics. Coordinated calls were also valued for their equal competition system in which proposals are reviewed by both India and Europe and strong proposals stand the best chance.* - *All the research projects developed in response to these various calls implied working in consortia of various research institutes from multiple countries.* - The Erasmus programme created particularly networking opportunities within its Action 2 partnerships between HEIs in India and Europe, at doctorate, post-doctorate and staff level. The number of Indians participating strongly increased since the period 2007-2008 to 2009-2012. However, especially at master's level, the networking was too much focused on the individual level which reduces the impact of the networking investments, and should rather include the institutional level. - *Also the New Indigo specifically supported networking projects as well as providing a networking platform for Indian and European S&T organisations.* - *Suggestions were made to make better use of the networking investments; for example invite experienced researchers for a few months to indeed share their*

	knowledge. While it was acknowledged that especially younger and less senior staff has more time to invest in networking. - *Indian researchers interviewed did appreciate the opportunities offered by participation in FP7 Consortia to expand their collaboration with European research institutes and universities and beyond.* - *Having a European partner is also largely seen as a precondition for applying for FP7 grants, as Indian researchers need to rely on their experience with the EU application procedures and the subsequent management. Indian researchers are therefore dependent on an invitation from a European partner or on existing partnerships.* - *As part of the coordinated calls under the S&T Agreement, a requirement was to have at least two consortium members from two EU MS and also at least two members from two Indian states.*

EnvCC sector

EQ 2 To what extent has DEVCO funding of R&I enabled research communities in partner countries to build up and develop their own R&I capacity, including the ability to actively engage in research networks (regional and international)?	
JC 21 Degree of alignment and coherence of DG DEVCO support to R&I with relevant policies and strategies	National level: The EnvCC sector is well aligned with the relevant policy frameworks and strategies In a general sense; striving towards improved environment quality in selected Indian regions and combat pollution. - Both at programmatic and at project level, SWITCH-Asia resonates with the economic and environmental policy goals of target countries, regional bodies (notably ASEAN) as well as international institutions. - SWITCH-Asia and ACIDLOOP, however, do not build on specific government policies. Even more, some interviewees did note a lack of interest from policy makers in their policy dialogue. Still, government officials were present at the SWITCH-Asia networking event and a Consultative Group meeting was organized after the event to discuss future plans - The improved production technologies ACIDLOOP introduces all contribute to produce in the metal finishing sector in line with government standards.
JC 22 Increased focus of EU support on 'capacity building' and enhancing institutional sustainability	National level: The EU support had a marginal effect in terms of capacity building and enhancing institutional sustainability. - The grant-funded projects in SWITCH-Asia engaged in a wide range of capacity-building activities at different levels. And the introduction of technology innovation and resource efficiency implied a very intensive capacity building process with the SMEs involved, including getting technologies accepted and encourage SMEs. - Institutional sustainability was not an aim of the ACIDLOOP project, but one could argue that the project itself aimed to guarantee sustainability of the project as it build knowledge on a potential business case and the project holders seemed confident to take this forward after the project ends.
JC 24 Enhanced networking of developing countries' researchers at regional and inter-national level	National level: - The SWITCH-Asia programme consisted of three elements; grants and cofinancing of projects, a policy support component and a network facility. - The network facility should foster interactions between projects and manage communication. At the time of the evaluation field visit, a three days regional networking event took place in Delhi. However, the Network Facility was found to greatly improve the visibility of the programme, but less so in terms of meaningful impact. - The project consortia in SWITCH-Asia are networks in themselves, like in the ACIDLOOP project where links among the partners involved, research organisations, NGOs, companies and associations were strong. - However, there was no clear link identified towards HE or research (such as Erasmus Mundus or the Framework Programmes) and the practical application of this knowledge for sustainable growth and poverty-alleviation.

SISS sector

EQ 2 To what extent has DEVCO funding of R&I enabled research communities in partner countries to build up and develop their own R&I capacity, including the ability to actively engage in research networks (regional and international)?	
JC 21 Degree of alignment and coherence of DG DEVCO support to R&I with relevant policies and strategies	National level: The EBTC is not well aligned with the Indian S&T policies or European MS S&T interventions which limited the contribution it could make. - It seems in the SISS sector the lack of alignment was one of the fundamental problems the EBTC ran into. The EBTC would essentially cater to the needs of EU actors in India and encourage greater use of EU technologies and standards in India. - The project design needed clarification which did not promote solid alignment from the start, coordination and complementarity among stakeholders were noted not to be ideal. The various working areas of EBTC were not found to be well-aligned with Indian government goals, for example the 'flagship programmes'. While also the GoI aims to increase technology transfer, the EBTC is only set up as a one way process from Europe to India. - EBTC would complement efforts of existing bilateral chambers of Commerce in India. However, during the field mission the exact added value of an EU level intervention was not clear as there is in terms of business and technology a strong competition among EU MS. - Also the Confederation of Indian Industry which had a partnership with EBTC found clear goals and strategy were lacking, which hampered the role the Confederation of Indian Industry could play, for example by bringing in the right partners around Indian processes.
JC 22 Increased focus of EU support on 'capacity building' and enhancing institutional sustainability	National level: EBTC's lack of institutional sustainability was one of the major concerns of the EC and the reason to close down the project. Capacity building was not a major element in EBTC's approach. - EU officials were not satisfied with the marginal achievements of the EBTC during its seven years of existence. - Indian interviewees had a real interest in the EBTC concept though several suggestions were made to organise it differently (e.g., having Indian staff in Delhi, tie up with the DST rather than the MSME department, rather have an Indian BTC in Brussels). - Institutional sustainability is a major concern and the reason to close down the EBTC. - Some capacity building took place in relation to IPRs and a tie up with EPO. It is not clear how this relates with the work of the Confederation of Indian Industry works on IPR issues with the EPO.
JC 23 Improved access of developing countries' research communities to EU FP7 funding through RTD Summary assessments by sector	National level: - In India, the EU and its Member States conducted large awareness-raising and information campaigns in 2011, 2012 and 2014 in connection with FP7 and Horizon 2020.[91] - Though in terms of technology transfer one could argue a key critique on the EBTC was the strong or only focus on bringing European technologies to India, rather than also the other way around, and thus giving access to Indian research communities to the R&I and S&T sectors in Europe.
JC 24 Enhanced networking of developing countries' researchers at regional and inter-national level	National level: Some evidence of efforts made to encourage networking between researchers and private sector actors but not possible to verify independently - To encourage use of EU technologies and standards EBTC aimed to enhance the exchange of know-how and information and networking. EBTC collaborated with universities who could test and adapt technologies, but the evaluation team could not visit local universities and assess if EBTC contributed to enhanced networking of researchers. - EBTC organised events, seminars and information virtually. It was supposed to encourage EU researchers' participation in Indian funded research, but results of this could not be assessed.

[91] Delegation of the European Union to India Research & Innovation Section, March 2015, Overview of EU and member states Research and Innovation cooperation with India. http://eeas.europa.eu/delegations/india/ documents/snt_update_26_oct_12/overview_of_research_and_innovation_coop_july_2012.pdf

5.3 EQ 3: Instruments and modalities

General

EQ 3 To what extent has DG DEVCO in its support to R&I used its available instruments in a way that maximizes their value?	

JC 31
Appropriateness of the financing modalities and types of funding under different EU instruments and the way they have been applied for enhancing R&I
	National level:
	By and large the financing modalities and use of different instruments were appropriate, but it was apparent that the PP-AP action (EBTC) was not well integrated into the regular programming and this seems to have contributed to its poor alignment. Issues arise with the use of the Call for Proposals modality though the evidence also showed that under certain conditions the modality can be appropriate.
	- EU used the following financing instruments to support R&I in India:
	  - DCI Funding, Asia and environment
	  - PP-AP (EBTC)
	  - FP7/Horizon 2020
	  - Coordinated calls under FP7
	  - Multilateral funding schemes, ERA-Net
	  - Erasmus Mundus
	- Calls for proposals were the main modality used.
	- Use of the DCI instrument is being reduced though it is still used principally at the regional Asia level (SWITCH-Asia).
	- The use of the Call for Proposals modality in SWITCH-Asia can raise problems of sustainability if projects are inadequately designed to cope with this, though in the case of ACIDLOOP the project holders are taking steps to ensure sustainability.
	- The EBTC was the result of a so-called Preparatory Action (PP-AP) from the European Parliament which was managed by DEVCO, but as such it was not well integrated into DEVCO programming. The characteristics of this modality may therefore be partly at the root of the project's problems.
	- From a development perspective the calls under FP7 and Horizon 2020 are not the most relevant or appropriate for India.
	- The coordinated calls and ERA-Nets are tailored to India's research needs and a good opportunity to do relevant research for India but still not directly relevant to development.
	- *As it is formulated now, also under Horizon 2020 a number of coordinated calls 'should' be organised, but the EU officials did seem to be not much in favour of this mainly because these are considered very time-intensive and cumbersome to organise together with Indian authorities.*
	- *Under Horizon 2020 funding for Indian researchers has become selective rather than open (as was the case in FP7) which means funding is only available if specified as such in the project, or when their participation is deemed essential by the EC.*
	- The Erasmus Mundus scholarships programme is not organised in a way that enables it to contribute meaningfully to systematically enhancing R&I in India other than through the general contribution it makes to enhancing the academic skills and networks of the students concerned.

JC 32 Strategic approach adopted to choosing different possible actors / channels with whom the EU can work to support R&I and how best to support them with the instruments and modalities available	National level: The S&T Agreement strengthened a strategic approach of at least the coordinated calls, but there seems to be no synchronisation with DEVCO or other RTD funding. - The S&T Agreement has strongly enhanced the strategic cooperation of the EU with India, and the three core principals in the S&T collaboration; 'Reciprocity', 'Parity', and 'Co-investment of resources' as well as IPR sharing in the collaborative projects ensured the interest of India. This is strongly supported by the coordinated calls and the equal investment of money in these calls. - However, from the perspective of the various financing instruments used to support R&I in India, their mutual connection seems not to be considered and not strategic. - Also the current developments of Indian researchers having only selective access to Horizon 2020, less interest from the EU side to organise coordinated calls under Horizon 2020, and the graduation policy which means DEVCO will exit India, suggests the options for R&I cooperation are all decreasing at the same time. Indian researchers are mainly referred to individual opportunities under Erasmus and Marie Curie actions, and the multilateral calls, of which Inno Indigo will continue till 2016.

	) The DEVCO funding of ACIDLOOP is a clear case where applied research and innovation activities are funded, enhancing innovation, which would not fit under DG RTD.

5.4 EQ 4: DEVCO-RTD complementarity and coherence

This is likely to be the most important EQ for India, as R&I relations with India are largely about extending R&I cooperation on the RTD side. So what role does DEVCO have to play in this if any?

General

EQ 4 To what extent has EU support to R&I by DG DEVCO and by DG RTD been complementary and their collaboration promoted PCD?	
JC 41 Extent to which DGs DEVCO and RTD have formulated clear strategies on how they should cooperate in a complementary way and how the work of other relevant EU institutions (such as the EIB) is also complementary with their own	National level: The level of coordination between the DEVCO/EEAS staff in the delegation and the RTD S&T Counsellor seemed limited and certainly did not appear to involve a clearly formulated strategy.) The S&T cooperation between EU and India exists already since 2001 and the CSP 2007-2013 MTR report identifies quite a number of EU-India agreements with research included as one of the objectives.) The two DEVCO projects covered in this country study are more focused on technology transfer and innovation and have no real research component. Especially the ACIDLOOP project contributes to development objectives, for EBTC this is less clear.) Given that co-operation at least as far as DEVCO is concerned would reduce in the context of the graduation policy, it does not seem R&I co-operation would increase with RTD funding.) There is, however, no evidence that DEVCO and RTD coordinate in any meaningful way. Although there are contacts, the RTD S&T Counsellor in the EUD-India does not appear to be directly involved with R&I elements of the projects managed by EUD-India.
JC 42 Degree to which DEVCO support addresses issues that could/would not have been better, or equally well, addressed through RTD and vice versa	National level: The two DEVCO projects included in this field study clearly support and address issues that would not have fitted under RTD programmes.) Both ACIDLOOP and EBTC are focused on technology transfer and innovation work, which is not addressed by FP7, Inco-Nets or coordinated calls.) FP7 calls and Erasmus Mundus also offered opportunities for capacity building at an individual level with some useful impact on research institutions.) Coordinated calls gave better opportunities to do research that respond to India-specific challenges than FP7.
JC 43 Level at which DEVCO support has benefited from complementary action financed through RTD and vice versa	National level:) No evidence was found on complementary action financed between DEVCO and RTD.) Though there is equally no evidence of duplication of effort.

5.5 EQ 5: Transfer of R&I results into development processes

General

EQ 5 To what extent has DEVCO support led to the transfer of R&I results into processes likely to impact on the achievement of EU development objectives?	
JC 51 Clear and logical thinking at sector level on how DEVCO support could ultimately lead through to research results being used in development processes	National level: At the level of the R&I sector support by the EC in general, there is no coordination system in place for DEVCO to play a supporting role in the transfer of FP7 results into wider value to development processes.) The S&T Agreement involved RTD and only to a limited extent DEVCO/EEAS officials.) *The coordinated research calls of DST and RTD were focused on EU and India joint priorities in fundamental research, but not linked to development processes.*) *Although, research areas as water, health and energy may contribute to the MDGs, respondents also suggested FP7 projects are unsuitable to link to sustainable development goals, because FP7 projects are considered too diffuse and the research questions are very different, starting from a different viewpoint on the problem. RTD requires excellence and research and innovation, while for*

	development processes it is more about a good enough, affordable approach often involving 'frugal innovation'. - *Some respondents did suggest the space in FP7 and Horizon 2020 increased to focus on technology transfer, still, this was assessed as being far too limited and not related to development processes.* - Indian respondents were rather neutral about the graduation policy and said indeed DEVCO should rather focus on developing countries, and India is ready to invest in research. It therefore seems Indian respondents generally did not seem to see a specific role for DEVCO in the Indian – EU R&I cooperation, although many did support the concept of the EBTC project. - There is little sign of a new DEVCO contribution to support to R&I emerging from the S&T dialogue.
JC 53 Extent of external lessons learning, sharing and uptake within the sectors supported in partner countries, and at international level	National level: Networking and knowledge sharing does take place among FP7 participants and within the individual DEVCO projects, notably within the SWITCH-Asia programme, but no evidence was found of such learning exchange between DEVCO and RTD.
JC 54 Development processes and outcomes have been built on or used the results of research funded by DEVCO or shared through DEVCO supported research networks	National level: No cases were identified where RTD research results or DEVCO research results were used or built upon in development processes. Although coordinated calls gave better opportunities to do research that respond to India-specific challenges than FP7 also the coordinated calls did not specifically link to development processes.

EnvCC sector

EQ 5 To what extent has DEVCO support led to the transfer of R&I results into processes likely to impact on the achievement of EU development objectives?	
JC 51 Clear and logical thinking at sector level on how DEVCO support could ultimately lead through to research results being used in development processes	National level: The individual SWITCH-Asia projects do indeed develop actions that have a good deal of wider value to sustainable development processes. The thinking behind the programme is however simply to encourage initiatives in the hope of piloting and show casing innovative actions that can serve as an example in the hope that there will be assessed on their merits and widely taken up. To enhance the dissemination the programme does invest in networking and encourages communication actions by each project holder. - Evidence indicates that the SWITCH-Asia programme as a whole and individual projects have designed R&I interventions to feed knowledge about SCP into development processes at SME level. - The SWITCH-Asia programme encourages networking and communication between project holders and government officials in the hope that innovative and successful projects will be become well know and ideally taken up more widely in different parts of Asia. - ACIDLOOP is specifically focused on the development of applied resource efficiency technologies and applied technology innovations that are directly tested and transferred to SMEs. Since these technologies also entail serious efficiency gains in terms of resources needed and thus results in savings for SMEs, there is now a clear business case based on the knowledge developed in this project. The new technologies and resource efficiency gains are therefore expected to be of real interest for a wider range of SMEs, beyond the 100 involved in this project, and could be carried forward by the implementation partners after the ending of this project.
JC 52 Extent of internal lessons learning, sharing and uptake in the EU Institutions within the sectors supported in partner countries, and at international level	National level: There are reasonable indications of internal lesson learning within the SWITCH-Asia programme and between project holders - Documents analysed suggest that the shape of the SWITCH-Asia programme emerged from lessons learned with previous programmes, such as Asia Pro Eco. - The ACIDLOOP project itself included a strong learning process among the implementing partners. The support required was much higher than expected. - SWITCH-Asia also has a strong networking component though no evidence is found of internal lessons learning in the EU institutions.

JC 53 Extent of external lessons learning, sharing and uptake within the sectors supported in partner countries, and at international level	National level: Networking and knowledge sharing does take place among the SWITCH-Asia projects but there is no evidence of specific results of this sharing. - Evidence shows the SWITCH-Asia programme set up and encouraged the learning and sharing of knowledge through networking events and other communication tools. At the time of the field mission a SWITCH-Asia conference took place in Delhi, providing opportunities for lessons learning and sharing with representatives of other projects and experts from India and other Asian countries. - The documents point to support for networking and dissemination through the SWITCH Asia Network Facility. No further evidence was found. - Within the ACIDLOOP project there has been a strong practice of learning and adapting in the implementation of the project. No more specific references were made to lessons learned from earlier programmes or projects or across projects, although that could be expected as part of the SWITCH-Asia programme.
JC 54 Development processes and outcomes have been built on or used the results of research funded by DEVCO or shared through DEVCO supported research networks	National level: The ACIDLOOP project shows substantial impact of applied R&I for EnvCC development related goals. - Evaluation findings suggest that SWITCH-Asia projects have the potential to achieve their environmental goals, which, in turn, are based on building and applying R&I capacity. - ACIDLOOP used research results from Germany and adapted those to the Indian context. This combination of applied research and innovation together with a strong capacity building approach has ensured uptake of the technologies by SMEs, which maximised the impact of the project. - There is some indication that the innovations introduced by the project will be being built upon by the implementing partners also beyond the project ending to further enhance the use of the developed technology innovations and resource efficiency measures.

SISS sector

EQ 5 To what extent has DEVCO support led to the transfer of R&I results into processes likely to impact on the achievement of EU development objectives?	
JC 51 Clear and logical thinking at sector level on how DEVCO support could ultimately lead through to research results being used in development processes	National level: There is limited thinking on how DEVCO can support R&I and the transfer of research results to development processes in India in the SISS sector. The chequered history of the EBTC project from its very origins in a Preparatory Action through the various problems it encountered has not helped in this reflection though it does provide some lessons. Equally the graduation policy has also limited the prospects of DEVCO funding other than through thematic or regional lines, so limiting the options for taking action. - The EBTC project was a product of an initiative from the European Parliament that does not seem to have had a major impact on DEVCO thinking about how the EU might best support R&I results being used in development processes. - The EBTC project suffered from several inconsistencies in its project design that were not solved over time. - It is not yet clear to what extent EBTC has been beneficial to development goals. - Yet the EBTC has some first examples of it supporting European SMEs through a process to promote and adapt their technologies for transfer to the Indian market, but this process has not yet gone far enough to show extensive results in terms of innovative technology being widely adopted in India though its services.
JC 52 Extent of internal lessons learning, sharing and uptake in the EU Institutions within the sectors supported in partner countries, and at international level	National level: There is only very limited evidence of internal lesson learning on how a project such as the EBTC can support the transfer of European technology and spread of innovation in the private sector in a emerging economy such as India. - Efforts were made to draw lessons from other initiatives similar to the EBTC in Russia and Japan. The latter was a DG Enterprise initiative. Also from a European Business and Information Centre in Mumbai that was closed down as it had not been successful. However, to what extent these lessons were also used and shared in EU is not clear. - Now the EBTC project is closed at the end of 2015, it would be very valuable to learn and share the lessons from the experience. - DEVCO has undertaken an internal review of the EBTC project but the extent of this review is not known nor whether it will draw lessons on how DEVCO might support technology transfer projects to India in the future.

JC 53 Extent of external lessons learning, sharing and uptake within the sectors supported in partner countries, and at international level	National level: It appears that no serious attempts have been made to share lessons from the EBTC project externally beyond the EUD. Yet there is interest on the Indian side on learning lessons from the EBTC experience, providing an opportunity that could be taken up. - No specific evidence was found of external lessons learning, sharing and uptake within the SISS sector on the EBTC project. Now the EBTC project is closed at the end of 2015, it would be very valuable to learn and share the lessons from the experience. - There is however quite a bit of interest in Indian circles (government and private sector) about the EBTC experiment and the work the project was trying to do as India is interested in European technology and innovation.
JC 54 Development processes and outcomes have been built on or used the results of research funded by DEVCO or shared through DEVCO supported research networks	National level: There is some very limited evidence that the concept behind the EBTC project can lead to new technology be fed into Indian manufacturing, but this first attempt needs to be taken further and more extensively developed on a more solid institutional basis. - EBTC aims to draw from R&I developed by European businesses, particularly SMEs, which is to be shared trough this DEVCO supported network. - The EBTC has helped a few European SMEs to share technology with Indian researchers and private sector actors so as to adapt it to Indian conditions with a view to manufacturing and sales.

5.6 EQ 6: EU capacities

General

EQ 6 To what extent have the EU external relations services ensured adequate capacities to conduct policy dialogue related to R&I and to support research and innovation in partner countries?	
JC 61 Extent to which EU internal capacity to manage R&I support and conduct policy dialogue is in place at the levels required	National level: At the EU Delegation to India, there is capacity to deal with R&I and S&T issues for RTD, but there is no real specific capacity to deal with R&I issues related to DEVCO, only to the extent that is arises with other cooperation activities as part of support to a specific sector - There is no single staff member responsible for R&I related to DEVCO specifically, although staff members are dealing with R&I activities through their sectoral work (e.g. on EnvCC and SISS). - The limited staffing designated to R&I on the DEVCO side limits the coordination and complementarity on research and innovation between DEVCO and RTD at a more structured and strategic level. - RTD has one R&I S&T Counsellor supported by two local policy officers. Before 2013 there was only one policy officer.
JC 62 Extent to which R&I policy dialogue is operational at all levels	National level: R&I policy dialogue is operational at ministerial and at senior officials level. In the past this dialogue seems to have been very active though in the recent past it seems to have been less active. - During the evaluation period 2007-2013 good progress does seem to have been made in the high level dialogue on R&I / S&T cooperation. - The Group of Senior Officials which should streamline the governance of the Indo-European cooperation has recently not been as active as it could be. As one of its tasks is to coordinate and monitor the implementation of the partnership and facilitate the coordination of different mechanisms, low levels of activity on its part does seem to be a hampering factor for the implementation of the coordinated research calls.
JC 63 Extent to which the EU facilitates R&I activities at all levels	National level: The EU, principally DG RTD, does facilitate R&I cooperation with India. DEVCO also provides some support though on a more ad-hoc and sectoral basis. - The EU does facilitate R&I activities, though from DEVCO this has a rather limited scale in a few specific projects and is certainly not a focus area. - DG RTD, helped by the presence of an S&T Counsellor in the EUD, engages closely with DST as implementer of the S&T Agreement and actively on a wider scale with the Government on R&I issues, joint calls and research. - On a sectoral basis, no evidence was found of the EU engaging directly with the relevant Ministries in relation to its SWITCH-Asia and ACIDLOOP projects. - DG RTD had made quite some efforts to publicise EU research funds and individual researchers opportunities, including through EURAXESS.

6 Conclusions

The EU has an S&T Agreement with India since 2002. This is a key area in the cooperation between EU and India. Several respondents suggested that the EU and India were well suited to cooperating with each other as they were comparable in terms of their structural complexity on both sides: India is a federal state while the EU has its member states. The scales of their economies are also similar and the potential for cooperation in the area of R&I is immense.

During the evaluation period the R&I cooperation evolved very much towards an agreement beneficial to both sides. The S&T Agreement led to a series of coordinated calls which are widely appreciated and were based on the three core principals; 'Reciprocity', 'Parity', and 'Co-investment of resources' as well as an exclusive IPR agreement sharing in the collaborative projects. The coordinated calls under FP7 offered a real opportunity to address both Indian and EU researcher needs. However, more recently, the Group of Senior Officials which should streamline the governance of the Indo-European cooperation has not been as active as one might expect. As one of its tasks is to coordinate and monitor the implementation of the partnership and facilitate the coordination of different mechanisms, low levels of activity on its part do seem to be a hampering factor for the implementation of the coordinated research calls. The coordinated calls could be restarted under Horizon 2020, but for now these are for considered to be too time-consuming by the EUD.

There are many FP7 project holders in the Indian research community, but they all appear to be participants in research consortia established by European research organisations and no cases were identified where the Indian RO was in the lead. Though the FP7 funds were welcomed when received and the scale of funding received was felt to be adequate and appropriate, the general orientation of FP7 was felt to not offer much opportunity for Indian research priorities (with the notable exceptions of the earlier mentioned coordinated calls). Interviews reconfirmed that FP7 procedures both in terms of the application and administration were felt to be too onerous for Indian RO capacities and a good reason to work in consortia with European ROs who could take care of these aspects. Under Horizon 2020 India will no longer have automatic access.

While FP7 research and coordinated calls are not or hardly focused on development processes, many DEVCO projects have R&I components. The two cases studied for this particular field mission had a strong focus on technology transfer. The ACIDLOOP project is a clear case of technology transfer which proves the value of such a capacity strengthening focused intervention. EBTC has a more European focus and due to the initial contract and difficulties with Indian regulations was not able to fully build up its efforts and is currently being closed down. However, the concept of transferring technologies for SMEs was agreed by all respondents to be a entirely relevant .

DEVCO thus focused on concrete applied interventions in S&T which is very relevant for India and not covered by RTD. Interviewees both from EU and India feel there is a strong need for such an approach especially for applied R&I and technology transfer. An important part of the Indian economy does not need high-level research, but rather solutions today, for instance in relation to the current government's flagship programmes. DEVCO could thus play a useful role in a partnership on applied research, to enhance technology transfer on a horizontal level, though it is also acknowledged that India is not a poor developing country and the country has a very high level of research. The graduation policy of the EC means that DEVCO support is likely to be completely stopped in India. Which means this technology transfer role DEVCO support can play is not at all certain to be a focus area in the near future. However, although the graduation decision has been taken for India at the national level, a case could still be made for support to regional programmes in climate change and renewable energy for example. An alternative might be the Partnership Instrument, which only reaches a fraction of the research communities. Currently the EUD is involved in developing a proposal for the GoI flagship programmes.

The EU has also made other inputs to R&I through its grants for capacity development and academic research. The Erasmus Mundus programme is well used at Masters level but more appreciated by academic institutions at the research level as it is then more beneficial for them. Yet such scholarship programmes cannot really be said to contribute to an explicit or targeted support policy to build Indian capacity for R&I. Marie Curie, Erasmus and EURAXESS are useful tools that will continue, but these are not strategic as they focus on individual researchers.

All in all, the EU could consider a more strategic approach in its various R&I and S&T efforts with India. Many of the various R&I options that existed under FP7 now seem to be being downsized. Under Horizon 2020 India has no automatic access anymore and the EUD is hesitant about new coordinated calls. Together with the graduation decision, this has the cumulative effect of reducing the flexibility in terms of R&I cooperation, while this was traditionally one of the key concrete areas of cooperation between EU and India. Moreover, the separate work of the EU member states in this area with many of them having their own R&I programmes towards India, does not improve the consistency and coherence of the overall European support to R&I in India.

The EU is clearly interested in engaging with India and looks for cooperation in four areas: (i) trade and investment; (ii) the flagship programmes of the Modi government; (iii) on global issues like climate change and SDGs; and (i) in political cooperation. Especially for the flagship programmes and global issues, cooperation could be more strategic by incorporating R&I and linking it to technology transfer. EC and member states could also aim for coordinated, or even joint programming in the R&I sector so as to strengthen each other's involvement. This has partly already been started in the context of the Strategic Forum for International Cooperation in Research and Innovation (SFIC) for the Member States. The EC and MS also worked together with India on R&I in both Indigo calls but more could be done.

Given the scale of India, EU could also consider to reach out to the state level where there appears to be good potential as EBTC has demonstrated, both by focussing RTD's research on state universities for capacity building purposes, and for DEVCO to focus on the most relevant states in terms of the development objectives and facilitate access to RTD's funding. Europe could be more strategic in integrating its business in the EU-India research cooperation. Both EU and Indian respondents during the mission considered this as a weak area and a missed opportunity. The many bilateral trade relations between India and EU Member States are certainly advantageous for India but more could be achieved through greater European level coordination. As some interviewees suggested a more strategic cooperation with the EIB would also be useful. The EU is just one of India's options in terms of international cooperation and if the EU is poorly Indian actors will go elsewhere for R&I and S&T cooperation.

7 Annexes

7.1 Annex 1: List of people interviewed

EU Delegation

Name	Position	Institution
Bandini, Duccio	Programme Manager	EU Delegation
Dambois, Denis	First Counsellor, Head of Research and Innovation	EU Delegation
Hesse (Dr.), Johann	Head of Cooperation	EU Delegation
Kaul, Sarojini	Project Manager	EU Delegation
Kozlowski (HE), Tomasz	EU Ambassador to India and Bhutan	EU Delegation
Onestini, C.	Deputy Head of Delegation	EU Delegation
Renzi, Francesca	Attaché Cooperation	EU Delegation
Wiley, Thomas	Team Leader Regional Programmes	EU Delegation

Government and parastatal institutions

Name	Position	Institution
Gupta (Dr.), Shailja Vaidya	Director (Scientist 'F') International Collaboration	Department of Biotechnology, Ministry of Science & Technology, Government of India
Kumar (Dr.), Arvind	Scientist E, International Multilateral & Regional Cooperation Division	Department of Science and Technology, Government of India
Otto, Manjulika	Senior Manager	National Research and Development Corporation (NRDC)
Pradhan, Arunabha	Chief of Postgraduate Diploma in Business Management	NRDC
Purushotham (Dr.), H.	Chairman and Managing Director	NRDC
Ramaswami , T.	Former secretary S&T	Ministry of Science and Technology, Government of India
Sahu, Bijay Kumar	Deputy Manager IPR	NRDC
Tripathi, Shri Surendra Nath	Addl. Secretary and Development Commissioner (MSME)	Ministry of MSME, Govt. of India

Universities

Name	Position	Institution
Bava (Prof. Dr),. Ummu Salma	Professor, Centre for European Studies	Jawaharlal Nehru University
Krishna (Prof.), V. V.	Professor, Centre for Studies in Science Policy, School of Social Sciences	Jawaharlal Nehru University
Sarin (Prof.), Neera Bhalla	Professor, former Dean, School of Life Sciences, Lab. for Genetic Manipulation of Plants for Stress Alleviation and Value Addition	Jawaharlal Nehru University
Shrivastava, Divya	Faculty member, School of Life Sciences	Jawaharlal Nehru University
Sreenivas (Prof.), K.	Director, U.S.I.C University Science Instrumentation Centre	University of Delhi

Research organisations

Name	Position	Institution
Balakrishnan (Dr.), Malini	Senior Fellow Energy Environment Technology Development Division	The Energy and Resources Institute
Chaturvedi (Prof.), Sachin	Director General	Research and Information System for Developing Countries (RIS)
Mouli, Ganesh Chandra	Research Associate, trainer for ACIDLOOP	The Energy and Resources Institute
Roy, K. K.	Chief Operating Officer	Foundation for Innovation and Technology Transfer

Name	Position	Institution
Tewari, Prahlad Kumar	Fellow, trainer for ACIDLOOP	The Energy and Resources Institute

Donors

Name	Position	Institution
Mei-Ling Park, Donna	Communications officer from the regional policy support component	UNEP

Private sector

Name	Position	Institution
Abruzzini, Arnaldo	Secretary General	Eurochambres
Das, Anjan	Executive director	Confederation of Indian Industry
Lanzilotta, Sara	Advisor, International Affairs	Eurochambres
Roy, Jitendu	Head technology and IPR	Confederation of Indian Industry

NGOs and civil society organisations

Name	Position	Institution
Batra, Rajat	Chief Executive Officer	STENUM Asia
Singh, Vikas	Trainer for ACIDLOOP	STENUM Asia
Thomassen, Marian	Project Manager, project implementing partner of ACIDLOOP	Asia Society for Social Improvement and Sustainable Transformation (Assist)

Others

Name	Position	Institution
Bizkarralegarro Bravo, Ainhitze	Country Representative	EURAXESS Links India
Jensen, Poul V.	Director	European Business and Technology Centre (EBTC)
Rao, V. V. Rao	Principle scientist	Indo French Centre for the Promotion of Advanced Research

7.2 Annex 2: List of documents and websites consulted

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Country Note – Kenya

By Landis MacKellar, Violet Matiru and Eunike Spierings on field mission from 26-30 October 2015.

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List of Tables

List of Acronyms

ACP	African, Caribbean, and Pacific
APRP	Agricultural Productivity Research Project
ASAL	Arid and semi-arid lands
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
AU	African Union
AU-IBAR	African Union Interafrican Bureau for Animal Resources
CCAFS	Climate Change, Agriculture and Food Security
CEO	Chief Executive Officer
CGIAR	Consortium of International Agricultural Research Centres
CIC	Climate Innovation Centre
CPP	Coffee Productivity Project
CRIS	Common RELEX Information System
CRP	CGIAR Research Programme
CSE	Country Strategy Evaluation
CSOs	Civil society organisations
CSP	Country Strategy Paper
DCI	Development Cooperation Instrument
DEVCO	Directorate-General Development and Cooperation/EuropeAid
DG	Directorate-General
ECDPM	European Centre for Development Policy Management
EDF	European Development Fund
EIB	European Investment Bank
ENPI	European Neighbourhood Policy Instrument
EnvCC	Environment and Climate Change
EQ	Evaluation Question
ESA	Environmental Services in Africa
EU	European Union
EUD	Delegation of the European Union
EUR	Euro
FSNA	Food Security, Nutrition and Agriculture
GDP	Gross Domestic Product
GPARD	Global Programme on Agricultural Research for Development
HEI	Higher Education Institution
ICRAF	World Agroforestry Centre (former International Centre for Research in Agroforestry)
ICS	Interim Coordinating Secretariat
ICT	Information and Communication Technology
IFAD	International Fund for Agricultural Development
ILRI	International Livestock Research Institute
IREDD	Impacts of Reducing Emissions from Deforestation and Forest Degradation
JC	Judgement Criterion
KALRO	Kenya Agricultural and Livestock Research Organization
KARI	Kenya Agricultural Research Institute
KASAL	Kenya Arid and Semiarid Lands Research Programme
KEFRI	Kenya Forestry Research Institute
KEMRI	Kenya Medical Research Institute
KeSh	Kenyan Shilling
KESREF	Kenya Sugar Research Foundation
KRDP	Kenya Rural Development Programme
MDG	Millennium Development Goal
MoEST	Ministry of Education, Science and Technology
MoU	Memorandum of Understanding
NaCOSTI	National Commission on Science, Technology and Innovation
NEPAD	New Partnership for Africa's Development
NGO	Non-government organisation
NRF	National Research Fund

PCD	Policy Coherence for Development
PRESA	Pro Poor Rewards for Environmental Services in Africa
RTD	Directorate-General for Research & Innovation
RVI	Rift Valley Institute
SIFOR	Smallholder Innovation for Resilience
SISS	Science, Information Society and Space
SPS	Sanitary and Phytosanitary Standard
SRSP	Sugar Reform Support Project
ST	Science and Technology
ST&I	Science, Technology and Innovation
ToR	Terms of Reference
UNEP	United Nations Environment Programme
US	United States

Note: The Evaluation uses the common acronym "**EC**" to refer to either the "Commission of the European Union" (post-Lisbon Treaty) or the "European Commission" (pre-Lisbon Treaty), as applicable.

1 Introduction

1.1 Mandate, scope and purpose of the evaluation

As spelt out in the Terms of Reference the general objectives of this evaluation are:

- To provide the relevant external cooperation services of the EU and the wider public with an independent assessment of the support provided to research and innovation for development over the period 2007-2013;
- To identify key lessons and forward-looking recommendations.

The thematic scope of the evaluation encompasses the EU support to Research and Innovation (R&I) in four key sectors: (i) Food Security, Nutrition and Agriculture (FSNA), (ii) Health, (iii) Environment and Climate Change (EnvCC), and (iv) Science, Information Society and Space (SISS) (henceforth "thematic sectors")

The specific objectives of this evaluation are to provide an overall judgement on the extent to which the EU development co-operation policy has adopted a strategic approach to support R&I in the thematic sectors, and whether the approach was appropriate to enhance capacity to reach development objectives in these fields. Moreover, the ToR specify that the conclusions and lessons learned are expected to specifically address areas of particular interest, namely:

- The support provided to capacity building in partner countries;
- The level of the transfer of research results into social or economic processes likely to impact on poverty reduction in the longer term;
- The appropriateness of instruments and modalities made available; and
- The approaches, notably *country* versus *regional* support, or *direct* support to research versus *indirect* support through sectoral programmes that include research components.

The legal scope of the evaluation is delineated by the activities supported by the European Commission's Directorate-General Development and Cooperation/EuropeAid (DEVCO) through its cooperation instruments: the European Development Fund (EDF), the Development Cooperation Instrument (DCI) – both geographic and thematic budget lines – and European Neighbourhood Policy Instrument (ENPI).

While the Directorate-General for Research & Innovation (RTD) implements activities supporting R&I in developing countries, its policies, strategies, programmes and activities are not included in the scope of the evaluation and hence not the object of in-depth analysis here. They are, however, considered from a contextual point of view, and analysed from a complementarity and synergy perspective, together with, for instance, the activities of EU member states, other donors or multilateral organisations.

The temporal scope of the evaluation is the period of 2007-2013 which corresponds to the last EU multi-annual budget period and to that of the 10th EDF. Equally this is the period of RTD's Seventh Framework Programme (FP7).

1.2 Purpose of the note

The ten Country Notes for this evaluation serve to provide a national level view of what DG DEVCO support to R&I entails on the ground. They validate and expand the documentary analysis using the evidence collected during the field mission and the individual responses of EU Delegations (EUDs) to the online survey.

The Country Note is structured as follows. The introduction in Section 1 explains the rationale for the choice of the country. Section 2 outlines the methods use. Section 3 spells out the country context for DEVCO support to R&I and Section 4 provides an overview of the key DEVCO interventions. Section 5 presents the field mission findings for each EQ. These findings are categorised for each sector, per JC and per geographic level (national, regional, global) as far as applicable. Section 6 draws out any overall conclusions about the EU's cooperation on R&I with the country concerned.

The dates of the mission to Kenya were: 26-30 October 2015. The mission was conducted by: Landis MacKellar (team leader) and Violet Matiru (national consultant). The team would like to thank those who took time to meet with them and particularly David Mwangi Njuru, and Stephen Wathome, and Thomas Yatich of the EU Delegation.

1.3 Reasons for selecting this country for the Field Phase

Kenya was selected because:

- It was a major recipient of DG DEVCO support for R&I (one of the top 15 in the inventory).
- It was, in addition, a major recipient of RTD/FP7 grants (the top performer among African countries without a S&T Agreement).
- Kenya hosted a number of CGIAR centres, e.g. the International Centre for Livestock Research and International Centre for Research on Agroforestry. CGIAR having been the subject of a case study in the Desk Phase, the field mission offered an opportunity for probing, confirmation of desk findings, and triangulation.
- Kenya participated in the GPARD programme, e.g. the programme Smallholder Innovation for Resilience (SIFOR). GPARD having been the subject of a case study in the Desk Phase, the field mission offered an opportunity for probing, confirmation of desk findings, and triangulation.
- Kenya hosted an African Union research institute, the African Union Interafrican Bureau for Animal Resources (AU-IBAR). The fact that Kenya benefited from a global, regional, and bilateral programmes offered an opportunity to investigate coordination and complementarity.
- Document review suggested that DEVCO-financed R&I projects, particularly those related to arid and semiarid lands (ASAL) agriculture and livestock, had significant impact at the community and farm level. They also contained significant capacity-building components.
- While most projects in Kenya were grouped under FSNA, they also had a close relationship to EnvCC, offering an opportunity to examine how complementarities and synergies between the themes were exploited.

1.4 Gaps of evidence addressed in the country

A number of issues identified in the Desk Phase were slated for further investigation. One was the extent of alignment between R&I support and country development priorities and whether R&I results contributed to policy dialogue. Several specific projects were identified: the two ASAL programmes and how they have contributed to capacity building at the implementing agency (Kenya Agricultural and Livestock Research Organization, KALRO) and their concrete impacts on ASAL rural livelihoods. Other specific issues raised were barriers and opportunities for extending successful R&I elements to areas such as transport and health and how EU R&I support integrated Kenyan researchers in regional and global research networks.

2 Data collection methods used (including limits and constraints)

The mission consisted of interviews with:

- Commission staff in the EUD;
- Staff at Kenyan parastatal research institutions who were involved in DEVCO-supported R&I activities;
- Staff at global research and regional institutes (e.g., ILRI, ICRAF, and AU-IBAR);
- Officials at Ministry of Education, Science, and Technology;
- Beneficiaries from DEVCO-financed capacity building and recipients of FP7 research grants.

Constraints included:

End users of research results emerging from DEVCO-supported R&I in Kenya are essentially farmers and rural households and communities. Time limitations prevented field visits outside Nairobi, but in all interviews, the issue of concrete impact at the household and community levels was solicited.

An interview towards the end of the mission with a representative at the University of Nairobi was cancelled, making it impossible to meet someone to discuss Erasmus, and EduLink. However, wide-ranging interviews at the Ministry of Education, Science and Technology and at the National Commission on Science, Technology, and Innovation allowed the team to obtain a reasonably good view of the overall situation in Kenyan higher education R&I, and FP7 in particular. It was also possible, at a subsequent field mission to South Africa to discuss the case of Kenya with the responsible DG RTD regional Science and Technology Counsellor, Mr. Stephane Hogan. During the South Africa field mission, there were extensive discussions on Erasmus and EduLink at both the EU Delegation and in the Ministry of Science and Technology.

A project of special interest was the Innovative Approaches Towards Rehabilitating the Mau Ecosystem, for which the primary implementing partner was World Wildlife Fund. The responsible person

had left and no one remaining was familiar with the project. Therefore the Acting Director of the Water Towers Agency, the agency that evolved from the Interim Mau Secretariat which had been supported by the EU under the project, was interviewed by telephone.

3 Country context

3.1 Overall description of country political, legal, and development context in relation to Research and Innovation (context in which the EU intervenes)

3.1.1 R&I situation in the country

Kenya is regarded as possessing one of the stronger sub-Saharan African R&I systems, as evidenced by the fact that, among countries lacking an S&T Agreement with the EU, Kenya was the strongest performer in terms of FP7 participation. The university system never suffered the breakdown that was associated, for example, with its close neighbour Uganda. Kenya has always had a robust private sector. At the same time, there are serious structural weaknesses in the R&I system. One of these is that publicly-funded R&I has been almost entirely concentrated in parastatal entities (now often referred to as "government corporations") whose inefficiency and ineffectiveness became a byword. Brain drain to English-speaking universities has been a problem in Kenya as it has been elsewhere.

Various studies, including the Kenya National Innovation Survey Report of 2012, the World Bank's Enterprise Surveys and the Science, Technology and Innovation (ST&I) Sector Medium Term Plans identified shortcomings within the country's R&I environment. One was the heavy reliance on foreign funding for research and innovation. According to the 2013-2017 ST&I Sector Plan, the government invested only 0.5% of GDP in ST&I in 2007 compared to over 2% by developed countries. Other challenges include the lack of clear national ST&I priorities, lack of an appropriate legal and institutional framework to promote ST&I and the lack of indicators to support evidence-based assessment of ST&I effectiveness in contributing to national development. To address the identified shortcomings, the government supported the development of the ST&I policy and the enactment of the ST&I Act of 2013 (see Section 3.1.2 below).

Due to the relative strength of its R&I establishment and the status in international science of the English language, Kenya has traditionally been better integrated into the global R&I community than most African countries excepting South Africa. In fact, its only close competitors in this domain are Uganda, Tanzania, and (a distant third) Ethiopia).

Kenya has signed MoUs with a range of countries with the aim of enhancing collaborative linkages in ST&I. These include joint research programmes with South Africa, which are co-financed by the two governments. Kenya has a bilateral programme with the Canadian government through the International Development Research Centre whereby Kenyan and Canadian Universities rotate the chairing of the programme to enhance their capacities. The Kenya Government provides KeSh 15 million per year for this 5-year programme that is currently chaired by Moi University with a strong focus on health research. Other areas are agricultural and manufacturing technologies.

The bilateral programme with Japan supports research in the agricultural technology sector, with the Jomo Kenyatta University of Science and Technology serving as the focal institution. Kenya also has bilateral programmes with Germany, France and Italy. An agreement with Italy was entered into in the 1960s to enhance collaboration in the space science sector through which Italy has launched various satellites from Malindi town along the northern coast of Kenya. However, the EU Delegation characterised Member State interest in R&I as limited due to the long-term nature implicit in such cooperation.

There is a significant US-financed research presence in Kenya. The United States Army Medical Research Unit-Kenya, also known as the Walter Reed Project was established in 1969 and operates under a cooperative agreement with the Kenya Medical Research Institute (KEMRI), focusing on tropical diseases. For more than 30 years, the American Centers for Disease Control has worked in Kenya in partnership with government, local and international partners focusing on a broad range of public health issues. The John Hopkins University of the US has several programmes on public health, including research on trauma care for patients of road accidents in Kenya.

Kenya hosts many international, regional and independent research and innovation institutions, with two CGIAR Centres headquartered in Kenya (the International Livestock Research Institute (ILRI) and the World Agroforestry Centre (former International Centre for Research in Agroforestry, ICRAF), the African Union Interafrican Bureau for Agricultural Research (AU-IBAR) and the Intergovernmental Authority on Development -Climate Predictions and Applications Centre. The Climate Change, Agriculture, and Food Security Research Programme (CCAFS) located at ICRAF is working in two sites; Nyando in western and Wote in eastern Kenya. Also present in Kenya is the International Centre of Insect Physiology and Ecology. The Biosciences Eastern and Central Africa Hub, hosted by ILRI, is a

shared agricultural research and biosciences platform established in 2004 as part of the African Union/New Partnership for Africa's Development (AU/NEPAD) African Biosciences Initiative. It was developed within the framework of NEPAD's Centres of Excellence for Science and Technology and the Comprehensive African Agricultural Development Programme and in alignment with regional priorities set by ASARECA. Other examples of independent research institutions include the Rift Valley Institute (RVI) that works with communities and institutions in Eastern Africa, Horn of Africa and the Great Lakes Region. Established in 2001, the RVI has offices in Kenya, the US and the United Kingdom. Launched in 2012, the Kenya Climate Innovation Centre provides incubation and capacity building services and financing to Kenyan entrepreneurs developing innovation solutions in energy, water and agribusiness to address climate change challenges. It is an initiative supported by the World Bank's InfoDev and is the first in a global network of CICs being launched by InfoDev's Climate Technology Program. The Kenya CIC is funded by UKAID and Danida and is hosted by Strathmore University. Other international centres include the Climate Prediction and Applications Centre of the Intergovernmental Authority on Development and the Centre for Agriculture & Biosciences International.

Kenya has experienced a significant growth in the number of universities, and now has 22 public universities and 26 private universities. Due to the increasing competition among the universities and a reduction in the funds the public universities receive from government to cover their recurrent expenses, there is increasing pressure for them to innovate in order to remain competitive, including through partnerships with the private sector e.g. the Jomo Kenyatta University of Agriculture and Technology has partnered with Nissin Foods of Japan to develop noodles that appeal to the local palette. The Chandaria Business Innovation and Incubation Centre is a partnership between a Kenyan industrialist and Kenyatta University.

3.1.2 R&I national policies, legal framework

In the early years of the evaluation period, R&I in Kenya was still governed by the Science and Technology Act 1977 designed to guide the country's integration of ST&I into national socio-economic development, both in the production and service sectors. Not long after the beginning of the evaluation period, however, the consultative process to develop the current development strategic plan Vision 2030 highlighted the critical role of ST&I if Kenya was to achieve progress towards its goal of becoming a globally competitive and prosperous middle-income country.

Launched in 2010, Vision 2030 is implemented through five-year medium-term rolling plans and includes flagship projects under each of the key sectors. ST&I is recognized as one of the foundations for socio-economic transformation. It is fully aligned to the 2014 African Union Science, Technology and Innovation Strategy for Africa – 2024, designed to provide a framework for innovation strategies in member states and to encourage discussion.

The Kenyan National ST&I Policy articulates the following as the national priority sectors significant to the achievement of national growth and development targets:

a) Agriculture and Rural Development;
b) Health and Life Sciences;
c) Trade and Industry;
d) Human Resource Development;
e) Physical Infrastructure;
f) Energy;
g) Environment and Natural Resource Management;
h) Information Communication Technology (ICT).

The Policy paved the way for the enactment of the ST&I Act of 2013, which is designed to facilitate the promotion, coordination and regulation of ST&I; to assign priority to the development of ST&I; and to entrench ST&I in the national production system.

In Section 32 (2), the ST&I Act states that two percent of the country's GDP shall be provided by the Treasury every financial year to the National Research Fund, the independent government corporation established to facilitate research for the advancement of ST&I. Ministry officials interviewed candidly stated that it will take time before this goal can be met.

Other relevant laws include the Kenya Agricultural and Livestock Research Act of 2013 that established the Kenya Agricultural and Livestock Research Organisation, which has replaced the old Kenya Agricultural Research Institute (KARI). This was part of an ongoing consolidation of various research institutions to reduce duplication and promote more efficient use of resources and facilities. KALRO absorbed not only KARI but also institutes concerned with marine and fisheries, trypanosomiasis, coffee, tea and sugar.

The government has developed a draft National Research Agenda which is currently being shared with sector stakeholders for their input, including research institutions and private sector players. All stakeholders interviewed, including those at the responsible agency NaCOSTI (see below) agree that the Research Agenda is, as of this writing, still a work in progress and that over the evaluation period, there was little government strategic orientation in the area of R&I.

3.1.3 R&I institutional framework (who does what)

The ST&I Act 2013 foresaw the need for new institutional structures. The Ministry of Education, Science and Technology (MoEST) was established in 2013 following the first national elections under the 2010 Constitution. This replaced the formerly dedicated Ministry of Science and Technology. The Ministry has two State Departments, each headed by a Permanent Secretary: the State Department for Science and Technology, which has a Directorate of Research Management and Development, and the State Department for Education, with a Directorate of Technical Education and a Directorate of Higher Education.

Research is organised by sector with a corresponding government corporation (parastatal) anchored within its respective sector ministry e.g. KALRO for agriculture and livestock, Kenya Forestry Research Institute (KEFRI) for forests, and Kenya Medical Research Institute (KEMRI) for health. Another significant player is the National Museums of Kenya, a state corporation that conducts research on biodiversity and national heritage sites.

Research institutions have the mandate to conduct research and develop innovations, while their respective ministries have the mandate to disseminate the results. Experts interviewed were of one mind that this structure has resulted in poor dissemination of useful innovations, especially because ministries lack adequate resources and personnel for effective extension.

The ST&I Act 2013 established three additional state corporations, which have the MoEST as their parent ministry. These are the National Commission on Science, Technology and Innovation (NaCOSTI), which replaced the National Council on S&T, with an expanded mandate that includes the regulation of research institutions by registering and accrediting them. The other mandates are to promote, provide advice and coordinate research, science and technology. With such a diverse range of institutions engaged in R&I coordinating them is a challenge. For example, although NaCOSTI's mandate is to coordinate research this is easy only for those institutions with whom the government enters into agreements through the MoEST.Negotiations for hosting international and regional institutions are the responsibility of the Ministry of Foreign Affairs, with minimal involvement of the MoEST.

The second state corporation established by the ST&I Act of 2013 is the Kenya National Innovation Agency (KENIA), which has responsibility for developing and managing the national innovation system by linking universities, research institutions, the private sector and the government and create S&I parks and centres of excellence in priority sectors. KENIA is currently being constituted following the recent appointment of its Board Members.

Finally, the ST&I Act also established the National Research Fund (NRF) into which 2% of the GDP will be channelled to support research, science and innovation. The NRF is also now in the process of being constituted.

3.2 Description of EU strategic priorities for the country, especially in the areas of R&I and key thematic sectors

R&I support is not a focus of the EU's development strategy in Kenya. According to the EUD, Government focuses on sector outputs and it is the EU that promotes R&I as a means to achieve them. Food security is the main focus of Government strategy and R&I plays a pivotal role in the EU's approach and support for agriculture and rural development (which are focal sectors). The EU's been particularly active and, it would seem, successful in building capacity for research and innovation in arid and semi-arid lands (ASAL). As these areas are ecologically fragile and vulnerable to climate change, there is considerable overlap between the FSNA and EnvCC themes. The CSP 2007-2013 for Kenya does not list Environment and Climate Change as a focal sector. However, as part of the support for Agriculture and Rural Development (second focal sector), the CSP designates the "conservation of the environment and natural resources by means of sustainable land use" as a "strategic objective".

Similarly, most EnvCC interventions in Kenya have at least some overlap with the issues posed by agriculture and livestock in vulnerable ecological zones.

In order to promote "regional economic integration", the EU focused on the transport infrastructure and the agricultural sectors. There is no presence of R&I in EU transport support, but projects in the agricultural sectors include R&I aspects. Non-focal sectors in the CSP 2007-2013 included "improving governance and strengthening non-State actors" and "economic growth through trade and private sec-

tor development." The second of these has essentially no R&I component, however, given the ongoing decentralisation of governance in Kenya – in particular the new powers at County level – strengthening government.

4 Overview of EU-funded key interventions

Table 6 Overview of EU-funded key interventions in Kenya

#	Sector	Contract title	CRIS number	Contractor	Year	Total amount contracted (in EUR)
1	*FSNA*	*Kenya arid and semi arid land research programme*	*D-17913*		*2006*	
1.a	FSNA	GRANT TO KARI	c-195439	JAMHURIYA KENYA	2007	5,263,000
1.b	FSNA	NATURAL RESOURCES INTERNATIONALTECHNICAL ASSISTANCE	c-195440	NATURAL RESOURCES INTERNATIONAL LIMITED	2008	1,152,027
1.c	FSNA	Financial and Systems Audit of KASAL	c-205982	LIVINGSTONE REGISTRARS LIMITED	2009	56,127
1.d	FSNA	Mid-term Evaluation of Kenya Arid and Semiarid Lands Research Programme (KASAL)	c-227549	AGRER SA	2010	83,949
2	*FSNA*	*Annual Action Programme 2009 under the Accompanying Measures for the Sugar Protocol countries for Kenya*	*D-21090*		*2009*	
2.a	FSNA	SUGAR REFORM SUPPORT PROJECT-KESREF (SRSP-K) PE1	c-275477	KENYA SUGAR RESEARCH FOUNDATION LIMITED	2011	197,607
2.b	FSNA	SUGAR REFORM SUPPORT PROJECT-KESREF PE 2	c-302657	KENYA SUGAR RESEARCH FOUNDATION LIMITED	2012	457,141
2.c	FSNA	Supply, Delivery, Installation and Commissioning of Instruments for Bioscience Laboratory	c-300210	BRANDAO RAMOS COMERCIO E SERVICOS SA	2012	120,712
3	*FSNA*	*Kenya Rural Development Programme (KRDP)*	*D-22067*		*2010*	
3.a	FSNA	ASAL-Agricultural Productivity Research Project (ASAL-APRP)	c-291241	KENYA AGRICULTURAL RESEARCH INSTITUTE	2012	4,000,000
3.b	FSNA	Coffee Productivity Project (CPP)	c-317945	COFFEE RESEARCH FOUNDATION LBG	2013	2,000,000
3.c	FSNA	Consultancy services for Procurement Assistance to Coffee Research Foundation under the Coffee Productivity Project, KRDP	c-318838	PEAT MARWICK MITCHELL PARTNERSHIP	2013	86,453
4	EnvCC	Innovative Approaches Towards Rehabilitating the Mau Ecosystem	c-267334	UNITED NATIONS ENVIRONMENT PROGRAMME	2011	2,114,560
5	EnvCC	Smallholder Innovation for Resilience (SIFOR): strengthening innovation systems for food security in the face of climate change	c-287315 (grant contract 1)	INTERNATIONAL INSTITUTE FOR ENVIRONMENT AND DEVELOPMENT. LOCAL PARTNER: KEFRI.	2012	2,338,158
6	EnvCC	CGIAR-ICRAF: Harmonizing policy for environmental stewardship and rural development				

The field mission dealt with interventions 1, 3.a and 4 to 6, in addition to a number of regional and global projects (CGIAR, AU-IBAR, GPARD).

FSNA sector

Programme # 1: KASAL

Description:

The Kenyan Arid and Semi-Arid Land Research Programme (KASAL, May 2008-December 2010, EUR 6.6 million) aimed to "generate and validate agricultural knowledge and technology through KARI-led research for development." The programme had three main objectives: to build KARI's capacity for "relevant and high quality research in ASALs," to support the development of strategies for improving agricultural production for semi-arid lands, and to generate knowledge about socio-economic and demographic characteristics as well as develop strategies for improving agricultural production in arid lands. The last set of objectives related to the need to upscale research results.

As confirmed in an EUD interview, KASAL was in line with the agricultural value-chain approach endorsed by the EU, namely starting with farmers and market potential and working up the value chain to identify upstream research needs. The research in the KASAL programme was participatory and inclusive: not only aimed at building research capacity at KARI but also integrating farmers and other stakeholders in the entire research and development process.

KASAL provided long-term training and skills development to KARI staff members, established a Planning and Monitoring Unit, and upgraded KARI research facilities. A total of 14 semi-arid lands research activities were implemented. These aimed to develop strategies to increase agricultural productivity, develop new strategies to improve livestock production, improve ecosystem management in semi-arid zones, KASAL carried out studies documenting environmental damage in arid lands and developed appropriate livestock production strategies. 23 refereed journal publications and 95 conference presentations were produced.

Rationale:

Not only is Agriculture & Rural Development one of two focal sectors for EU support in Kenya, agricultural research is of considerable interest to the Government of Kenya (CSE Kenya Final Report Vol. 1). It is here, then, that most programmes and projects with a significant R&I dimension are found. All programmes focus on building capacity for research organisations (specifically KARI) and agricultural producers to identify, develop and apply agricultural technologies

Findings:

The project final report describes, and interviews at KALRO confirmed, success in upscaling dryland crop and livestock technologies, in particular the successful commercialisation, in partnership with the private sector, of sorghum beer. According to KALRO/KARI scientists, capacity was built at KARI and that institution's transition from a traditional academic research centre to one more attuned to results obtained in partnership with other actors was encouraged. The mid-term evaluation cited the project for introducing agricultural value chain reasoning into KARI's research strategy and thee final report cited "substantial, irreversible, long-term institutional changes." The Kenya CSE characterised the EU as a major supporter of ASAL agricultural research in Kenya and underscored the signidficant contribution to Kenyan agricultural development strategy.

Project #3.a: ASAL-APRP

Description:

ASAL-APRP (May 2012-April 2017, EUR 4 million) is a follow-on project, designed to build on the outcomes of KASAL in order to improve the wellbeing of pastoralists and farmers in ASALs through increased productivity and enhanced market opportunities for their products. It is again implemented by KARI (now KALRO) a wide range of stakeholders (including researchers from the various institutes consolidated into KALRO, the CGIAR family, NGOs, and CSOs. The project promotes new production technologies among pastoralist/farmers in ASAL regions. It foresees four areas of impact: dissemination of ASAL knowledge, information and technologies, increases in livestock productivity, development of technologies to improve food and nutritional security, and a continuation of KALRO capacity building for high quality ASAL R&I related to fortified indigenous breeds and varieties to more farmers.

Implemented by KALRO, the ASAL- APRP seems to be succeeding at "engaging the farmers with highly relevant technologies" (MR 146799.01). Moreover, the project relies on effective partnerships with NGOs and the private sector. Like the KASAL programme, these stakeholders not only have a consultative role, but also actively participate in the design, implementation and testing of innovative agricultural technologies.

Rationale:

See KASAL above.

Findings:

KALRO scientists interviewed stated that ASAL-APRP was a straightforward extension of KASAL. As of the mid-term review, ASAL-APRP had disseminated ASAL information, knowledge and technologies to an estimated 256,000 farmers (out of a project target of 500,000) through field days, social media, etc. Livestock trials were underway in the area of range pasture and fodder development as were research activities designed to improve poultry and camel milk productivity. Grain varieties with promise to improve nutrition and food security were under development. 70 KALRO staff had received training, the Project and Monitoring System developed under KASAL was rolled out to ASAL-APRP, and there were infrastructure improvements at KALRO research facilities as well as development of a research farm.

EnvCC sector

Project # 4: Innovative Approaches Towards Rehabilitating the Mau Ecosystem

Description:

The project (September 2011 to November 2014. EUR 2.3 million). Implementation was by UNEP, the Kenya Forest Service and the World Wildlife Fund. The immediate goals of the project were to "pave the way for expanded interventions in the Mau Forest and its surrounding areas by strengthening key capacities and developing innovative approaches." The fundamental approach was to build capacity for innovative solutions at both central and local levels. The project sought to develop a central management framework as well as build capacity for innovative solutions for protecting and rehabilitating degraded water catchments in the Northern Mau.

The project envisaged three outcomes: establishing the Interim Coordinating Secretariat (ICS) for rehabilitation of the Mau Forest Ecosystem, an inter-ministerial agency with capacities to coordinate activities of other relevant stakeholders, creating sustainable livelihoods for communities that live adjacent to the forest to reduce the need for destructive resource extraction, and rehabilitating degraded water catchments and forest lands within the Northern Mau. Coordination with NGOs and CSOs, government, and private sector actors were required. The project also included local communities dependent on forest resources as well as settlers in the forest complex.

Rationale:

The conversion of the forest ecosystem to agricultural land as well as unsustainable resource extraction practices have reduced closed canopy land cover in Kenya to less than 2% today compared to 10% in 1960. Since these forests act as recharging aquifers, forest degradation has led to significant downstream environmental problems in rivers and lakes (drying up or siltation) as well as detrimental changes to the microclimate.

Findings:

EU support was to the ICS, the coordinating body, which later became the Kenya Water Towers Agency. The World Wildlife Fund staff member most closely responsible for implementation was no longer available. Monitoring reports reviewed during the Desk Phase found that there was a lack of clear management and coordination structures. However, in the context of the Kenya country mission of the EU's global thematic evaluation of environment and climate change, it was learned that the project resulted in maps of the area as well as studies on the indigenous people, especially the hunter-gatherers and the neighbouring communities. A register of the Ogiek, one of the indigenous hunter-gatherer communities that historically lived within the Mau Forest, was produced as well as a Handbook on the Ogiek Livelihoods and survey and mapping of five forest blocks in the Mau Complex (Nabkoi, Tinderet, Northern Tinderet, Timboroa and Maji Mazuri). There was some rehabilitation of the five blocks in the Northern Mau and a strategic plan for the rehabilitation and conservation of the whole Mau Complex (covers over 4,000 km^2) was developed. The survey and mapping work has contributed to the almost complete process of issuing of title deeds for the five forest blocks and this will in turn secure them against future encroachment.

Project # 5: Smallholder Innovation for Resilience (SIFOR): Strengthening Innovation Systems for Food Security in the Face of Climate Change.

Description:

Implemented under the GPARD programme, the SIFOR project (Euro 2.3 million, start date August 2012) was about climate change adaptation, targeting small-scale farmers on the coast, where the rains are becoming erratic and are expected to become more so. It is based on mobilising indigenous knowledge. The international implementing partner is the International Institute for Environmental Development in London and the network consists of institutions in India, China, Peru, and Kenya

(KEFRI). The teams meet together at least once a year and have formed close professional relationships. Through the network, they gain access to the latest international research. National and county policymakers, as well as local farmers, also participate in an annual workshop.

Rationale:

The coastal areas of Kenya are judged to be among those most vulnerable to climate change. As described by the case study for GPARD, SIFOR design was informed extensive consultations with developing country research institutes, in part through the Forum for Agricultural Research in Africa and was informed by FP7 research.

Findings:

No documentation for the Kenya component was available, but KEFRI staff interviewed expressed great satisfaction with the project. The mobilisation of local expertise and the commercialisation of products (soaps, etc.) manufactured from local crops resistant to worsening climate conditions was judged to have been moderately successful. However, the responsible staffers warned that there were sometimes serious legal issues involved in patenting and licensing innovations based on local indigenous knowledge. This was perhaps complicated by the fact that the coastal areas covered are considered part of the national patrimony and are as such under the purview of the National Museum.

Project #6: ICRAF - Harmonizing policy for environmental stewardship and rural development (case of Pro Poor Rewards for Environmental Services in Africa (PRESA) in Kenya)

Description:

This was a CGIAR project implemented by ICRAF under the same project on fodders shrubs. It aimed to develop policies and programmes on different levels (multi-lateral, regional and national) to better harmonize goals related to environmental stewardship and sustainable rural development. Specifically, deforestation and land degradation upstream are leading to environmental damage downstream, for example, the siltation of reservoirs. This is having significant consequences for, among other things, the Nairobi water supply.

Rationale:

The project was based on the rationale that downstream stakeholder have an economic incentive to invest in improved upstream environmental management, the benefits to be equitable shared out between upstream and downstream partners.

Findings:

Based on field interviews with project management at ICRAF, the project produced extensive feasibility studies, designed a business model and presented it to stakeholders. Current work focuses on developing a sustainable financing model.

Higher Education

Erasmus Mundus Action 2 and Intra-ACP Mobility Programme

Description:

Erasmus Mundus provides mobility for students and faculty from partner countries in three distinct actions. Action 1 offers scholarships to Masters or PhD programmes that are offered by consortia of HEIs from Europe and partner countries. Action 2 establishes partnerships between HEIs in Europe and partner countries and provides scholarships for mobility within these partnership networks. Action 3 supports activities to promote European higher education. During the reporting period, 18 individuals (six doctoral students and 12 staff) received mobility scholarships under Action 2 amounting to EUR 273,000. At the regional level, the Intra-ACP mobility programme promotes academic mobility within the ACP region. It provides support to HEIs in ACP countries to construct networks and cooperative partnerships as well as funds mobility within these networks. The Intra-ACP programme awarded scholarships to four doctoral candidates and one member of staff in the 2011-2012 funding period. The total cost of these scholarships was EUR 162,000.

Findings:

It was not possible to meet with staff at the EUD or MoEST who were knowledgeable about Erasmus Mundus or the Intra-ACP Mobility Programme.

EduLink

Description:

Kenyan Higher Education Institution participated in nearly 50 EduLink projects designed (i) to foster institutional reform and capacity building in higher education and (ii) to encourage intra-African institutional research collaboration. Most of these linked Kenyan institutions to those in Uganda, Tanzania, and to a lesser extent Ethiopia.

Findings:

It was not possible to meet with staff at the EUD or MoEST Education who were knowledgeable about EduLink.

5 Field mission findings, by relevant EQ

All interventions covered in the field mission were labelled as either FSNA or EnvCC in the inventory. In fact, there was complete overlap between them. Therefore, both categories are combined in the discussion in this section.

5.1 EQ 1: Development policy objectives

FSNA and EnvCC sectors

EQ 1 To what extent has EU support to R&I through DEVCO been successful in promoting the overall development policy objectives of the EU?	
JC 11 Link between R&I activities and EU development objectives (as per European Consensus and Agenda for Change – MDGs, etc.)	National level: - DEVCO R&I bilateral support in Kenya was heavily slanted towards food security and rural livelihoods, with considerable attention given to adaptation to climate change and environmental sustainability. See the description of KASAL and follow-on ASAL-APRP projects above. All bilateral projects examined were consistent with EU development objectives. Regional level: - Integrating developing countries into global trade and promoting trade with Europe are core EU development goals. While no AU-IBAR project appeared in the inventory, EUD staff at the initial briefing cited the bee health project as particularly promising and suggested visiting AU-IBAR. Sanitary and phytosanitary standards (SPSs) play an important role here and, through Intra-ACP, AU-IBAR received funding for work in this area. The initiative Participation of African Nations in SPS Organisations began in 2009 and financed the participation of African experts in negotiations under the umbrellas of the World Animal Health Organisation and the Codex Alimentarius. The AU-IBAR bee health project helped to promote rural smallholder incomes and addressed, as well, a global public good problem in animal health which affects Europe. Global level: - Implemented under GPARD, the Smallholder Innovation for Resistance (SIFOR) project concerned climate change adaptation, targeting small scale farmers on the coast, where the rains are becoming erratic. This is in line with the EU goals of reducing vulnerability to climate change and supporting resilience. - EU support to CGIAR, both globally and to institutions headquartered in Kenya (ILRI and ICRAF) has increasingly been aligned to poverty reduction at household and community levels, environmental sustainability, and adaptation to climate change. - While global level support was fully consistent with EU global policies, staff at both ICRAF and ILRI identified a lack of coordination between the CGIAR institutions' activities and the EU's bilateral Kenya support programme. As at the EUD, where staff members were of the same view, the reason given was simple: "The money comes straight from Brussels."
JC 12 Extent to which R&I has informed sector policy dialogue and sector support at national and regional levels	National level: - Sectoral R&I institutions, such as KALRO and KEFRI, have five-year strategic plans aligned with Vision 2030 and are responsible for representing R&I interests at the Ministerial level, including advising in policy development and dialogue. Project documentation suggests that R&I results from DEVCO-supported research projects at these institutions also filtered into EU policy dialogue with government regarding FSNA and EnvCC. Global level: - The Climate Change, Agriculture, and Food Security (CCAFS) research programme, a CGIAR CRP centred at ILRI, works on climate change and agriculture, climate, low emissions, and policy and innovation in five world regions, one of them being East Africa (Kenya, Ethiopia, Tanzania, and Uganda). It is financed by the DCI Food Security thematic budget line. All CGIARs participate. In addition to engaging in research, CCAFS consults

	with policy makers at all levels. Coordinated by the Climate and Policy Centre in Addis, CCAFS mobilises African experts to assist African climate negotiators to state their positions more effectively on the basis of scientific evidence. - The project 'Quantifying weather and climate impacts on health in developing countries' at ILRI, which studied the health consequences of climate change (specifically, impacts on Rift Valley Fever and malaria), developed a decision tree that was used to inform government climate change adaptation policy. - ICRAF foresight studies have advised the Government on how its institutional devolution is likely to affect ecosystem management. - ICRAF has collaborated with KEFRI and KALRO to write an agro-forestry strategic plan. Under the FP7 EDD and IREDD projects, ICRAF looked at payments for ecosystem services from a climate change perspective. Lessons learned from multiple countries were used to advise Kenyan authorities on the formulation of their national Climate Action Plan.

5.2 EQ 2: Impact on partner country research communities

FSNA and EnvCC sectors

EQ 2 To what extent has DEVCO funding of R&I enabled research communities in partner countries to build up and develop their own R&I capacity, including the ability to actively engage in research networks (regional and international)?	
JC 21 Degree of alignment and coherence of DG DEVCO support to R&I with relevant policies and strategies	National level: - DEVCO R&I bilateral support in Kenya was coherent with EU development objectives (see JC 11 above). Given government emphasis on food security and the unavoidably close connection to environmental sustainability and climate change adaptation in a country where much of the population lives in ecologically fragile zones, DEVCO support was also aligned with government priorities. However, these priorities are not convincingly presented – or, to put it differently, the Government has outcome and sector result priorities, but nor R&I priorities. As described in Section 3, multiple stakeholders interviewed expressed the view that during the evaluation period, there was no real government R&I strategy. The new institutional setup under the ST&I Act 2013, particularly NaCOSTI, is expected to generate this. However, government capacity remains low and, despite commitments, it is likely that R&I will continue to be largely donor-supported for the foreseeable future. This is not a configuration that will encourage the development of a strong, internally coherent, government R&I strategy or (apart from broad directions) priority list. - A new dimension of coherence and alignment with national policies and priorities is that, due to devolution and the emergence of Counties and their Governors as relevant players, there are now a large numbers of public authorities, NGOs, policies, and documents to align to. - Kenyan researchers participating in FP7 projects have benefited from being integrated into international research networks. Other networking aspects were described by experts interviewed regarding DEVCO AU-IBAR projects, SIFOR, and CCAFS. Regional level: - EU support to ASARECA has often resulted in successful bids by Kenyan institutions on Calls for Proposals, contributing to EU goals of R&I institutional capacity building and integration into international research networks. Global level: - Thanks to the growing orientation of the CGIAR system towards stakeholder involvement and translating research results into development processes and outcomes, there has been increasing emphasis on integration into regional and international networks including all stakeholders, from the farm and community level up to government, the private sector, and other research organisations.
JC 22 Increased focus of EU support on 'capacity building' and enhancing institutional sustainability	National level: - As described in Section 3, under the KASAL project 15 KARI/KALRO scientists received graduate training relevant to promoting sustainable ASAL agriculture. A project management and monitoring tool, subsequently applied to all KARI projects, was developed. There was significant upgrading of physical infrastructure at KARI research sites. This emphasis

	on capacity building continued under the follow-on ASAL-APRP project. - As reported in Section 3, mid-term reviews and project final reports, as well as interviews with staff scientists, point to substantial and sustainable progress into converting KARI/KALRO into an institution where R&I is attuned to development needs and reflects a results orientation. - Field interviews with experts outside KALRO left the impression of some progress, but limitations nonetheless. Some experts expressed the view that KALRO is still slow to bring in the right partners and share results; others cited a persistent institutional culture of pure research; others cited institutional difficulties in delivering on-time results as part of a larger multi-partner work plan. <u>Regional level:</u> - Under ASARECA's Eastern Africa Agricultural Productivity Project, national laboratories for dairy (Kenya), cassava (Uganda), rice (Tanzania), and wheat (Ethiopia) were equipped and seminar rooms, libraries, etc. were put in place. In Kenya, seven PhD and five Master degrees were earned on various aspects of dairy. - The AU-IBAR bee health project sought to improve bee health in Member States including Kenya and to promote disease prevention mechanisms to increase productivity with consequent impacts on food security. Capacity shortages were assessed, lab facilities were improved and a map of African bee disease was produced in order to provide a baseline. The project sought to create regional reference laboratories and put in place a regional network of experts. <u>Global level:</u> - All projects that involved bringing researchers from different countries together were viewed as having contributed to capacity building in ways that national institutions would find difficult to replicate. These included SIFOR implemented under GPARD, where farmers from all the countries involved were brought together to share experiences and lessons learned. - A structural problem, as reported at ILRI, is that capacity building efforts tend, both at the institute and individual levels, to disproportionately benefit those whose capacity is already reasonably high. For example, in response to this problem ASARECA has adopted a form of "affirmative action" to ensure that weak countries like Benin and Burundi benefit from calls for proposals as well as the traditional strong performers such as Kenya. - Another structural problem is that capacity at national level is severely skewed towards downstream implementation rather than upstream fundamental research. This is an unintended but unavoidable consequence of the increase emphasis on translating research results into tangible development impacts. tangible development. "Hard" scientists are poorly equipped to communicate to Government why their work is important and to justify the high infrastructure requirements and long-term time frame that are required. - A challenge for sustainability is that there is virtually no donor support in the form of core funds. This weakens the institutions' ability to serve as global centres of excellence, to serve the needs of graduate students and visitors, etc. In the end, it is a major barrier to sustainability, as the institutional infrastructure necessary to support and solidify project results is not in place, as a result of which they depreciate. - Both CGIAR centres visited were acutely aware of the danger that they crowd out less prestigious national institutes. This was one reason for putting in place the new CRP system in which national partner can be lead institutions. ICRAF has a unit devoted entirely to building capacity and always that's as its starting point the national agenda, even if it is imperfect. It tries to have input but is willing to step back and let other institutions take the lead. In Kenya, the risk of crowding out is reduced because national institutions are relatively strong.
JC 23 Improved access of developing countries' research communities to EU FP7 funding through RTD Summary assessments by sector	- Kenyan participation in FP7 has been relatively high, but there is no evidence that DEVCO support enhanced or facilitated this. Senior officials at the Ministry of Education, Science, and Technology expressed the view that FP7 ran essentially independent of EUD support, a view generally in line with discussions at the EUD.
JC 24 Enhanced networking of developing countries' research-	<u>Regional level:</u> - ASARECA and AU-IBAR both promoted regional networking by establishing collaborative networks.

ers at regional and international level	Global level: - Under GPARD, the climate change and adaptation project SIFOR brought together teams from institutions in India, China, Peru, and Kenya. The teams meet together at least once a year and have formed close professional relationships. Through the network, they gain access to the latest international research. National -level policymakers, as well as local farmers, also participate in an annual workshop. - Many CGIAR-implemented R&I activities had a regional or global component and promoted cross-border scientific communication and sharing of results and experiences. - While some successes were recorded in promoting the sharing of experiences, according to researchers at ILRI, it can be very difficult to build the levels of trust necessary for data sharing. It is important that partnerships between institutions be genuine and built on experience, not cobbled together for funding reasons.

5.3 EQ 3: Instruments and modalities

FSNA and EnvCC sectors

EQ 3 To what extent has DG DEVCO in its support to R&I used its available instruments in a way that maximizes their value?	
JC 31 Appropriateness of the financing modalities and types of funding under different EU instruments and the way they have been applied for enhancing R&I	National level: - Bilateral support to R&I has been essentially project based through EDF or DCI thematic instruments. - Regional and global support (e.g., projects implemented by AU-IBAR and CGIAR or coordinated by ASARECA) has largely come via the DCI Food Security budget line. - While there is reasonably good communication between institutions domiciled in Kenya, there is widely acknowledged to be little coordination or effort to obtain complementarity between bilateral, regional, and global instruments / programmes. - ASARECA is financed via a multi-donor trust fund (administered by the World Bank) with the EU contribution coming via the DCI Food Security thematic budget line. The ASARECA official interviewed expressed the view that the multi-donor trust fund has been effective at simplifying finance, but pointed out that ASARECA is significantly downsizing under donor pressure. It has not been possible to effectively mobilise member country support: in the past, annual contributions were a token USD 8,000; now each is being asked to make a one-off contribution of USD 100,000. - A structural problem is that R&I is a long-term process – from laboratory to farmer involving about 6-8 years in the case of developing crop varieties and can take up to 20-30 years in developing livestock breeds. It is not realistic to support long-term R&I endeavours on the basis of recurrent short-term project finance. Research institutions require, in addition, core funding to finance recurrent expenditure; finance that is almost by definition excluded from EU funding instruments.
JC 32 Strategic approach adopted to choosing different possible actors / channels with whom the EU can work to support R&I and how best to support them with the instruments and modalities available	It is not evident that a strategic approach was used, however, R&I support to Kenya has employed a reasonable range of channels – universities (FP7), parastatal institutions, regional institutions such as AU-IBAR, and global ones such as CGIAR. No examples of R&I implemented by NGOs was found; however, CGIAR and KALRO/KEFRI project staff interviewed stresses the heavy involvement of NGOs/CSOs in project design and implementation.

5.4 EQ 4: DEVCO-RTD complementarity and coherence

FSNA and EnvCC sectors

EQ 4 To what extent has EU support to R&I by DG DEVCO and by DG RTD been complementary and their collaboration promoted PCD?	
JC 41 Extent to which DGs DEVCO and RTD have formulated clear strategies on how they	National level: - There is no evidence at country level that there is any strategy for cooperation between DEVCO and RTD or for promoting complementarity of DEVCO projects and FP7 grants. This is true both at the level of the

should cooperate in a complementary way and how the work of other relevant EU institutions (such as the EIB) is also complementary with their own	EUD and the Ministry of Education, Science, and Technology. Ministry officials interviewed stressed the individual nature of FP7 applications, underscoring that much scientific research is by nature person-to-person and difficult to coordinate. There is no one-stop shop for information on on-going foreign-financed R&I activities, and far less for all R&I.) CGIAR scientists at both ILRI and ICRAF have been FP7 participants but this is separate from the funding they receive from Brussels through IFAD and there is not necessarily any coordination between the activities.) From an information and management point of view, neither the EUD nor the new R&I coordinating body NaCOSTI has the capacity to coordinate FP7 activities.
JC 42 Degree to which DEVCO support addresses issues that could/would not have been better, or equally well, addressed through RTD and vice versa	National level:) Significant amounts of DEVCO funding, for example through KASAL and ASAL-APRP, have been devoted to capacity building both in terms of training, management systems, and infrastructure. This would have been impossible to finance through RTD. Regional and Global levels) Research projects financed at AU-IBAR and the CGIAR centres has embedded a large component of stakeholder involvement, sharing of local knowledge, etc. exemplified in the agricultural value chain approach. The result is to maximise the chances that research contributes to development processes and translates into development results. There was no similar mechanism embedded in RTD FP7 financed research projects. However, FP7 has allowed for participation of high-level Kenyan researchers in international collaborative research endeavours in ways that would be impossible through DEVCO mobility programmes.) Under FP7, Kenya participated in a Special Support Action for ICT (E-Health, E-Agriculture, etc). Under this programme, Kenyan scientists were able to participate in drafting the research proposal, which ultimately led to their handling a work package for Global Monitoring for Environmental Security. In addition, the Ministry of Education, Science, and Technology was able to benefit from a Coordination and Support Action under FP7 specifically targeted at Ministries and aiming to improve their management and coordination capacity.
JC 43 Level at which DEVCO support has benefited from complementary action financed through RTD and vice versa	National level:) There is no evidence that FP7 research results have in any way directly influenced DEVCO support. In the FP7 Joint Learning in and about Innovation Programmes in African Agriculture project, research institutions in four European and three African countries (KALRO in Kenya among them) studied innovation processes in smallholder farms. They developed an insightful conceptual framework as well as an international innovation research network that continues to function. The main insight from the project, that innovation continues long after the project has ceased and merits close follow-up and monitoring, has affected KALRO's overall approach to R&I projects.) FP7 operates independently from the EUD, which has only minimal contact with or awareness of FP7. There is no effective coordination at national level of applications for FP7 funding.) There were some FP7-financed projects that aimed at capacity building activities.

5.5 EQ 5: Transfer of R&I results into development processes

FSNA and EnvCC sectors

EQ 5 To what extent has DEVCO support led to the transfer of R&I results into processes likely to impact on the achievement of EU development objectives?	
JC 51 Clear and logical thinking at sector level on how DEVCO support could ultimately lead through to research results being used in development processes	National level:) The EU has adopted a value-chain approach in its approach to rural development in Kenya, and in its support for R&I attempts to encourage institutes to bring in necessary partners. This needs to be done at programming stage, because it is impractical to give support to research institutes and then expect them to pass it on to other partners as work progresses. According to both EU staff and international experts, there has been some success, but limited, in encouraging national research institutions to adopt a ground-up approach to needs prioritisation and

	programme design. Co-financing is an important issue: the EU can properly support research as a public good, but at the innovation stage, involvement of the government or private sector is called for. Research organisations can only take products to the prototype stage; real commercialisation requires involvement of the private sector. There have been some successes in this area, e.g. with KEFRI through the SIFOR project. Global level: - All CGIAR centres are under donor pressure to translate their research more effectively into development results. This has resulted in a major re-organisation and is reflected in new strategic plans. At ILRI, the CCAFS programme, in addition to engaging in research and contributing to policy dialogue, is working on-site with farmers to develop climate change adaptation measures. Through community participation, the programme is able to harvest local knowledge and share it throughout the region.
JC 52 Extent of internal lessons learning, sharing and uptake in the EU Institutions within the sectors supported in partner countries, and at international level	National level: - As the main sectors for R&I are FSNA and EnvCC, essentially indistinguishable because of the national context, and as a small group of EUD staffers are responsible for both sectors, there is by definition quite a bit of knowledge sharing between R&I and the relevant sectors. A number of lessons learned were cited in EUD interviews. It is appreciated that innovation is best served when a range of institutions are involved and that, once the pure research phase has been passed, there should rightfully be some ownership and co-financing from either the public or private sectors. The need to align regional and global-level institutions' research agenda as closely as possible with bilateral programmes and to avoid the crowding out of national institutions by prestigious international centres is acknowledged.
JC 54 Development processes and outcomes have been built on or used the results of research funded by DEVCO or shared through DEVCO supported research networks	National level: - In semi-arid regions under the KASAL project, a partnership was established with East Africa Malting Limited, a subsidiary of East Africa Breweries Limited, to produce sorghum beer. This resulted in KeSh 105 million of sorghum being delivered to the brewers -- a substantial income gain for the farmer producers. KASAL popularised new varieties of cassava developed by KARI, benefiting an estimated 9,000 farmers. Amarenth cultivation was promoted in semi-arid regions, substituting for imports from India and Uganda and improving the nutrition of vulnerable groups and promoting food security. KASAL also contributed to improvements related to cowpeas. In the area of livestock, KASAL contributed to improved range reseeding and pasture management and chicken vaccination. All activities saw research results disseminated, supported, and commercialised. - In arid regions, KASAL developed policy recommendations and land management guidelines and contributed to improve productivity and commercialisation related to camels, goats, and sheep. Roughly 5,000 camel keepers and 5,000 goat- and sheepherders benefited from the innovations disseminated. - While the follow-on ASAL-APRP project was only begun in May 2012, it aims to capitalise on the research carried out and innovation achieved in KASAL, thereby benefitting 500,000 farmers in arid-and semi-arid regions of Kenya. - Despite these successes, a structural weakness identified by multiple persons interviewed is that, while KALRO has research capacity, it is not responsible for extension activities, which are the responsibility of the Ministry of Agriculture. As a result, outside of pointed efforts like KASAL, research results are not effectively communicated to those who could innovate. The situation is much the same at KEFRI, where it is the Kenya Forestry Service that has the extension capability. Global level: - An ICRAF intervention, Pro-Poor Rewards for Environmental Services in Africa (PRESA), focused on processes for improving land and water use. The essence was encouraging downstream ecosystem services users (farmers and private companies) to invest in upstream agroforestry in order to improve access to water. It is closely aligned with government processes and there was substantial stakeholder involvement. In the Sasumua watershed in Kenya, the project produced evaluation studies and business analyses to assess benefits and is now looking into funding arrangements to underpin financial sustainability. - The DEVCO-financed AU-IBAR project has promoted small-scale

	apiculture, with the potential to generate large financial returns for farmers.

5.6 EQ 6: EU capacities

FSNA and EnvCC sectors

EQ 6 To what extent have the EU external relations services ensured adequate capacities to conduct policy dialogue related to R&I and to support research and innovation in partner countries?	
JC 61 Extent to which EU internal capacity to manage R&I support and conduct policy dialogue is in place at the levels required	National level: - There is one programme officer for rural development and another who handles the environment and climate change portfolio. In these areas, the capacity of the EUD was judged to be adequate. However, there is no one tasked with following R&I or S&T as a whole. Ministry officials interviewed perceive that the EUD is more interested in development than R&I, while EUD staff perceive that while government prioritises food security results, it is the EUD that encourages more attention to related R&I. Regional and Global levels: - The EUD is unable to exercise any coordination over global activities such as CGIAR because funding comes directly to these programmes from Brussels (via IFAD in the case of CGIAR). As a result the EUD is not aware of what is going on and, it is reported, neither is Government. By contrast, most AU-IBAR regional projects are managed by the EUD and staffers interviewed were very knowledgeable on, e.g., the AU-IBAR bee health project. - At both CGIAR institutions visited, staff were of the view that the EUD has reasonably good capacity to deal with the subject areas in which they are active. However, they also felt that better communication and coordination, such as annual meetings to compare notes and share experiences, would be desirable.
JC 62 Extent to which R&I policy dialogue is operational at all levels	- There is no evidence that there is an active policy dialogue regarding R&I policy or priorities. As described above, it is only now that a set of national R&I priorities is being put in place.
JC 63 Extent to which the EU facilitates R&I activities at all levels	National level: - As stated above, there is no one at the EUD specifically tasked with the R&I portfolio. Ministry officials interviewed perceive that the EUD is more interested in development that R&I, while EUD officials perceive that while government prioritises food security results, it is the EUD that encourages more attention to related R&I. Global level - It is reported that, while there are occasional contacts between the EUD and CGIAR (e.g. board meetings) EUD involvement is minimal.

6 Conclusions

Bilateral DEVCO-financed R&I projects have built capacity and produced solid research results at Kenyan parastatal institutions such as KARI/KALRO and KEFRI. These were coherent with EU development goals and government sectoral priorities. Although a number of international experts interviewed stated that these institutions continue to be largely oriented towards pure research, the field mission has found evidence that these results were sometimes translated into development results. This is despite the structural challenge that these institutions have no mandate for extension services. Based on interviews with relevant staff, Kenyan research parastatals are well aware of the need to shift from a top-down, upstream-to-downstream approach to R&I to a more integrated value chain approach in which local needs and market potential are assessed first and research needs are prioritised accordingly. Similarly, the importance of involving the private sector in commercialisation has been appreciated.

The same can be about CGIAR and GPARD projects. These projects all involved local communities, end-users, etc. In the case of CGIAR, donor pressure has played a role in increasing the focus on development results.

Because of constraints described above, little that was not already known at Desk stage was learned in the field mission concerning higher education and mobility programmes. However, all persons interviewed shared the view that projects involving multiple institutions in multiple countries, whether DEVCO- or FP7-financed, had built capacity in Kenya through international contacts. Networks were

built, and particularly intra-regional African networks as in the case of the AU-IBAR bee health programme.

DEVCO- and FP7-financed R&I inhabit two different universes in Kenya. EUD capacity, while stretched, is sufficient to deal with bilateral EDF-financed cooperation through the CSP. However, it is "out of the loop" as far as FP7 goes. The same is true of DEVCO-financed non-bilateral support, such as CGIAR and GPARD. Support to AU-IBAR, where the EUD is well informed, is an exception. It will continue to be difficult to offer comprehensive European support to R&I in Kenya given current capacity constraints. Similarly, while the field mission revealed government ambition to coordinate R&I to meet development needs, there is limited capacity to do so.

The field mission highlighted the fundamentally different mandates and missions of DG DEVCO and DG RTD, and the challenges of dealing with shared concerns. Looking from the beneficiary point of view, there is no incentive for FP7 aspirants or beneficiaries to accede to any coordination from government, Brussels, or the EUD Nairobi. They are operating, and to a respectable extent succeeding, on the basis of their scientific excellence, reputation, and personal links with European scientists and scientific institutions.

Sustainability is a pervasive issue and has several dimensions. The R&I pipeline is long in the two main fields covered here (FSNA and EnvCC). One dimension of sustainability arises from the fact that the increased donor focus on downstream applications-oriented R&I, with its emphasis on disseminating tangible innovative applications, is a double-edged sword. While laudable in some respects, if overdone it carries the risk that capacity built will be so heavily skewed towards downstream needs that the Kenyan scientific contribution upstream will shrink to a trickle. Not only is this unfavourable for long-term scientific contribution to national development; it also threatens to reduce Kenyan participation in international hard science, which has become irreversibly global in nature.

A second dimension of the sustainability issue is that the R&I process is not well suited to financing via cascading short-term project approaches. Research institutions need core finance in order to attract talent and capitalise on the project funding available. While this problem affects all R&I institutions including global ones, it is of particular concern for Kenyan national institutions. Despite the stated ambition of massively increasing R&I's claim on the budget, state support for R&I in Kenya has and will likely continue to be far lower than in comparator countries such as South Africa. This cannot help but be a negative factor for sustainability.

7 Annex: List of people interviewed

EU Delegation

Name	Position	Institution
Njuru, David Mwangi	Program Manager/Rural Development Section	Delegation of the European Union to Kenya
Wathome , Stephen	International Aid/Cooperation Officer	Delegation of the European Union to Kenya
Yatich, Thomas	Manager, Social Affairs and Environment Section	Delegation of the European Union to Kenya

Government and parastatal institutions

Name	Position	Institution
Rugutt (Dr.), Moses K.	Director General/CEO	National Commission for Science, Technology and Innovation
Ngigi, David M.	Senior Science Secretary, ST&I Fund Coordinator	National Commission for Science, Technology and Innovation
Macharia, Harrison K.	Chief Science Secretary	National Commission for Science, Technology and Innovation
Ayisi (Dr.), John	M&E Specialist/Deputy Director	Directorate of Research Management and Development, Ministry of Education, Science and Technology
Liahona, Richard Mavisi	Research Officer/Assistant Director	Directorate of Research Management and Development, Ministry of Education, Science and Technology
Mwangi (Dr.), Eric	Deputy Director	Directorate of Research Management and Development, Ministry of Education, Science and Technology
Kamau (Dr.). Geoffrey Mbuthia	Principal Research Scientist	Kenya Agriculture and Livestock Research Organization (KALRO)
Wandera (Dr.), Peter Foustine	Coordinator, Kenya Dairy Centre of Excellence	Kenya Agriculture and Livestock Research Organization (KALRO)
Ongugo, Paul O.	Science Leader/Advisor	Kenya Forestry Research Institute (KEFRI)
Wekesa, Chemuku	Research Scientist	Kenya Forestry Research Institute (KEFRI)/ Smallholder Innov. for Resilience (SIFOR)

Research organisations

Name	Position	Institution
Ahero, Pauline	Manager, Budgets and Regions	World Agroforestry Center (ICRAF)
Chata, Linus S.	Senior Officer, Human Resources and Administration	African Union-Interafrican Bureau for Animal Resources (AU-IBAR)
Iiyama, Miyuki	Research Scientist	World Agroforestry Center (ICRAF)
Kasyoki, Joyce	Senior Projects Manager, Environmental Services	World Agroforestry Center (ICRAF)
Kemp (Prof.), Stephen	Animal Biosciences Program	International Livestock Research Institute (ILRI)
Malesu, Maimbo	Program Coordinator, ESA	World Agroforestry Center (ICRAF)
Minang (Dr.), Peter	Science Domain Leader	World Agroforestry Center (ICRAF)
Muasya, Stella	Manager, Planning, Results and Q/Assurance, Office of D/DG, Research	World Agroforestry Center (ICRAF)
Mukanda (Dr.), Bruce	Senior Programmes and Projects Officer	African Union-Interafrican Bureau for Animal Resources (AU-IBAR)
Muriuki, Jonathan	Country Representative	World Agroforestry Center (ICRAF)
Namirembe, Sara	Environmental Services Scientist	World Agroforestry Center (ICRAF)
Onyango, Rose	Regional Admin. Manager	World Agroforestry Center (ICRAF)
Prabhu, Ravi	D/DG, Research	World Agroforestry Center (ICRAF)
Radeny (Dr.), Maren	Science Officer	Climate Change, Agriculture and Food Security Programme
Recha, John	Participatory Action Research Spe-	Climate Change, Agriculture and Food

Name	Position	Institution
	cialist	Security Programme
van Noordwijk (Dr.), Meine (via video link)	Chief Science Advisor/Leader Global Research Project – Environmental Services	World Agroforestry Center (ICRAF)
Wachira (Prof.), Francis	Acting Executive Secretary	ASARECA

Country Note – Mauritius

By Bjørn Bauer and Bhanooduth Lalljee on field mission from 17-21 November 2015.

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List of Acronyms

ACP	African, Caribbean, and Pacific
AMSP	Accompanying Measures for Sugar Protocol Countries
CSP	Country Strategy Paper
DCI	Development Co-operation Instrument
DEVCO	Directorate-General for International Cooperation and Development
DG	Directorate-General
EC	European Commission
EDF	European Development Fund
EIB	European Investment Bank
EnvCC	Environment and Climate Change
EQ	Evaluation question
EU	European Union
EUD	European Union Delegation
EUR	Euro
FAREI	Food Agricultural Research and Extension Institute
FP7	7th Framework Programme for Research and Technological Development
FSNA	Food Security, Nutrition and Agriculture
GBS	General Budget Support
GoM	Government of Mauritius
ICT	Information and Communication Technologies
JC	Judgment Criterion
MCIA	Mauritius Cane Industry Authority
MRC	Mauritius Research Council
MDG	Millennium Development Goals
MSIRI	Mauritius Sugarcane Research Institute
NGO	Non-governmental organisation
NIP	National Indicative Programme
NSA	Non-state actor
PCD	Policy Coherence for Development
R&I	Research and Innovation
RTD	Directorate-General for Research and Innovation
SRP	Sugar Research Programme

Note: The Evaluation uses the common acronym "**EC**" to refer to either the "Commission of the European Union" (post-Lisbon Treaty) or the "European Commission" (pre-Lisbon Treaty), as applicable.

1 Introduction

1.1 Mandate, scope and purpose of the evaluation

As spelt out in the Terms of Reference the general objectives of this evaluation are:

- To provide the relevant external cooperation services of the EU and the wider public with an independent assessment of the support provided to research and innovation for development over the period 2007-2013;
- To identify key lessons and forward-looking recommendations.

The thematic scope of the evaluation encompasses the EU support to Research and Innovation (R&I) in four key sectors: (i) Food Security, Nutrition and Agriculture (FSNA), (ii) Health, (iii) Environment and Climate Change (EnvCC), and (iv) Science, Information Society and Space (SISS) (henceforth "thematic sectors")

The specific objectives of this evaluation are to provide an overall judgement on the extent to which the EU development co-operation policy has adopted a strategic approach to support R&I in the thematic sectors, and whether the approach was appropriate to enhance capacity to reach development objectives in these fields. Moreover, the ToR specify that the conclusions and lessons learned are expected to specifically address areas of particular interest, namely:

- The support provided to capacity building in partner countries;
- The level of the transfer of research results into social or economic processes likely to impact on poverty reduction in the longer term;
- The appropriateness of instruments and modalities made available; and
- The approaches, notably *country* versus *regional* support, or *direct* support to research versus *indirect* support through sectoral programmes that include research components.

The legal scope of the evaluation is delineated by the activities supported by the European Comission's Directorate-General Development and Cooperation/EuropeAid (DEVCO) through its cooperation instruments: the European Development Fund (EDF), the Development Cooperation Instrument (DCI) – both geographic and thematic budget lines – and European Neighbourhood Policy Instrument (ENPI).

While the Directorate-General for Research & Innovation (RTD) implements activities supporting R&I in developing countries, its policies, strategies, programmes and activities are not included in the scope of the evaluation and hence not the object of in-depth analysis here. They are, however, considered from a contextual point of view, and analysed from a complementarity and synergy perspective, together with, for instance, the activities of EU member states, other donors or multilateral organisations.

The temporal scope of the evaluation is the period of 2007-2013 which corresponds to the last EU multi-annual budget period and to that of the 10th EDF. Equally this is the period of RTD's Seventh Framework Programme (FP7).

1.2 Purpose of the note

The ten Country Notes for this evaluation serve to provide a national level view of what DG DEVCO support to R&I entails on the ground. They validate and expand the documentary analysis using the evidence collected during the field mission and the individual responses of EU Delegations (EUDs) to the online survey.

The Country Note is structured as follows. The introduction in Section 1 explains the rationale for the choice of the country. Section 2 outlines the methods use. Section 3 spells out the country context for DEVCO support to R&I and Section 4 provides an overview of the key DEVCO interventions. Section 5 presents the field mission findings for each EQ. These findings are categorised for each sector, per JC and per geographic level (national, regional, global) as far as applicable. Section 6 draws out any overall conclusions about the EU's cooperation on R&I with the country concerned.

The dates of the mission to Mauritius were 17-21 November 2015. The mission was conducted by Bjørn Bauer (and international expert and team leader) and Prof. Bhanooduth Lalljee (national consultant). The team would like to thank those who took time to meet them.

1.3 Reasons for selecting this country for the Field Phase

Mauritius has been selected for the Field Phase as it is one of the biggest receivers of support from the Accompanying Measures for Sugar Protocol (AMSP), which supports a number of African, Caribbean and Pacific (ACP) countries in adjusting to the 2006 reform of the EU's sugar regime with aid worth EU 1.25 billion.

Further aspects of interest include the fact the CSP mentions the promotion of innovation (through research grants and international research collaboration) as crucial for transition towards the new economic model in Mauritius. It may also provide some information on funding of R&I through General Budget Support (GBS). Furthermore, Mauritius is the only Small Island Developing State among the countries, and with status as a Newly Industrialised Country, it complements the other countries selected for the Field Phase.

The Mauritius Sugar Industry Research Institute (MSIRI), which has been lead in a major EU-supported multi-country research programme in the sugar sector, is the 9th biggest beneficiary of DEVCO R&I funding.

1.4 Gaps of evidence addressed in the country

The general purposes of the Mauritian field mission were to:

- Assess how R&I support influenced EU development policy objectives in Mauritius;
- Hear local views and collect examples of impact;
- Judge how instruments and modalities affect support for R&I and hear local views of the rationale for choices made;
- Find examples and hear views related to the complementarity of DEVCO and RTD support;
- Find examples and hear views related to the transfer of R&I results into development processes;
- Hear EUD and local views of EU capacities.

The specific purposes of the Mauritius field mission were to:

- Investigate to which degree GBS has been used to promote R&I and with which results;
- Explore the outcomes of a major R&I contribution to a smaller, specialised research institution.

2 Data collection methods used (including limits and constraints)

In Mauritius, DEVCO supported R&I mainly in the sugar sector. The field mission was focused accordingly. Data collection methods included interviews with the following group of stakeholders:

- Commission staff in the EUD;
- Officials at research institutions;
- Beneficiaries from DEVCO-financed capacity building including research institutions and private sector representatives;
- End-users organisation (sugar manufacturers);
- Government representatives.

In addition, answers of the EUD to the online survey have been used in producing this country note.

One limitation experienced by the team was that there has been no FP7 participation in the relevant sectors, hence little to investigate on DEVCO-RTD cooperation. Similarly, there have been no Erasmus Mundus Action 2 awards to Mauritius in the period of the evaluation. Final beneficiaries/potential end users of the main intervention (sugar cane farmers or sugar cane factories) were not interviewed directly, as the results of the programme investigated have not yet reached the end users.

3 Country context

3.1 Overall description of country political, legal, and development R&I context

3.1.1 R&I situation in the country

Mauritius is a Small Island Developing State in the Indian Ocean, east of Madagascar. The land area of the island is 1,890 square kilometres but it has a large Exclusive Economic Zone in the Indian Ocean which is

ten times the land area. The executive power rests with the Prime Minister and the Cabinet of Ministers who are all democratically elected. Elections are held every five years with the latest election held in December 2014. The Head of State is the President of the Republic of Mauritius who is elected by Parliament.

The Republic of Mauritius has moved from an agriculturally dominated economy to a service economy. The main pillars of the economy are tourism, services (offshore banks, financial hub), ICT and agriculture. Agriculture, which represented more than 50% of the economy before independence (1968), now contributes with less than 3%, has been dominated by the sugar sector, but still accounts for a significant part of total exports as well as an important proportion of employment and self-employment. The Mauritius Multi-Annual Adaptation Strategy 2006-2015, which is supported by an EC Response Strategy under the Sugar Accompanying Measures, is aimed at re-engineering the sugar industry into a "sugarcane cluster" in order to reduce production costs and enable Mauritius to remain a competitive supplier.

In the World Economic Forum Global Competiveness Report[92], Mauritius ranks 54th in higher education and training, comparing unfavourably with countries such as Chile and Malaysia. These ratings are a result of low enrolment rates in tertiary education, weak collaboration between universities, research, and industry and low availability of scientists and engineers. Only 45 percent of teachers at the University of Mauritius hold a doctoral degree[93].

Spending on R&D, a key indicator of the absorptive capacity of a country, is very low in Mauritius and lower than peer countries such as Costa Rica or Malaysia (World Economic Forum 2014). Moreover, R&D in Mauritius is dominated by the public sector, with only 18 percent of private firms performing R&D. Most of Mauritius research expertise lies in the agricultural and sugar sectors, with virtually no industrial R&D. The current Private Sector Collaborative Research Grant is designed to increase research-business linkages but its impact has been limited thus far (World Bank Group 2015). There is no national innovation strategy, and there is a proliferation of institutions with overlapping mandates (World Bank Group 2015). The 2013-2014 Global Competitiveness Report identifies inadequately educated workforce among the top five most problematic factors for doing business in Mauritius and the quality of education as inadequate to meet the needs of a competitive economy (World Economic Forum 2014), and this lies behind the prioritisation of (not least higher) education from the EU as well as the African Development Bank[94].

3.1.2 National policies, legal frameworks

The legal framework for Science, Technology and Innovation development in Mauritius comprises a number of key laws:

- The Mauritius Research Council Act (1992);
- The Patent, Industrial Designs and Trademark Act (2002);
- The Protection against Unfair Practice Act (2002);
- The Information and Communication Technologies Act (2001);
- The Copyright Act (1997, 2014);
- The Mauritius Cane Industry Authority Act (2011).

Government investment in research is promoted and coordinated by the Mauritius Research Council (MRC), which was set up through the Act No. 10 of 1992 as an apex body. The MRC acts as a central body to advise the Government of Mauritius on Science and Technology issues and to influence the direction of technological innovation by funding research projects in areas of national priority and encouraging strategic partnerships[95].

The MRC 2012-2016 R&D Implementation Plan addresses the concerns of the stakeholders through:

- Strengthening, improving and recalibrating the Research and Development efficiency;
- Delivering research performance better aligned to the sugar cane industry and national priorities;
- Managing Research and Development funds more efficiently with focus on performance while maximizing human and capital resources;
- Bringing innovation;

[92] See World Economic Forum (2014).
[93] See World Bank Group (2015).
[94] See African Development Bank: Country Strategy Paper Mauritius 2014-2018.
[95] See Meetarbhan (2013).

- Remaining internationally competitive and
- Aiming towards self and long term sustainability.

There are various national initiatives aiming at strengthening research and innovation in Mauritius[96]:

- Maurice Ile Durable (i.e. sustainable development) working groups: related to the national Maurice Ile Durable strategy and participative process (in progress). Topics include energy, biodiversity & natural resources, pollution, waste, employment, education, equity
- National Research Groups, which are coordinated by the MRC and operate through a wide consultative process, including the Mauritian diaspora. Topics include energy, human resources, food quality, water resources, and transportation. Each has launched its programme in 2012.

Past policy initiatives include:

- The Science Technology Innovation Programme 2009, as a result of consultation with a wide range of stakeholders from the public, private and academic sectors. A major recommendation is the setting up of a National Innovation Fund. Ten other key policies were recommended, some of which are finding their way through the system.
- The "Competitiveness Foresight: What orientations for Mauritius?" study was commissioned by the National Productivity & Competitiveness Council in the 2004-2005 period.
- "Vision 2020" was a large consultation programme in 1997, with some similarities to a foresight process. It was part of a regional exercise coordinated by African Futures, and was referred to as the National Long Term Perspective Studies".

3.1.3 R&I institutional frameworks (who does what)

The national research funding body is the MRC (see previous section), which receives funding from the Government but also administers funds from other sources. At an intergovernmental level, funds to various research institutions for specific projects are allotted on competitive basis through the Indian Ocean Commission. It comprises the states of Mauritius, Comoros, Seychelles, Madagascar, and Reunion and receives substantial funding from the EU on thematic areas like biodiversity and integrated coastal zone management.

The remainder of this sub-section provides an overview of the main Mauritian research institutions in the thematic fields of this evaluation.

The *Mauritius Sugarcane Industry Research Institute* the MSIRI operates under the Mauritius Cane Industry Authority (MCIA), which has been set up as a corporate body under the MCIA Act No. 40 of December 2011 with the Ministry of Agro Industry and Food Security as the parent Ministry. It conducts research on:

- Sugar canes, to enhance the cost effectiveness and competitiveness of the cane industry;
- Technical and engineering options for improving the efficiency of factories and for value additions to the co-products;
- On any other crops that the Minister of Agro Industry and Food Security may approve,

The *University of Mauritius* was formed in 1965. Following the country's independence in 1968, it started research in FSNA and EnvCC-related fields such as industrial technology, engineering, science and technology, aquaculture, biotechnology, food science, forestry, coastal and marine sciences, and very recently ocean studies. The University of Mauritius offers research degrees and also conducts primary and applied research in all these areas. In addition to its mandate of training manpower for the sugar industry, it also conducts research in sugar and non-sugar agriculture.

Other main research institutions include:

- The *Food and Agriculture Research and Extension Institute* (FAREI), which has the vision to help to steer and undertake research and ensure dissemination and practical application of outputs therefrom, in the agri-food and related sectors.
- The *Mauritius Oceanography Institute,* which specialises in research in Oceanography including policy and chemical issues and physical oceanography.
- The *Mauritius Institute of Health*, an arm of the Ministry of Health. Its mission is to respond to the health needs of society through the excellence of its training and research. The Research Unit is

[96] See Ravetz, Joe et al. (2013).

concerned with the conduct of health systems research, i.e. assessing the effectiveness of health care interventions, evaluation of health programmes and epidemiological studies.

- The *Mauritius Institute of Education*, which promotes the advancement of knowledge and innovation in education. The aim is to improve teaching and learning, foster practical innovation, and participate in policy formulation, and also to lead educational research in areas related to teacher education and curriculum development.

3.2 Description of EU strategic priorities for the country

According to the CSP, innovation is an important factor in the transition towards the new economic model in Mauritius. The Government is committed to developing the country into a knowledge-based economy and a regional Centre of Excellence. The legal framework and incentive regime have been put in place to attract brand name institutions to set up campuses in Mauritius. A National Human Resource Development Plan has been prepared to address the skill needs for the new economic sectors over the period 2006-2010 and to reduce the large skill mismatch on the labour market. The Mauritius Multi-Annual Adaptation Strategy constitutes an important part of the government's economic reform programme.

Research and Development is one of the areas of intervention defined in the Accompanying Measures for Sugar Protocol countries (AMSP). The key R&I intervention under the AMSP is the Sugar Research Programme.

The commitment of the Government to investment in education and innovation has repeatedly been reaffirmed and has been further supported through existing EU research programmes. Access to research facilities, centres of excellence and innovative information systems available for, among others, sustainable water supply and sanitation, marine resources as well as co-operation on agricultural research in areas such as sugar are facilitated.

EU funding in the period 2008-2013 was mostly done via General Budget Support (GBS), through which it supported the overall reform programme of the Government. The total budget A-Allocation of the 10th EDF was EUR 51.0 million, of which EUR 43.5 million were assigned to general budget support and the remaining amount went to other programmes in non-focal sectors (EUR 5.5 million for support to non-state actors and EUR 2.0 million to the Technical Co-operation Facility). GBS was complemented by the resources available under the Accompanying Measures for Sugar Protocol Countries (AMSP) for which the Multi-annual Indicative Programme (MIP) has been drawn up.

The cost of the Adaptation Strategy under AMSP, according to Government figures, amounts to EUR 675 million over the period 2005-2015, of which 43% is capital investment in the energy sector and around 23% is social costs. EU funds contributed EUR 278 million to AMSP for Mauritius in the period 2006-2013. For 2011-2013, an indicative appropriation of EUR 139.6 million has been allocated to support the Government of Mauritius' economic reform programme. The funds were disbursed as general budget support (MIP 2011-2013).

Other funding mechanisms are through the Decentralised Cooperation Programme (DCP) under the Ministry of Finance and Economic Development (MOFED), for projects submitted by NGOs and NSAs aiming at poverty reduction.

Brief description of EU support by sector:

FSNA sector

In 2006 the Government of Mauritius (GoM) launched a comprehensive reform programme which the EC response strategy is supporting. The four pillars of the reform are:

1. Fiscal consolidation and improving public-sector efficiency;
2. Improving trade competitiveness;
3. Improving the investment climate;
4. Democratising the economy through participation, social inclusion and sustainability.

The EU support focused on specific outcomes with emphasis on sugar and social strands of the reform programme. According to the CSP the definition of priorities and outcomes was carried out in close collaboration with the Government and further specified during the preparation of the multi-annual budget support programme in conjunction with the assistance provided by other development partners (World Bank, *Agence Française de Développement* and African Development Bank).

The strategy for the Sugar sector provides a set of measures/projects aiming at increasing the country's revenue, optimising the use of by-products, and maintaining the social welfare of low income groups of the

sugar industry, while fully taking into account the social and environmental implications. In addition, the development of the energy sector is fundamental to the setting up of the sugarcane cluster in the light of the soaring price of oil on international markets.

The principal measures/intervention areas outlined by the Adaptation Strategy include various areas (including for example improving the cost competitiveness of the sugar milling sector via mill centralisation, and mechanisation of field operations) and of relevance for this evaluation: undertaking research and development in the areas of sugarcane crop improvement, biotechnology, by-products and biomass utilisation in order to increase sugar cane yield. Under Pillar 2 (Improving trade competitiveness) of the GoM's reform programme, the EU assistance has also contributed to further restructuring of the sugar sector (increasing the productivity of sugarcane and diversifying the revenue base of the sugar industry via restructured clusters).

EnvCC sector

Prior to the evaluation period (2007-2013), Environment (especially the wastewater sector) was one of the priority sectors financed by sector budget support under the 8th and 9th EDF. In that period, a Strategic Environmental Assessment was financed under the EC Environment and Tropical Forest Budget line. This was particularly relevant for the GoM's ambitions in the field of tourism and the expected changes in land use as a consequence of the sugar sector reforms, mainly withdrawal of significant amounts of land from the relatively environmentally sustainable sugar cultivation.

For the 2007-2013 period, one of the expected results of the Sugar Research Programme is to reduce negative environmental externalities. The development of bio pesticides and projects for improving irrigation schemes or developing an irrigation management information system to optimise water use are examples of such projects.

4 Overview of EU-funded key interventions

Table 7 Overview of EU-funded key interventions in Mauritius

Sector	Contract title	CRIS number	Contractor	Year	Total amount contracted (in EUR)
FSNA	Mauritius - ACP Sugar RP	c-242079	MAURITIUS SUGAR INDUSTRY RESEARCH INSTITUTE	2010	5,848,353

Sugar Research Programme

Description:

The ACP Sugar Research Programme (SRP) of DEVCO aims to provide solutions to the sugar industry in ACP countries, by responding to a selected number of clearly identified technological challenges that hamper the sugarcane sector's performance. Its purpose is to enhance the competitiveness of the sugar industry in ACP countries. The programme is in line with the Action Plan on Accompanying Measures for Sugar Protocol (AMSP) countries affected by the reform of the EU sugar regime.

A total of 13 R&I projects are being implemented under the programme, covering three distinctive areas of research and a general fourth objective of strengthening ACP research capacity and enhance closer collaboration between sugar research institutes.

The purpose of this fourth objective is to assist the ACP Sugarcane Research Programme and its Steering Committee, funding the different research projects and providing them with a Coordinating Unit to support five research stations in attaining their goals and fostering networking among ACP research stations to strengthen their capabilities, increase communication and enhance the sharing of information and research outputs.

One of the research needs defined by Sugar Association of the Caribbean's agencies members is local adaptation to changing cultural practices and harvest systems. Two objectives of the National Adaption Strategies are to promote the economic diversification of sugar-dependent areas and to address broader impacts generated by the adaptation process.

The Programme's expected results are:

1. To stimulate the development of new sugar cane varieties which are better adapted to the future requirements of the sugar industry in ACP countries;
2. To reduce the costs of sugar cane production, while at the same time reducing negative environmental externalities;
3. To reduce losses in sugar cane processing and increase the revenues from by-products such as ethanol and electricity;
4. To reinforce ACP research capacity and enhance closer collaboration between the ACP sugar research institutes and service organisations and ensure the dissemination of the research results and experiences among the ACP sugar producing countries.

To achieve these expected results, the Programme's activities are structured through the implementation of 13 individual projects contributing to the first three results and support activities for the fourth result. The research centres funded are located in Mauritius (MSIRI), Fiji (Sugar Research Institute of Fiji), Swaziland (Swaziland Sugar Association), Barbados (West Indies Sugar Cane Breeding Station) and Jamaica (Sugar Industry Research Institute).

Summary of findings

The overall design of the SRP and its individual projects, together with its overall objectives and project purposes is good, even though projects from Mauritius were designed eight years before the start of the programme and are thus possibly not the most relevant ones. The programme is coherent with country policies and with the measures designed by the EU to support Sugar Protocol Countries.

Mauritius accounts for a large share of SRP projects implemented. The majority of the projects in Mauritius have recently delivered results, but results have not been spread widely to the planned target groups and the overall goal (strengthening the sugarcane sector) has only partially been reached. The narrow definition of needs may be the reason of lack of impact of the programme. The formulation of objectives for the SRP seems to have lacked the participation of different stakeholders.

According to the mid-term evaluation of the SRP, the programme objectives are not addressed sufficiently through the SRP. More attention should be given to market issues and economic prospects. The emphasis on technological research – and within the possibilities of technological research, a bias for research aimed at improving yields and breeding programmes – is inherent to the design of the programme. Too little attention seems to be given to integrating solutions to complex problems like the ones ACP Sugar Countries are facing. In Mauritius, this complexity may range from high production costs to the lack of labour.

Detailed results are given the Section 5 below.

5 Field mission findings, by relevant EQ

5.1 EQ 1: Development policy objectives

FSNA sector

EQ 1 To what extent has EU support to R&I through DEVCO been successful in promoting the overall development policy objectives of the EU?	
JC 11 Link between R&I activities and EU development objectives (as per European Consensus and Agenda for Change – MDGs, etc.)	National level: - Support to R&I through the ACP-Sugar Research Programme is primarily aimed at increasing competitiveness which lies in the periphery of the European Consensus. However, four projects under the program focuses on specific measures for increased sustainability of the sugar sector (bio-pesticides, energy, water, waste) and these projects are more clearly linked to the European Consensus, MDG 7 and Sustainable Growth as specified in Agenda for Change. - The sugar sector is still a key sector to the country (even though the relative economic importance has been dramatically reduced), which why support to a more environmentally sound sugar sector can be relevant.
JC 12 Extent to which R&I has informed sector policy dialogue and sector support at national and re-	National level: - DEVCO support to the sugar sector in Mauritius includes a dissemination phase where the project results will be presented at seminars, targeting policy makers, EUD and stakeholders within the sugar sector. The lead institution, the MSIRI, communicates regularly with national decision makers, but the technical oriented

gional levels	programme as such has had little influence on the sector policy dialogue.) Many of the projects were still in their final phase and as such communication of the results to actual stakeholders were in the waiting.

5.2 EQ 2: Impact on partner country research communities

FSNA sector

EQ 2 To what extent has DEVCO funding of R&I enabled research communities in partner countries to build up and develop their own R&I capacity, including the ability to actively engage in research networks (regional and international)?	
JC 21 Degree of alignment and coherence of DG DEVCO support to R&I with relevant policies and strategies	National level:) Support to the Sugar Research Programme is aligned with National Adaptation Strategies and AMSP. With the phasing out of the Sugar Protocols, it is imperative that the government ensures the viability and competitiveness of the sugar sector in Mauritius.) The original project documents were prepared eight years before funding was secured, and interviewees state that there were limited options for thoroughly adapting the project documents to the prevailing situation at the time of funding. A more thorough revision of the project documents might have led to more tangible results and impact.
JC 22 Increased focus of EU support on 'capacity building' and enhancing institutional sustainability	National level:) There is evidence for more and better qualified staff, modern equipment and greater capacities to manage and carry out technical and scientific research projects within the sugar sector. Key staff in the project has been MSIRI staff and only to a minor extent freelancers and external consultants. The project therefore has led to genuine organisational capacity building in MSIRI.) MSIRI has organised and conducted – with support from international consultants - a number of technical workshops in Mauritius as well as in other ACP Countries. New equipment has been purchased and a sugarcane Quarantine unit of world standard has been set up at the MSIRI.) In terms of institutional sustainability, the challenge for the MSIRI (funded by the sugar sector) is the decreasing profitability of the sector and the soon further increased competition on the world market – matters beyond the potential influence of EU R&I support.) The programme has not strived to expand either the north-south R&I network (opening for more internationally supported projects) or the scope of R&I in the MSIRI (opening for R&I within other sectors, inclusion of socio-economic elements etc.); such components might have been supportive of the institution's long term sustainability.
JC 23 Improved access of developing countries' research communities to EU FP7 funding through RTD Summary assessments by sector	National level:) There has been no effort on Mauritius to attract FP7 funding mainly due to the complex mechanisms of the FP7 programme.) EU consultants held a workshop at the University of Mauritius on the FP7 Programme and the requirements, but there is no evidence as such of any successful project which has been approved for funding.
JC 24 Enhanced networking of developing countries' researchers at regional and international level	Global level:) MSIRI has been the Coordinating Unit for the ACP-Sugar Research Programme and has been responsible for the organisation of the cooperation and creation of data platforms, all leading to increased networking between regional research institutes.) The programme has only to a limited degree included North-South cooperation and only limited new networks have been established.) There is evidence of South-South collaboration e.g between MSIRI and Fiji Sugar Research Institute and Jamaica Sugar Research Institute.

5.3 EQ 3: Instruments and modalities

EQ 3 To what extent has DG DEVCO in its support to R&I used its available instruments in a way that maximizes their value?	
JC 31 Appropriateness of the financing modalities and types of funding under different EU instruments and the way they have been applied for enhancing R&I	National level: - Using GBS as a prime instrument under the accompanying measures, the 10th EDF and other EU budget lines have reinforced the already well-developed dialogue with the Government of Mauritius and other development partners. It has promoted ownership by the Government of Mauritius, enhanced alignment, increased harmonisation and facilitated mutual accountability. Beyond the restructuring of the sugar sector, GBS in Mauritius has made parallel contributions to the country's economic reform programme. - In terms of specifically enhancing R&I, it is not possible to assess to which degree the GBS has been conducive as funds have not been earmarked specifically for R&I.
JC 32 Strategic approach adopted to choosing different possible actors / channels with whom the EU can work to support R&I and how best to support them with the instruments and modalities available	National level: There has been little effort to include other R&I oriented stakeholders in Mauritius in the programme, and there is no information on other EU efforts on supporting R&I in the country.

5.4 EQ 4: DEVCO-RTD complementarity and coherence

During the evaluation period Mauritian researchers did not participate in any FP7 projects in the FSNA and EnvCC sectors. Therefore, no evidence on DEVCO-RTD complementarity has been collected.

5.5 EQ 5: Transfer of R&I results into development processes

EQ 5 To what extent has DEVCO support led to the transfer of R&I results into processes likely to impact on the achievement of EU development objectives?	
JC 51 Clear and logical thinking at sector level on how DEVCO support could ultimately lead through to research results being used in development processes	National level: - MSIRI appears to have been the sole national institution involved in identification and formulation of the research projects' themes. The projects on Mauritius were developed eight years before project commencement and had been submitted to different donors on various occasions before being financed by the SRP. The programme is strictly technical. There has been little or no involvement of any economic, socio-economic, development or other research institution in the country. - The MSIRI has close contact with the sugar sector stakeholders and the end users in the country, and also with relevant ministries and institutions, which is why the knowledge achieved may very well be incorporated in development processes. - In some of the projects under the programme, interesting research results have been achieved and promising pilot projects carried out, but a thorough dissemination of results and application of developed technologies and methodologies have not yet taken place. However, no specific plan for utilisation, application, and implementation has been identified.
JC 53 Extent of external lessons learning, sharing and uptake within the sectors supported in partner countries, and at international level	National level: - As lead partner for the Sugar Research Programme, MSIRI has been able to link research institutes and results by e.g. sharing developed database and software. - The MSIRI has had an important function in disseminating results and lessons learned to the other partners, this has been obtained through seminars and project reports. As most of the activities have taken place in the Mauritius, the amount of lessons learned brought to MSIRI from other partners has been limited. - The programme has led to sparse cooperation with European institutions.

	However, a cooperation with CIRAD on weed identification on neighbouring Reunion Island (France) has been established and may leave to new joint efforts.
JC 54 Development processes and outcomes have been built on or used the results of research funded by DEVCO or shared through DEVCO supported research networks	National level: - The EUD has followed the implementation of the individual projects under the ACP-Sugar Research Programme, but the programme as such has not benefitted from other results or research funded by DEVCO or shared through DEVCO supported research networks. - The impact has so far been limited. In one project under the programme, the very long research horizon (ten years or more) in breeding programmes means that there are no outcomes yet. For other projects, there has been little application of the methodologies, approaches and technologies developed, for example concerning regulation of phosphorus in sugar cane soils or more effective use of water. - Impact pathways have been weakly defined and there are no concrete and specific plans of utilising the results at enterprise or sugar farm level at a broader scale.

5.6 EQ 6: EU capacities

EQ 6 To what extent have the EU external relations services ensured adequate capacities to conduct policy dialogue related to R&I and to support research and innovation in partner countries?	
JC 61 Extent to which EU internal capacity to manage R&I support and conduct policy dialogue is in place at the levels required	National level: - The EUD has participated in policy dialogue on several subjects targeted by EU development assistance, including climate change, green economy and renewable energy. Following the dialogues, the Government of Mauritius prepared very relevant strategies and plans, including 'Sustainable Mauritius', 'Green Economy in Mauritius', 'Renewable Energy in Mauritius' and a component under the Switch Africa Programme - Whereas the policy dialogues have not necessarily been specifically R&I oriented, R&I constitute an important element in any plan for sustainable development and green growth. Researchers are reported to the conscious of the strategies and are gearing their research to this end. - The EUD has not engaged fully with the FP7 programme and interaction with the RTD has been sparse. - Even with the above positive processes and results in mind, the EUD assesses its own capacity and staffing to be highly inadequate to cope with all the tasks of the Delegation and hence also the R&I related tasks. - For the NIP 2014-2020, the focal area will be mainly tertiary education, research and innovation. This is because R&I has a potential for job creation and features prominently in the new Government programme. A national Ministry dedicated to Research and Innovation has been set up.

6 Conclusions

DG DEVCO support for R&I in Mauritius has concentrated on a technical research programme – comprising eight specific projects – led by the Mauritius Sugar Industry Research Institute (MSIRI). This ACP programme primarily aims at improving the competitiveness of Mauritius' sugar industry, which at least indirectly (in terms of jobs in agriculture and at sugar processing enterprises) can have a positive influence on poverty reduction. The programme has, with some environmental elements, also promoted the sustainability agenda, an important objective of the EU development assistance. The original programme and project documents were prepared eight years before funding eventually was secured and limited attention was given to adapting the original project papers to the existing situation.

The programme is closely aligned with national policies and strategies and has led to specific technical capacity building in the MSIRI; however, the programme has led to little expansion of the R&I network of Mauritius' institutions; North-South cooperation is still limited and there have been no endeavours to attract FP7 funding.

Mauritius has primarily received general budget support and has used this well. It is difficult to assess whether parts of this support have reached the R&I area as there has been no earmarking of the funds. No FP7 cooperation is identified.

For some projects under the ACP-programme it has been necessary to source expertise from elsewhere due to lack of local capacity. This has typically occurred via hiring European freelancers for the projects. Again here, where experts have had a long-term connection to the project, transfer of R&I capacity to local partners has taken place. This process has been a side effect rather than a direct aim of the project. The latter could be considered for future support.

Research results generated through these projects have not benefitted the end users up to this point of time due to: an originally weak description of the ways how to achieve impact in programme and project documents; the very recent achievement of several of the key results; and one project (developing new sugarcane varieties) is characterised by a very long research time (more than years) and with insecure funding after expiration of the ACP-programme, why there is no implementation at the shorter term and perhaps not even at the longer term (if other funding is not secured).

The EU Delegation has contributed to the development of several key policies and strategies. Participation in sector dialogue and the forums preparing such policies and strategies can primarily be attributed to the GBS and not to the ACP programme.

7 Annexes

7.1 Annex 1: List of people interviewed

EU Delegation

Name	Position	Institution
Balloo, Madev	Programme manager	European Union Delegation
Yeung, Jeanine	Programme officer	European Union Delegation

Government

Name	Position	Institution
Abeeluck, Deovruth	Director (Crops)	Food and Agricultural Research and Extension Institute/Ministry of Agroindustry & Food Security
Bundhoo, Jugdish	CEO	Mauritius Cane Industry Authority
Rajcumar, Ramesh	Acting CEO	Food and Agricultural Research and Extension Institute/Ministry of Agroindustry & Food Security
Seenevassen Pillay, Marie Micheline	Director (Livestock)	Food and Agricultural Research and Extension Institute/Ministry of Agroindustry & Food Security
Sooprayen, Krishna	Project Manager	Decentralised Cooperation Programme (EU/Ministry of Finance&Economic Development)

Research organisations and universities

Name	Position	Institution
Badaloo, Goolam	Research Officer	Mauritius Sugar Industry Research Institute
Emrith, C.	Head of Department	Mauritius Sugar Industry Research Institute
Facknath, Sunita	Dean of Faculty	University of Mauritius
Ganeshan,Seelavam	Research Manager	Mauritius Sugar Industry Research Institute
Ramdoyal, Kishore	Head, Plant Breeding Department	Mauritius Sugar Industry Research Institute
Salem, Saumtally	Director	Mauritius Sugar Industry Research Institute
Suman Seeruttun	Research Manager	Mauritius Sugar Industry Research Institute

Private sector

Last name	Position	Institution
Sauzier, Jacqueline	Secretary General	Mauritius Chamber of Agriculture

Civil society and NGOs

Last name	Position	Institution
Therese, Baptise	Secretary	Nasola Water Users Association

7.2 Annex 2: List of documents consulted

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Country Note – Peru

By Paul G.H. Engel, Miguel Saravia, Paulina Bizzotto Molina and Angela Soriano on field mission from 15-22 November 2015.

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List of Acronyms

ALBAN	América Latina – Becas de Alto Nivel
ALFA	América Latina – Formación Académica
BiD	Banco Interamericano de Desarrollo
BIP	Boletín informativo de proyecto
CA	Central Asia
CAN	Comunidad Andina de Naciones
CESCAN	Cohesión Económica y Social en la Comunidad Andina de Naciones
CGIAR	Consortium of International Agricultural Research Centres
CIAT	International Center for Tropical Agriculture
CIFOR	Centre for International Forestry Research
CIP	Centro Internacional de la Papa
CONCYTEC	Consejo Nacional de Ciencia, Tecnología e Innovación Tecnológica
CONIDA	Comisión Nacional de Investigación y Desarrollo Aeroespacial
COP	United Nations Climate Change Conference
CRIS	Common RELEX Information System
CSO	Civil society organisation
CSP	Country Strategy Paper
DCI	Development Cooperation Instrument
DEVCO	Directorate-General Development and Cooperation/EuropeAid
DG	Directorate-General
EC	European Commission
ECDPM	European Centre for Development Policy Management
EDF	European Development Fund
EEAS	European External Action Service
EIB	European Investment Bank
ENPI	European Neighbourhood Policy Instrument
EnvCC	Environment and Climate Change
EQ	Evaluation Question
EU	European Union
EUD	Delegation of the European Union
EUR	Euro
EUROPAN	Apoyo Presupuestario de la Unión Europea al Programa Articulado Nutricional
FAO	Food and Agricultural Organization
FIDECOM	Fondo de Investigación y Desarrollo para la Competitividad
FINCYT	Fondo para la Innovación, la Ciencia y la Tecnología
FITEL	Fondo de Inversión en Telecomunicaciones
FOMITEC	Fondo Marco para la Innovación, Ciencia y Tecnología
FONDECYT	Fondo Nacional de Desarrollo en Ciencia, Tecnología e Innovación
FP7	7th Framework Programme for Research and Technological Development
FSNA	Food Security, Nutrition and Agriculture
GDP	Gross Domestic Product
GIZ	Gesellschaft für Internationale Zusammenarbeit
GPARD	*Global* Programme on *Agricultural Research for Development*
ICRAF	World Agroforestry Centre (former International Centre for Research in Agroforestry)
ICT	Information and Communication Technologies
IFAD	International Fund for Agricultural Development
IGP	Instituto Geofísico del Perú
IIAP	Instituto de Investigaciones de la Amazonía Peruana
IICA	Instituto Interamericano de Cooperación para la Agricultura
IIED	International Institute for Environment and Development
IMARPE	Instituto del Mar del Perú
INAIGEM	Instituto Nacional de Investigación en Glaciares y Ecosistemas de Montaña
INDC	Intended Nationally Determined Contributions
INIA	Instituto Nacional de Innovación Agraria
INS	Instituto Nacional de la Salud

IPEN	Instituto Peruano de Energía Nuclear
ITP	Instituto Tecnológico Pesquero del Perú
JC	Judgement Criterion
LAC	Latin American and Caribbean States
MDG	Millennium Development Goal
MEF	Ministerio de Economía y Finanzas
MIDIS	Ministerio de Desarrollo e Inclusión Social
MINAGRI	Ministerio de Agricultura
MINAM	Ministerio del Ambiente
MINSA	Ministerio de Salud
NGO	Non-government organisation
NIP	National Indicative Programme
OECD-DAC	Organisation for Economic Co-operation and Development - Development Assistance Committee
PCD	Policy Coherence for Development
PCM	Presidencia del Consejo de Ministros
PNIA	Programa Nacional de Innovación Agraria
PRICA	Proceso Regional de Integración Cooperativa de las Américas
PUCP	Pontificia Universidad Catolica de Perú
ROM	Result-oriented monitoring
RTD	Directorate-General for Research & Innovation
SDG	Sustainable Development Goal
SENASA	Servicio Nacional de Sanidad Agraria
SERFOR	*Servicio* Nacional Forestal y de Fauna Silvestre
SIFOR	Smallholder Innovation for Resilience
SINACYT	Sistema Nacional de Ciencia y Tecnología e Innovación Tecnológica
SINEASE	Sistema Nacional de Evaluación, Acreditación y Certificación de la Calidad Educativa
SISS	Science, Information Society and Space
SNIA	*Sistema* Nacional de Innovación Agraria
SSA	Sub-Saharan Africa
STI	Science, Technology and Innovation
ToR	Terms of Reference
UE	Unión Europea
UK	United Kingdom
UNESCO	United Nations Educational, Scientific and Cultural Organization
UPCH	*Universidad Peruana Cayetano Heredia*
USD	United States Dollar

Note: The Evaluation uses the common acronym "**EC**" to refer to either the "Commission of the European Union" (post-Lisbon Treaty) or the "European Commission" (pre-Lisbon Treaty), as applicable.

1 Introduction

1.1 Mandate, scope and purpose of the evaluation

As spelt out in the Terms of Reference the general objectives of this evaluation are:

- To provide the relevant external cooperation services of the EU and the wider public with an independent assessment of the support provided to research and innovation for development over the period 2007-2013;
- To identify key lessons and forward-looking recommendations.

The thematic scope of the evaluation encompasses the EU support to Research and Innovation (R&I) in four key sectors: (i) Food Security, Nutrition and Agriculture (FSNA), (ii) Health, (iii) Environment and Climate Change (EnvCC), and (iv) Science, Information Society and Space (SISS) (henceforth "thematic sectors")

The specific objectives of this evaluation are to provide an overall judgement on the extent to which the EU development co-operation policy has adopted a strategic approach to support R&I in the thematic sectors, and whether the approach was appropriate to enhance capacity to reach development objectives in these fields. Moreover, the ToR specify that the conclusions and lessons learned are expected to specifically address areas of particular interest, namely:

- The support provided to capacity building in partner countries;
- The level of the transfer of research results into social or economic processes likely to impact on poverty reduction in the longer term;
- The appropriateness of instruments and modalities made available; and
- The approaches, notably *country* versus *regional* support, or *direct* support to research versus *indirect* support through sectoral programmes that include research components.

The legal scope of the evaluation is delineated by the activities supported by the European Comission's Directorate-General Development and Cooperation/EuropeAid (DEVCO) through its cooperation instruments: the European Development Fund (EDF), the Development Cooperation Instrument (DCI) – both geographic and thematic budget lines – and European Neighbourhood Policy Instrument (ENPI).

While the Directorate-General for Research & Innovation (RTD) implements activities supporting R&I in developing countries, its policies, strategies, programmes and activities are not included in the scope of the evaluation and hence not the object of in-depth analysis here. They are, however, considered from a contextual point of view, and analysed from a complementarity and synergy perspective, together with, for instance, the activities of EU member states, other donors or multilateral organisations.

The temporal scope of the evaluation is the period of 2007-2013 which corresponds to the last EU multi-annual budget period and to that of the 10th EDF. Equally this is the period of RTD's Seventh Framework Programme (FP7).

1.2 Purpose of the note

The ten Country Notes for this evaluation serve to provide a national level view of what DG DEVCO support to R&I entails on the ground. They validate and expand the documentary analysis using the evidence collected during the field mission and the individual responses of EU Delegations (EUDs) to the online survey.

The Country Note is structured as follows. The introduction in Section 1 explains the rationale for the choice of the country. Section 2 outlines the methods use. Section 3 spells out the country context for DEVCO support to R&I and Section 4 provides an overview of the key DEVCO interventions. Section 5 presents the field mission findings for each EQ. These findings are categorised for each sector, per JC and per geographic level (national, regional, global) as far as applicable. Section 6 draws out any overall conclusions about the EU's cooperation on R&I with the country concerned.

The dates of the mission to Peru were: 15-22 November 2015. The mission was conducted by: Dr. Paul G.H. Engel (international expert and team leader), Miguel Saravia (national consultant), Paulina Bizzotto Molina (ECDPM) and Angela Soriano.

The team would like to thank the EU Delegation in Lima for facilitating the interviews and country visit.

1.3 Reasons for selecting this country for the Field Phase

Looking into EU-supported projects in Peru in the field phase has allowed the team to appreciate the implementation and impact of global programmes (Global Programme on Agricultural Research for Development (GPARD)/CGIAR), regional programmes (*Centro Internacional de la Papa* (CIP)/CGIAR) and national programmes, supported by different financial instruments. It provided the opportunity to study support of R&I as part of budget support (Articulated Nutrition Programme, EUROPAN), thematic programmes (Pro-poor Innovation/IssAndes), academic mobility programmes (Erasmus Mundus, Erasmus +) and FP7/H2020 calls. Besides, it provided the field team with a chance to look at R&I support in a country that is actively building up its National Innovation System with financial support from the World Bank and the Inter-American Development Bank (BiD). Unlike Uruguay and Chile, where R&I is part of a national strategy and a focal area for EU support, in Peru national R&I support is embedded as a component in a variety of development, research and academic programmes.

1.4 Gaps of evidence addressed in the country

The specific purposes of the Peru field mission were to:

- Collect views on DEVCO-funded projects and programmes in Peru, both from EUD officials and implementing partners;
- Collect views from both EU and government on EU-Peru cooperation in the field of R&I;
- Assess the extent to which EU-funded R&I support contributes to the consolidation of the national innovation system;
- Find specific instances in which EU-supported R&I projects contributed to policy dialogue by informing government positions;
- Collect examples of and hear views on how R&I support influenced EU development policy objectives in Peru;
- Find examples and hear views related to the transfer of R&I results into development processes;
- Assess experiences from Peruvian universities in participating in FP7-funded research and how the national innovation system aims to stimulate participation of Peruvian researchers in the European research programmes;
- Assess the complementarity between DEVCO and RTD-funded research, and the extent to which DEVCO action increased capacity of national institutions and research networks to participate in FP7;
- Hear local views and collect examples of impact;
- Hear EUD and local views on EU capacities, extent of internal and external lessons learning, sharing and uptake on R&I.

2 Data collection methods (including limits and constraints)

The team used individual and group interviews to collect local stakeholders' views and specific evidence in the above-mentioned areas. A total of 28 persons were contacted. About 25% were government decision-makers; about 40% research managers and another 25% NGO leaders involved in executing EU-supported R&I projects. Three officials of the European Delegation in Peru were interviewed as well. Each, from a different angle, provided insights in the Research and Innovation implementation process, stakeholder participation and evidence on practical results achieved. National decision-makers from research institutes, universities and relevant ministries provided information on the coherence of EU R&I support with national R&I agendas and its role in strengthening national R&I organisations and, national and international research networks. Within the time frame set for the visit it proved impossible to visit farmer leaders with hands-on knowledge of past or on-going EU-supported R&I projects. However, NGO leaders and research coordinators expanded on stakeholder participation, including the participation of farmers/women in the various projects. The team spoke with one programme coordinator of the Erasmus Mundus programme, but was unable to gather students that have participated in these mobility programmes.

The main constraint for obtaining a satisfactory number and spread of interviews was the time the team was able to spend in the country. In order to incorporate more stakeholders, the team planned a group interview, combined with individual interviews of key participants. However, the individual interviews proved more productive as it proved impossible to mobilise more than a handful of people for the group interview. Also, group interviews with two research teams (CIP, *Instituto Interamericano de Cooperación para la Agricultura* (IICA)) were held at their premises; the IssAndes team members based in Ecuador were interviewed using Skype.

3 Country context

3.1 Overall description of country political, legal, and development context in relation to Research and Innovation (context in which the EU intervenes)

Peru is classified as an upper middle-income country with an average of USD 6,370 Gross National Income per capita in 2014, well below the regional average of USD 8,995 in the same year. Peru has been one of the region's fastest-growing economies. Between 2005 and 2014, the average growth rate was 6.1%, with low rates of inflation. Agriculture made up 7.5% of value added as percentage of GDP in 2012, but represented more than 25% of total employment in the country in 2011[97]. Between 2005 and 2014, poverty rates fell by more than half, from approximately 55.6% to 22.7% of the population (National Statistical Institute). Inequality, however, is still persistent and highly concentrated in rural areas. Extreme poverty is concentrated in 8% of districts in Peru; in the Apurímac, Cajamarca, Piura and La Libertad regions. The Gini Index, which measures income inequality, declined from 0.49 in 2004 to 0.44 in 2014. While urban inequality declined by 5 points (from 0.45 to 0.40), the Gini Index in rural areas decreased by just 3 points between 2004 and 2013 (from 0.44 to 0.41)[98]. El Niño is expected to have a negative impact on economic growth in early 2016.

Peru is putting efforts to reduce this territorial and ethnic gap through different national strategies, adopting an inter-sectorial and intergovernmental approach for example through its national social inclusion strategy 'Incluir para Crecer'[99]. Since 2007, Peru is going through a profound process of decentralization, with the objective to increase transparency and to bring decision-making powers to the most local level possible. Regional governments enjoy relative political, economical and administrative autonomy, for example in infrastructure investments, development programmes and promotion of responsible natural resource management. The decentralisation process faces the challenge of limited human and financial resources and capacities at local levels to cope with the new responsibilities. The EU country strategy supports this decentralisation process, with support to the rule of law and strengthening governability and support for integrated social development in specific regions as two focal areas. The change of presidents after elections in 2016 may affect the level of inclusivity of and investment in current policies, and the efforts of transparency and accountability the current government is pursuing.

3.1.1 R&I situation in the country

The national innovation system in Peru can be characterized as a system in transformation. Even though it has been regulated by a number of national laws in the beginning of the 2000s, the results of the so-called national system of science, technology and innovation (SINACYT) have been meager, such as low investments in research and development by research institutions and public universities as part of their total budget and a low number patents coming from these institutions[100]. Investment from the private sector in research and development has also been low. According to Benjamín Quijandría (director of the National Agriculture Innovation Institute, INIA), another indicator of the poor performance of the innovation sector in Peru is that the INIA has had seven major reorganizations in the past 20 years[101].

From 2007 onwards the Government of Peru together with The World Bank and the Inter-American Development Bank (BiD) have provided major incentives to the national innovation system. The first was a grant to FINCYT (*Fondo para la Innovación, la Ciencia y la Tecnología*, the national Science, Technology and Innovation (STI) Fund) from BiD in 2007 of USD 25 million. The Government of Peru countered this with USD 11 million. A second loan was granted in 2013 of USD 35 million by the BiD, with USD 65 million worth of co-funding by the Peruvian Government. A similar agreement was reached by the INIA (the National Agricultural Innovation Institute) with a USD 40 million grant from BiD, a USD 40 million grant from the World Bank and a USD 80 million commitment by the Government of Peru to implement the National Agricultural Innovation Plan as part of a more ambitious objective that is consolidate the National Agricultural Innovation System (SNIA). According to Benjamín Quijandría, INIA is going to triple its current annual budget[102].

[97] [1] data.worldbank.org
[98] The World Bank Peru Country Overview. http://www.worldbank.org/en/country/peru/overview
[99] http://incluirparacrecer.midis.gob.pe
[100] Sagasti, F. 2009. Fortalecimiento del Sistema Nacional de Ciencia, Tecnologia e Innovacion. Antecedentes y propuestas.
[101] Benjamin Quijandría, 2015, Exposition at Forum Peru con Ciencia 2015, CONCYTEC. https://www.youtube.com/watch?v=y2VLMh3xSVE.
[102] ibid.

This confirms that during the last three years there has been a political change with regard to the importance given to the STI sector with a strong increase in funding and resources for R&I and a fundamental shift of *Consejo Nacional de Ciencia, Tecnología e Innovación Tecnológica* (CONCYTEC) from the Ministry of Education to the *Presidencia del Consejo de Ministros* (PCM Ministry) and the launch of the National Agriculture Innovation Plan, the most ambitious plan to reform the Agriculture Innovation System of the past 30 years. In 2015, Peru has also applied for membership of the OECD and has started a process to prepare for full membership. According to some interviewees, this has contributed to the increased government investments in research and innovation[103]. Also the Mid-term evaluation of FINCYT demonstrated a high return on investments in innovation programmes. CONCYTEC, the national science council, is led by a Board with representatives from the public and private sector. CONCYTEC had a very weak position, with a meager budget of only 5 million soles (EUR 1.35 million) for all programmes in the country. Now CONCYTEC has a budget of 130 million soles (EUR 35.13 million). All this means that in addition to the current Peruvian investment in CONCYTEC programmes, the entire STI sector is receiving a boost with fresh resources coming from external debt.

CONCYTEC aims to align all government institutions and resources along the lines of the 'Strategic National STI Plan for Competitiveness and Human Development 2006-2021'. In parallel with the large grants by the World Bank and BiD, the renewed CONCYTEC has gone through a thorough revision of the existing institutions and policies. This has led to the adoption in 2014 of a national strategy 'Crear para crecer' (to create to grow) that will function as a roadmap to revise and guide reforms.

One of the identified weaknesses of the national innovation system is the lack of incentives for actually doing research at research institutions and public universities. Relatively low wages and no direct incentives to do research lead university professors to mainly focus on teaching and consultancies. A new university law aims to change this and institutionalise research, creating the function of professor-investigator and linking it to the national registration of researchers and innovators (*Directorio Nacional de Investigadores e Innovadores*). This directory is another major reform initiated recently. It is managed by CONCYTEC and in the past was not actively updated. Now, criteria for registration have been sharpened – particularly those regarding researcher status. Also an updated registration in the directory has been made a prerequisite for participating in competitions for publicly funded grants. As a result, the directory has registered some 20 thousand researchers[104] and has become a useable database, mapping all individuals and institutions in Peru dedicated to research and innovation.

Several challenges remain for building a full-fledged National STI System. Our sources highlighted three in particular. The first one is the still weak presence at subnational levels, where the regional innovation systems are still to be created or strengthened and articulated with CONCYTEC. The second is the fact that the CONCYTEC funds are paid by the World Bank and do not cover the costs of the social benefits of the salaries of the researchers winning the projects. The university has to cover these costs, meaning that successful universities are limiting their participation in line with the amount of funding they can make available from other sources. The third is that currently almost all financial support goes to technological research and innovation, while support for research and social innovation to strengthen the enabling environment for innovation (through market, services, institutional and policy innovations) seems as yet to fall behind. For agriculture this gap is to be addressed by a new Innovation Fund that has been established with INIA under the National Agriculture Innovation Program.

3.1.2 R&I national policies, legal framework

In 2004 Peru approved the Framework Law on Science, Technology and Technological Innovation (STI)[105]. In 2005 another law[106] appoints CONCYTEC as leading entity to oversee the implementation of this policy. The purpose of the CONCYTEC is thus 'to regulate, direct, guide, promote, coordinate, monitor and evaluate the State's actions in the field of Science, Technology and Technological Innovation and promote and support its development through coordinated action and the complementarity between programs and projects of public and academic institutions, businesses, social organizations and members of the national innovation system.' In 2007 the national STI policy is specified, clarifying the competencies of the national and regional governments in the framework of the 2007 decentralisation process. Through this decree national STI policies have four objectives:

1. Develop specialised capacity in STI management and development;
2. Promote technological innovation in the private sector, both manufacturing as services;

[103] http://www.ceplan.gob.pe/documentos/peru-2021-pais-ocde

[104] http://dina.concytec.gob.pe/appDirectorioCTI/index.jsp

[105] Ley Marco de Ciencia, Tecnologia e Innovacion Tecnologica Ley No. 28303

[106] Ley del Consejo National de Ciencia, Tecnologia e Innovacion Tecnologica Ley No. 28613

3. Promote STI development in social and environmental sectors;
4. Develop management and dissemination mechanisms of STI with national and regional outreach.

The national STI policy is closely linked to the national competitiveness policy, which promotes the strengthening of value chains and entrepreneurial capacities. Under the same 2005 law, the *Fondo Nacional de Desarrollo en Ciencia, Tecnología e Innovación (*FONDECYT) is created as a fund to stimulate investments in STI. According to this law, at least 60% of the funds should be destined to technological innovations and half of these, destined to projects with private sector participation. FONDECYT has changed its name to "Innovate Peru" and has increased its human and financial resources.

In 2008 the SNIA is regulated by law[107], establishing the articulations with the Strategic National STI Plan for Competitiveness and Human Development 2006-2021 and designating the National Institute on Agricultural Innovation (INIA) as the leading agency. The law instructed INIA to draft a National Policy for Agricultural Innovation and to design a National Plan for Agricultural Innovation. It is only now, with the *Programa Nacional de Innovación Agraria (*PNIA) in place that the National Policy and the National Plan are being developed. Also, in March 2015 a law was approved[108] to provide incentives for STI investments by granting generous tax cuts (up to 175% of their investments in STI) to private sector companies. It specifically aims to stimulate the collaboration between research institutes, universities and private sector. The law aims to promote diversification of the Peruvian economy.

There are different public bodies implementing the STI policy, according to the sectors: Agriculture, Environment, Health and Production. The national research institutes attached to those sectors are:

- Instituto Nacional de Innovación Agraria (INIA);
- Comisión Nacional de Investigación y Desarrollo Aeroespacial (CONIDA);
- Instituto Geofísico del Perú (IGP);
- Instituto de Investigaciones de la Amazonía Peruana (IIAP);
- Instituto Peruano de Energía Nuclear (IPEN);
- Instituto del Mar del Perú (IMARPE);
- Instituto Tecnológico Pesquero del Perú (ITP);
- Instituto Nacional de Investigación en Glaciares y Ecosistemas de Montaña (INAIGEM);
- Instituto Nacional de la Salud (INS).

Besides, the country has 33 public universities. Most relevant for R&I are: the National University of San Marcos (San Marcos), National University of Engineering, the National University of Arequipa San Agustin and the National Agricultural University La Molina. There are 44 private universities. Two are most relevant according to their investment in R&I: Cayetano Heredia University (UPCH) and the Pontifical Catholic University of Peru (PUCP).

3.1.3 R&I institutional framework (who does what)

CONCYTEC is the national science council and the coordination entity of the national STI policy; everything that is public investment in R&I. It is led by a Board with representatives from the public and private sector. Within CONCYTEC, there is one person dedicated to stimulating use of H2020 grants by Peruvian researchers.

CienciaActiva (before called FONDECYT) centralises the competitive bids for CONCYTEC. According with themselves, it is a "Platform that captures, manages and channels financial resources from national and international sources to promote the development of Science, Technology and Technological Innovation. Thus it provides grants and co-financing of research projects and / or activities to strengthen this area."

Innovate Perú is the short name of the National Program on Innovation for Competitiveness and Productivity. Previously known as FINCYT, it was transferred from PCM Ministry (*Presidencia del Consejo de Ministros*) to PRODUCE (Ministry of Production). This program seeks to increase business productivity by strengthening stakeholder from the innovation ecosystem (enterprises, entrepreneurs and support organizations) and to facilitate the interaction between them. It has close coordination with CONCYTEC. It has as specific objectives:

[107] http://minagri.gob.pe/portal/download/pdf/herramientas/organizaciones/dgpa/decretos/1060.pdf

[108] Ley de Promoción a la Investigación Científica, Desarrollo Tecnológico e Innovación Tecnológica Ley No. 30309

1. Increase innovation in enterprise production processes;
2. Promote innovative entrepreneurship;
3. Facilitate the absorption and adaptation of technologies for businesses.

To do so it currently manages the following funds:

- Innovation Project for Competitiveness (FINCYT 2);
- Research and Development Fund for Competitiveness (FIDECOM);
- Framework Fund for Innovation, Science and Technology (FOMITEC).

The National Agricultural Innovation System (SNIA) aims to promote the development of research and technological development, innovation and technology transfer in agriculture, in order to promote the modernization and competitiveness of the agricultural sector. The SNIA is a subsystem of the entire innovation ecosystem in Peru and is articulated with the SINACYT.

Programa Nacional de Innovación Agraria (PNIA, National Agricultural Innovation Plan) seeks to contribute to the establishment and consolidation of a modern national system of science, technology and innovation to the agricultural sector, that is decentralised, pluralistic, demand-oriented and in partnership with the private sector. The PNIA is divided into two sub-programs of work: (a) Consolidation and strengthening of national agricultural innovation system (60% of budget); and (b) improving the INIA (40% of budget). With this program the National Policy and the National Plan for Agriculture Innovation are going to be prepared. The first sub-programme has established a fund to tender financial support to innovation projects in the priority areas.

3.2 Description of EU strategic priorities for the country, especially in the areas of R&I and key thematic sectors

How does EU support or promote R&I in the country?

There is no specific reference to R&I in the Country Strategy Paper 2007-2013 (CSP) or National Indicative Programmes 2007-2010 and 2011-2013 (NIP). The two focal areas of the EU country strategy are (i) Support to the rule of law and strengthening governability and (ii) Support for integrated social development in specific regions by supporting the decentralization process in Peru. Activities in the area of R&I have mostly been done as part of interventions that are based on an integrated concept of social and rural development. This is partly possible because of the long trajectory and experience of NGOs and CSOs in the region in incorporating research and innovation in their interventions. Evidence suggests that these organisations also have a considerable capacity to systematise experiences of adaptation and adoption of technological, commercial and institutional innovations and are able to generate impact on local and national policies. Rural development projects as well as support to efforts strengthening the management of natural resources are mentioned in the CSP. Peruvian participation in ALFA (co-operation between Higher Education establishments) is high. Also participation in ALBAN (*América Latina – Becas de Alto Nivel*, grants for Latin American students to study in the EU) is relatively high (5% of grants). 39 Peruvian nationals received Erasmus Mundus Action 2 scholarships.

Focal sectors, period, overall funding amounts

The EU allocated EUR 132 million to Peru between 2007 and 2013 (source: DEVCO website). 80% of the total budget was dedicated to the second focal area; support for integrated social development. 65% of the total amount was planned for the first NIP (2007-2010) and 35% of the total amount for the second NIP (2011-2013). Health and environment are part of the support for social development. Interventions to support environmental protection and sustainable use of natural resources are considered essential for the local populations. In the NIP support for health projects (especially in the field of maternal health, child nutrition and education) are mentioned explicitly. These resources can be supplemented by projects and programmes under Andean Community regional programmes as well as from thematic programmes (CSP 2007-2013, p. 32). Sector budget support for a nutritional programme was signed in November 2009 for a total support of EUR 60.8 million (EURO-PAN).

Links with Commission R&I strategy and other R&I support programmes (including RTD)

There has been no EU support to stimulate or promote participation of Peruvian researchers in FP 7 projects. Visibility of EU research programmes is improving with H2020 through e.g. more dissemination efforts. CONCYTEC encourages and supports Peruvian researchers to participate in H2020. There is still a perceived lack of information on H2020 tenders. Universities and national agencies interviewed indicated priorities in the FP7 and H2020 programmes were not clearly aligned with Peruvian or Latin American issues. There should be more space to articulate Peruvian research priorities. Feeding into the work programmes is difficult because they cannot participate in consultations like European partners.

Participation in FP7 projects is considered very challenging. Significant finding is that two of the universities that invest most in research do not participate in any H2020 projects. University researchers chose not to invest in finding out how the system works, because the programmes are considered to be very competitive, and there is little perceived support to clarify doubts around the proposals. Researchers are more familiar with other programmes, often from European Member States.

There are also a number of practical issues that hinder full participation of Peruvian researchers in the European research programmes, such as the fact that some of the H2020 calls do not cover VAT. Covering these costs as a university presents a serious hurdle and practically excludes public universities from participation. The EUD lacks capacity to engage on these issues or perhaps raise them in Brussels.

4 Overview of EU-funded key interventions

Table 8 Overview of EU-funded key interventions in Peru

#	Sector	Contract/decision title	CRIS number	Contractor	Year	Total amount contracted (in EUR)
1	FSNA	Strengthening pro poor agricultural innov. for food security in the Andean Region (Pro-poor Innovation/IssAndes)	c-222822	CIP	2011-2015	5,000,000
2	FSNA	Organización de un sistema local de innovación y extensión agraria para el desarrollo sostenible de la actividad alpaquera, en la macro región de Ayacucho y Apurímac. (PAQOCHA)	c-231144	Soluciones Prácticas	2010-2013	862,414
3	FSNA	Proyecto de reconversión de la producción de camélidos sudamericanos en zonas altoandinas pobres de Ayacucho y Huancavelica.	c-231116	Vecinos Peru	2010-2013	1,000,000
4	FSNA	Smallholder Innovation for Resilience (SIFOR - Parque de la Papa) under GPARD	c-287315	International Institute for Environment and Development	2012 – 2017	560,000 (total four countries 2,338,158)
5a	FSNA	Genetic resources conservation and characterization and Integrated Crop Management project component for Africa (SSA), Central Asia (CA) and Latin America (LAC)	c-148759 (SUPP-CIP)	CIP	2007	1,700,000
5b	FSNA	Genetic resources conservation and characterization and Integrated Crop Management project component for Africa (SSA) and Central Asia (CA)	c-148759 (SUPP-ECG 24-CIP)	CIP	2008-2010	2.821.000
6	FSNA	FoodSTART+: Food Resilience Through Root and Tuber Crops in Upland and Coastal Communities of the Asia-Pacific	being negotiated	CIP	2015-2018	1.864.517
7	FSNA, EnvCC	Securing Tenure Rights for Forest-Dependent communities: a global comparative study of design and implementation of tenure reform	c-334896	CIFOR	2014-2016	2.744.000
8	EnvCC	Programa binacional para la conservación y gestión participativa de los bosques tropicales de la cuenca del Chinchipe, Perú-Ecuador (Bosques del Chinchipe)	c-81888	Soluciones Prácticas	2005-2009	1,485,107
9	FSNA	Caficultura Sostenible de alto valor para pequeños productores pobres de la provincia de Lamas, Perú	c-133868	Soluciones Prácticas	2008-2011	939,336
10	FSNA	Un modelo para la formación de trabajadores/as rurales en situación de precariedad laboral de la cadena de valor del café de Perú y Bolivia, en el marco	c-340700	Soluciones Prácticas	2015-2019	3,153,264

#	Sector	Contract/decision title	CRIS number	Contractor	Year	Total amount contract-ed (in EUR)
		de un proceso de fortalecimiento del modelo asociativo rural (Café Correcto)				
11	SISS	Fortalecimiento de capacidades para la gestión municipal, mediante el uso innovador de las Tecnologías de la Información y Comunicación, en las provincias de Acomayo (Cusco) y San Pablo (Cajamarca), Perú (Willay II)	c-157415	ONGAWA Ingeniería para el desarrollo humano (implemented by Soluciones Prácticas)	2008-2012	400,000
12	*Health*	*EUROPAN (sector budget support)*	*D-21564*	*Government of Peru*	*2010-2015*	*60,026,706*
13	*Other*	*Cooperación CAN- UE: Apoyo a la Cohesión Económica y Social en la Comunidad Andina (CESCAN II)*	*D-20391*	*Government of Peru including INIA*	*2009-2013*	*6,108,416*

Projects starting after 2013 have been included as a forward-looking component. Project #3 has not been covered in the field mission, since the contractor is based in Ayacucho and its staff were unable to come to Lima.

CIP (the International Potato Centre, by its Spanish acronym) is based in Lima, Peru. The Centre for International Forestry Research (CIFOR), the International Center for Tropical Agriculture (CIAT) and ICRAF all have regional offices in Lima. CIP receives EU funding through multiple channels: through the CGIAR Consortium funding of the CGIAR Research Programmes (Window 1), bilateral funding of the Centre or its specific projects, either through the EU-CGIAR contract agreement managed by the International Fund for Agricultural Development (IFAD) (e.g. Genetic resources conservation), through the regional food security project IssAndes, managed by the EUD Lima or by DG RTD through FP7 and H2020 projects. At the time of the visit the CIP office in Lima had one project with EU funding in their active portfolio (Expanding utilization of RTB and reducing their post-harvest losses, c-334896) and was negotiating three others; the FoodSTART project in Asia, the continuation of the IssAndes project (funded together with the *Comunidad Andina*) and a H2020 grant for a genetic resources project on Solanaceae crops. In the period between 2007 and 2013 there were three on-going projects with EU funding in Peru and the Andean region with a total EU input of EUR 9.5 million funds from DEVCO and a further EUR 190.285 in FP7 projects from DG RTD.

FSNA sector

Project #1: Strengthening pro poor agricultural innovation for food security in the Andean Region (Propoor Innovation/IssAndes)

Description:

The general objective of the programme is to contribute to improving food security conditions for the vulnerable rural population and poorest sectors in the Andean region by strengthening pro-poor agricultural innovation for food security at different territorial levels (local, national and regional) within the Andean region that responds to the needs of the most vulnerable rural groups.

The project focused on the adaption of technologies and strengthening of capacities (production, methodological, nutritional, management of producer families, local actors and existing local dialogue platforms) in specific prioritised zones of the Andean region in four countries (Peru, Ecuador, Bolivia and Colombia). Activities are organised at local level with the participation of stakeholders (public, private, NGO, social and producer organizations). Stakeholder platforms facilitate interaction, empower small producers and facilitate access to knowledge and technology to improve competitiveness. The platforms facilitate exchanges between territories with the similar contexts.

The programme is implemented in close collaboration with several public and private partners that have been identified prior to the start of the programme. Stakeholders on all levels and throughout the different countries are encouraged to learn from each other by sharing experiences. The project explicitly links innovation to food security. Innovations generated and implemented are:

1. Biogenetic innovations like bio-fortified crops high in zinc and iron;
2. Agricultural innovations like integrated pest management and precision irrigation;
3. Institutional innovations like linking local programs, local seed production systems, local investment funds;

4. Commercial innovations like new sales channels and products.

A cascading system of technical assistance has been developed around these four areas. The technical teams of the local organisations (NGOs, other local partners like local governments and local lead farmers) are trained, to be able to pass on this knowledge.

Rationale:

The action was part of the Food Security Thematic Programme 2007-2010. An identification mission was part of the Inception Phase of the project. The identification mission identified three different potential contractors; the *Comunidad Andina*, *Gesellschaft für Internationale Zusammenarbeit* (GIZ) or CIP. The *Comunidad Andina* was found to have a weak profile in innovation. Also, previous experience of the EUD Lima in working with them was not encouraging. GIZ was found to be too broad in its approach and with relative high overhead costs. CIP was chosen because they had good multi-stakeholder networks throughout the region that could be mobilised for the purpose of the project.

The project builds on a previous CIP project called *Papa Andina*, a project that focused on the development of inclusive value chains for native potatoes, while the IssAndes project sought a more nutritional focus. The project aimed to address the fact that interventions to increase productivity or income do not necessarily achieve better results on family nutrition and health. It linked agriculture, health and nutrition approaches and has been able to share this approach with a wide variety of actors, both public and private and on local, national and regional level. It integrated technological, nutritional, commercial and institutional research and innovations and promoted collective actions and learning among multiple actors.

Findings:

IssAndes is a good example of a project that integrated innovation at different levels in a regional and multi-stakeholder approach with a strong pro-poor focus. The EUD considers the project as being widely 'recognised as exceptionally successful'. The project has been able to improve food and nutrition security of more than 5,000 families in four countries, by developing and adapting technologies to improve production, storage and seed production of native potatoes and other innovations to improve diversity in diets like keeping of small livestock, horticulture and better dairy practices. 69 Varieties of potatoes were tested on local criteria (taste, ease in use, etc.) and nutritional value. The families themselves are now producing these varieties and their seeds. In Bolivia the project was able to also work together with rural schools, which helped to increase the reach of the project. These 'technological' innovations have been complemented with commercial innovations, e.g. branding native potatoes for their high contents of antioxidants and levels of vitamin C, thereby opening up market channels to the larger supermarkets in the four countries. An important part of the project has also been the capacity strengthening, not only of producers but also of parents and health staff in nutritional and health issues.

One of the key strengths of the project is the growing recognition of the need for a multi-sector and multi-actor approach in agricultural development to enhance the food and nutrition security of rural families. In Peru for example there are now permanent multi-sector commissions that are involved in the development and implementation of laws on food and nutrition security (*Comisión Multisectorial para la Dieta Andin*a and *Comisión Multisectorial de la Estrategia de Seguridad Alimentaria y Nutricional*). Interviews suggest that the project has also been able to strengthen regional networks and institutions to scale up approaches and results. This will contribute to the scaling up of the approach and results of the project, even though it is underlined that policy and social innovation which addresses the institutional aspects are the most complex and face the biggest challenges to replicate and scale up in other regions. Parts of the project will be continued under funding from IFAD.

<u>Project #2 Organisation of a local agricultural innovation and extension system for the sustainable development of alpaca activities in the macro region of Ayacucho and Apurímac (PAQOCHA)</u>

Description:

PAQOCHA and the Vecinos Peru project under the same decision were funded under the last bit of a 1996 Food Security Programme, which according to EUD staff was a very classical food aid programme. The objective of the decision 'Innovative approaches to food security' was to change this classical food aid approach into a more integrated, development oriented approach. The objective of PAQOCHA was to improve the food security situation of marginal alpaca farmers in isolated rural areas of Peru through strengthening farmers' production and productivity, organisational capacity, increasing access to markets and better natural resource management. *Soluciones Practicas* (the Peruvian branch of the international UK-based NGO *Practical Action*) implemented the project. Key to their intervention was the capacitation of 60 local extension workers, capacity building for local government officials to better promote regional alpaca production and support of a macro regional platform for the alpaca sector.

Rationale and findings:

As the Peruvian branch of *Practical Action*, *Soluciones Practicas* has a solid track record in developing and adapting technological, commercial and institutional innovations with a clear pro-poor focus. In doing so, they have trained local extensions workers, developed and adapted 22 technological innovations in the area of production and natural resource management, improved breeding techniques as well as improved water management. Besides these technical innovations and development of rural extension services (kamayoc), results were achieved in national certification of capacities, improving revenues from the alpaca products through organisation of producers, strengthening local markets and collection centres and diversifying products. Also, the project has led to the formulation and implementation of strategies to promote the alpaca sector on district and provincial level.

Soluciones Practicas has a comprehensive and very well thought through strategy for strengthening smallholder innovation. For example, it recognises and works along five 'innovation routes':

1. Technology transfer from the EU, for example;
2. Technology adaptation, adapting technologies used by other farmer types found in the market;
3. Technology recuperation, rescuing, researching and valorising ancestral technologies;
4. Participatory technology development and;
5. Technology introduction, where technologies from the market are introduced without much adaptation, but with accompanying social innovation programmes (i.e. kitchen stoves).

Along each route *Soluciones Practicas* combines work on commercial, technical, policy and institutional innovation and capacity building. The organisation very systematically manages and shares knowledge between stakeholders and systematises and disseminates lessons learned. There are several publications available on alpaca production based on the different alpaca projects they have managed. *Soluciones Practicas* also publishes material on linking research and innovation to development processes and policies, e.g. on inclusive innovation systems, based on the experience of the kamayoc[109] or in the coffee and dairy sectors. It also hosts an active website, including one on alpacas. Spin offs of PAQOCHA and a similar project funded by the national *Fondo Empleo* include the concept of forming extension workers for water management and to centralise this knowledge on a virtual platform for use throughout Latin America and the formation of market innovation facilitators, together with national stakeholders and IICA.

Project #4 Smallholder Innovation for Resilience (SIFOR - Parque de la Papa)

Description:

This project was funded under the Global Programme on Agricultural Research for Development (GPARD). The project in Peru aims to map the existing traditional knowledge-based innovations in the Potato Park (an innovative structure of six Quechua communities in the Sacred Valley in Peru) and to build on these findings to improve and enable further innovations together with the local farmers and women collectives. The Potato Park, represented by ANDES, works together with the International Potato Centre (CIP), mostly with the gene bank. The project is also active in Kenya, China and India and is led by the International Institute for Environment and Development (IIED). The SIFOR project works with farming communities in vulnerable areas that are rich in crop diversity to identify, conserve and spread resilient crop varieties for adaptation. It builds on a previous project 'Protecting community rights over traditional knowledge'. The budget for the activities in Peru are budgeted for EUR 0.56 million.

Rationale and findings:

ANDES is an organisation that has an extensive track record in working with the communities in the Potato Park. IIED has worked with ANDES in the preceding project on traditional knowledge and resilience as well. The project aims to generate evidence of the role of 'biocultural innovations' (e.g. traditional varieties or practices) in resilient farming systems, develop practical tools and approaches to strengthen local innovation systems like community seed registers and market innovations and the project aims to promote enabling policies and institutions at local, national and global level. The communities in *Parque de la Papa* manage community seed banks, a restaurant, and work on the development of new products and brands. The project collaborates with UNESCO and local governments on the conservation and protection of integrated landscapes and landscape governance within the framework of biocultural heritage. Also they work together with the FAO commission on Genetic Resources for Food and Agriculture.

[109] Hacia la configuración de sistemas locales de innovación con inclusión: la experiencia de los kamayoq en el sur andino. Villanueva, P. and Montero, R. 2014

Project #5 Genetic resources conservation and characterization of roots and tubers

The CIP project aims to characterise genetic germplasm and conserve potatoes, sweet potatoes and other tubers through modern technology. Other CIP-projects that strengthen value chains of local potatoes and bring together all the relevant stakeholders (small farmers, NGOs, public organisations and industries) in innovation platforms enhance the impact of the genetic resources project. Examples of these other projects are the IssAndes project and the collaboration with ANDES and the communities in *Parque de la Papa*, projects that clearly build on the basis of the gene bank.

For the CIP project, a study into the practical application of CGIAR research found that it:

"has developed an innovative pro-poor research approach to agricultural development over the last ten years mixing high technology Genoma banks (ex situ) with conservation of "native potatoes" (in situ) done by the farmers communities. They have contributed to restoring potato diversity and virus free local varieties in poor farmers' communities, which has increased food security and income generation. The Project improved the value of the local potato while preserving local traditions so empowering rural communities" (Practical application, p.31)

The action research and platform approach adopted by CIP has led to a good rate of adoption of new and virus-free varieties of local potatoes. National Agricultural Research Systems have gained knowledge on the conservation of roots and tubers through their participation in the platform (*Practical application, p.34*). Interviews suggest that the support to the Genetic Resources programme has contributed to improved yields and better resistant crops and has generated a benefit to poor farmers in Latin America, Asia and Africa of USD192 million per year. One of the most important cultivars to ever come out of a CIP breeding program is the C88 potato, developed during the period of funding. Communities in Peru are now approaching CIP to get clean material instead of CIP needing to push varieties.

Project #6 FoodSTART+: Food resilience through root and tuber crops in upland and coastal communities of the Asia-Pacific

This project, where CIP is cooperating with IFAD, is explicitly aiming at linking better R&I on roots and tubers to food and nutrition security interventions in Asia. The contract is currently being negotiated. The period of implementation is May 2015-May 2018. It is an interesting case because it addresses directly the problem of a lack of connection between development interventions and agricultural research. IFAD was interested in involving more R&I in their investment projects. They put out a grant for adding value to their activities through research on food security. In the first phase the project focused on an analysis of value chain approaches and potential R&D partnerships. For the second phase, EU will be funding the activities; IFAD will fund 25% and EU 75%. The project will concentrate on India, China, Vietnam and Philippines. The focus of the project will be on partnerships between IFAD and research aiming to reduce the vulnerability of communities whose livelihoods are dependent on roots and tubers. The project has a big element of market access, but also on developing farmers' business schools and impacting local and national policy. There is potential to follow the same model in the Andes region.

Project #7 Securing tenure rights for forest-dependent communities: a global comparative study of design and implementation of tenure reform

This project is implemented by CIFOR and funded under the contract agreement between EU and CGIAR that was signed in 2013 and covers the period 2014-2018. The project will run from 2014-2017. It is part of the CGIAR Research Programme Forests, Trees and Agroforestry (CRP 6). The project deals with the change in recognition of community land rights emerging in the 1990's - 2010's: forest tenure reform. The study is about how this reform is going on, where this trend comes from, on the implementation and on participatory prospective analysis (working on the key concept of security of land tenure). The program is in an early phase, but the process of forming the Advisory Committee in Peru is already bringing together many different actors: Regional governments, SERFOR, *Ministerio del Ambiente* (MINAM), *Ministerio de Agricultura* (MINAGRI), Procuraduría, the EUD and various NGOs and organisations. This is already having an impact by creating a space for dialogue on forest tenure. Regional and national governments are learning to enter in effective and inclusive dialogue with forest communities.

Projects #8, 9 and 10 - Bosques del Chinchipe, Caficultura Sostenible and Café Correcto

These projects are a series of projects funded by the EU and implemented by *Soluciones Prácticas*. They are focused on community forest management, reforestation and agroforestry focused on the marketing of high quality coffee respectively. In all these projects, development and adaption of technological innovations were combined with market innovations and institutional innovations. The *Bosques del Chinchipe* was launched in 2005 and *Café Correcto* in 2015. The *Caficultura Sostenible*

project builds on the results of the *Bosques del Chinchipe* project. The project develops and adapts technologies (on reforestation, soil fertility, post harvest and water management) to a sound market plan of forest harvested coffee that makes reforestation projects more profitable. This is having impact on national and global policies regarding greenhouse gas emissions. The agroforestry approach to coffee farming system is guiding climate change policies and the emission reductions that are being achieved or planned for have been taken up in the Intended Nationally Determined Contributions (INDCs) that are part of the climate change negotiations at COP21. They are working together with MINAGRI, SERFOR (National Forest Service) etc. The *Café Correcto* project focuses on developing innovative social security systems (health care, pension schemes etc) for small-scale coffee growers in Peru and Bolivia.

SISS sector

Project #11 Willay

Description:

Willay was a project that was co-funded by the EU under the thematic programme "Non-State Actors and Local Authorities in Development" 2007. The project ran from 2007-2015, with the EU funding running from 2008-2014. The total budget of the project was EUR 3 million, the EU contribution EUR 400.000. The objective of the project was to contribute to the decentralisation process, improve democratic local governability and strengthen management of public institutions in rural areas of Peru through the innovative use of telecommunication and information services. The project was jointly implemented by ONGAWA (Ingeniería para el Desarrollo Humano) and Soluciones Practicas.

Rationale:

The rationale of the project builds on the concepts of popular education, digital alphabetisation and reducing information asymmetries contributing to the empowerment of rural communities, which in Peru are in an acknowledged vulnerable position. The project Willay tried to work on different levels by capacity building of local government officials (education, health, provincial governments) in creating and sharing local content (information on the communities themselves, sharing data that was gathered anyway for administrative reasons serving as baseline data for local NGOs), digital alphabetisation and capacity strengthening of rural communities including community councils (*comités de vigiliancia*) and producers' organisations (e.g. on market channels via mail or facebook and knowing new fashion trends to increase the value added on their products) and influencing regional policies on the issue of e-government, open data and ICT infrastructure.

Findings:

The project has succeeded in improving the provision of public services in rural areas, measured in time, cost and efficiency. Local governments are better equipped to improve monitoring and planning of public policies and decision-making processes e.g. participatory planning. The project has had impact on national and local policies contributing to the development of regional ICT agendas and on the way the government approaches the development of ICT infrastructure in remote and poor regions through its Telecommunications Investment Fund (*Fondo de Inversión en Telecomunicaciones*, FITEL). The project has had impact on development processes through increasing transparency and accountability of local governments because of increased digital alphabetization of public officials and local communities.

Health sector

Project #12 EUROPAN

Description:

Sector budget support for a nutritional programme was signed in November 2009 for a total support of EUR 60.8 million (EURO-PAN). This programme, starting in 2010, supports the Government programme for lowering the rate of child malnutrition in the three poorest regions of Peru (Huancavelica, Apurimac and Ayacucho). The support lasts 4.5 years. Part of the budget is variable, depending on the implementation of the project (EUR 34 million fixed, EUR 26 million variable, EUR 0.8 million for monitoring and visibility).

Rationale and findings:

EUROPAN is the first EU programme in Peru designed by results-based programming, with a core funding component and a variable budget to be used to increase funding for those activities that perform well, as measured against a strict framework of performance indicators. For the variable part the EU proposed a focalised use of indicators in 54 poorest districts in the poorest regions of Peru. This innovative way of providing budget support, which was very much in line with the policy thinking of the Peruvian Government, has contributed to a better definition of health and nutrition policies. Levels of

malnutrition have decreased faster than in other regions and the efficiency in service provision has improved, e.g. the type of funding has helped to improve the continuity of the service provision by the government. Normally in the summer holiday between November and February the health service provision like vaccination services to citizens is very weak. EUROPAN has also contributed to the improvement of registration of children (from 7% of 72% of registered infants between 0-3 months) through close cooperation with the Ministry of Economy and Finance (MEF) and the national registration services.

The budget of EUROPAN is 70 million. Despite its relatively small share of the national health budget (4%), the performance-based approach has worked as a lever on how the health budget has been implemented by regional governments. The Ministry of Economy and Finance has translated the performance-based budget agreement between MEF and the EU to its agreement with regional governments. This has stimulated the local governments to improve the service provision to their citizens. Ownership of this modality on the part of the Peruvian Government has been very strong. The monitoring of progress has also been innovative - inviting the MEF on field visits to the regions EUROPAN was targeting to really be able to assess the efficiency of the system.

To increase the sustainability of this approach the EUD has put effort into suggesting to convert this approach into law. This has succeeded and the approach has been translated into the national development and inclusion strategy and aims to improve social development in general (nutrition, education, health economic inclusion etc). The *Fondo de Estímulo al Desempeño y Logro de Resultados Sociales*[110] (2014) works along the same principles as EUROPAN and refers to it directly in the positive results in improving management processes and closing the gap in service provision to vulnerable communities.

EUROPAN is a good example of how the policy and organisation around the innovation is so important for successful implementation and scaling up. The EU has been able to give direction but also space to maintain creativity during implementation. A well thought out communication strategy and political sensitivity, have been key in achieving these positive results. It remains to be seen if this approach can be replicated in the EuroEcoTrade budget support programme[111]. One first setback has been that the support of EUD communication staff to the programme has been terminated due to a reorganisation of priorities for the communication unit within the delegation.

Other

Project #13 CAN-UE cooperation: support to economic and social cohesion in the Andean Community (CESCAN II)

This project on the development of border regions is co-funded by the EU under the Regional Investment Programme with a budget of EUR 6.5 million. The Ministry of Foreign Affairs *(Relaciones Exteriores*) coordinates its implementation. This programme has an innovation component. For example, a diagnostic study on the state of innovation in these regions in the Cuzco and Moquillo region has been done. Interviews suggest that the initiative for including this element is most likely from the EU. A broad meeting bringing together the regional innovation system stakeholders has been organised in Arequipa. Representatives of Foreign Affairs, the Ministry of production (PRODUCE) and its agency, the national Innovation Fund (INNOVATE, formerly FINCYT), businesses and consultants of the EU were brought together. According to interviews, this has improved the coordination in these regions and reduced efforts of duplication. “The regional level is where innovation needs are most effectively addressed and the level where they should be articulated”. This regional focus on innovation has been received well by both the Ministry of Foreign Affairs and INIA. INIA has plans to develop a similar type of regional innovation councils in other non-frontier provinces but it is in the starting up phase.

[110] A 100 million soles (EUR 27 million) Fund that has been created to catalyse the implementation of the national social inclusion strategy ‘Incluir para Crecer’ (Include to Grow). It explicitly builds on the EUROPAN experiences. http://www.midis.gob.pe/index.php/es/fed-creacion

[111] http://www.minam.gob.pe/ordenamientoterritorial/proyectos/apoyo-de-la-union-europea-a-la-politica-de-promocion-de-las-exportaciones-peruanas-de-productos-ecologicos-euro-eco-trade/

5 Field mission findings, by relevant EQ

5.1 EQ 1: Development policy objectives

FSNA sector

EQ 1 To what extent has EU support to R&I through DEVCO been successful in promoting the overall development policy objectives of the EU?	
JC 11 Link between R&I activities and EU development objectives (as per European Consensus and Agenda for Change-MDGs, etc.)	Overall, activities in the field of FSNA at national, regional and global have contributed to EU development objectives. However, there is no alignment between indicators of results of projects (ROM) with the SDGs. It will be difficult to translate the investment of the EC in their contribution to achieving SDGs. There should be an interface between the ROM indicators based on OECD-DAC criteria and the indicators the OECD has developed for the SDGs, to be able to communicate results to other members or to the donor community.
JC 12 Extent to which R&I has informed sector policy dialogue and sector support at national and regional levels	<u>National level:</u> In the three projects examined at national level, policy dialogue has been an important part of the approach. For EUROPAN this involved EU officials. In the two other projects that were both part of a larger tender EU officials were not involved in the policy dialogue. A EUD official noted that contractors/ organisations implementing the projects and programmes do not consider the Delegation as an instrument for policy dialogue - the emphasis is much more on the EU as funder.) Institutional innovation in the implementation of sector budget support through EUROPAN has contributed to a better definition of policy and more effective sector support. The innovative approach of the budget support focalised the support and respective use of indicators in 54 poorest districts in the poorest regions of Peru. The resources were used to focalise policy on the poorest of the poor. Through a lobby this approach has been converted to law; the *Fondo del Estimulo al Desempeño* (2014). The instrument is no longer only directed to improve nutrition but focuses more generally on social development (education, health etc). Agreements were signed with the 24 local governments. The success of EUROPAN has contributed to the advancing of the concept of result-based management towards performance based management. Performance based management is an incentive based system to stimulate efforts/performance. The EUD has had a prominent role in the development of the innovative approach and in the policy dialogue and has invested to systematize the lessons learned in this process through extra funding by the Latin American Cooperation and Technical Instrument.) Part of the PAQOCHA project has involved dialogue with local and regional policy makers to set up regional alpaca producers' platforms, to work together with the *Ministerio de Viviendas*) to share agricultural best practices learned in the various projects building on the existing network of tambos (rural health hubs) and to train 'market innovation facilitators', together with the IICA. *Soluciones Prácticas* collaborated with different government institutions like *Sistema Nacional de Evaluación, Acreditación y Certificación de la Calidad Educativa* (SINEASE), MINAGRI and INIA to invest in national accreditation and recognition of the community extension workers, the kamayoc, trained in the PAQOCHA project. The EU provided extra funding to provide for the certification of the kamayoc. The engagement of the EUD in this project was not significant. <u>Regional level:</u> Also at the regional level, policy dialogue and impact on policy processes has been central to the approach.) In Peru IssAndes had a very strong impact on policies of ministries (*Ministerio de Desarrollo e Inclusión Social* (MIDIS), MINAGRI and MINAM).In Ecuador they had an impact at provincial and community level. In Peru, CIP has contributed elements of the new law and strategy on nutrition and food security and the law on family agriculture. Working together with the ministry on the implementation of the law. These laws are prepared together with permanent multi-stakeholder and multi-sectoral commissions with different ministries and stakeholders (organisations, public and private). <u>Global level:</u>) The CIFOR project on Securing tenure rights for forest-dependent communities works mainly at the level of policies concerning forest tenure reform. Key component of the project is to create a multi-stakeholder dialogue, in Peru this includes SERFOR, MINAM, MINAGRI, Procuderia, various NGOs and organisations and

	representation of the EUD. - The GPARD project SIFOR/*Parque de la Papa* works with the local government (landscape governance, education), the FAO (seeds in framework of the International Treaty of Phytogenetical Resources) and UNESCO (Biocultural heritage).

SISS

EQ 1 To what extent has EU support to R&I through DEVCO been successful in promoting the overall development policy objectives of the EU?	
JC 11 Link between R&I activities and EU development objectives (as per European Consensus and Agenda for Change – MDGs, etc.)	National level: Activities in the SISS sector have contributed to EU development objectives, e.g. of increased transparency and accountability of local governments.
JC 12 Extent to which R&I has informed sector policy dialogue and sector support at national and regional levels	National level: - The Willay project has involved dialogue with local and regional policy makers. Willay has contributed to the regional agenda on e-government and to the way government tenders ICT infrastructure taking into account the use and type of users of the infrastructure. The engagement of the EUD in this project was not significant.

5.2 EQ 2: Impact on partner country research communities

General

EQ 2 To what extent has DEVCO funding of R&I enabled research communities in partner countries to build up and develop their own R&I capacity, including the ability to actively engage in research networks (regional and international)?	
JC 21 Degree of alignment and coherence of DG DEVCO support to R&I with relevant policies and strategies	National level: - The implementation of a national R&I Strategy, including the strengthening of the national innovation system is in its first stage. Alignment of DG DEVCO support to the national R&I strategy is therefore also at an incipient stage. The R&I components of DEVCO projects address national development priorities but are not yet explicitly linked to national strategies on innovation and development. - The degree of alignment of DEVCO supported projects with regional and national policies on rural development is generally strong. All of the projects aim to have an impact on regional and national policies. - EU support to Higher Education and mobility has been very limited. Peruvian researchers are mostly aware of scholarships through their own networks. - The EUD ambassador has taken the initiative to set a coordinative meeting between the responsible national agencies and European Member States and EC to coordinate better the European Higher Education and mobility schemes. Regional level: - Since the political crisis within the *Comunidad Andina* there is a gap as to coherent and aligned regional policies. This will make the implementation of an effective regional approach even more difficult. Global level: - The CGIAR centres CIFOR, CIP and ICRAF are working together with different ministries and government agencies (MINAM, MINAGRI, SERFOR, *Ministerio de Salud* (MINSA), *Ministerio de la Producción*). They seem well aligned with national priorities. CIP will be investing more in relations with CONCYTEC the coming years.
JC 22 Increased focus of EU support on 'capacity building' and enhancing institutional sustainability	National level: - There is no clear strategy on the support to strengthening institutional capacities that contribute to the national innovation system. The mobility programmes are well known at Masters' levels, less so at graduate level. Without explicit reference to brain drain, CONCYTEC has initiated a mobility programme to attract talent from abroad at post-doc level. For the higher education component of EU support there is very little systematic support. - Peruvian participation in ALFA (*América Latina – Formación Académica*, co-operation between Higher Education establishments) is high. Also participation in ALBAN (grants for Latin American students to study in the EU) is relatively high (5%

	of grants). 39 Peruvian nationals received Erasmus Mundus Action 2 scholarships.
JC 23 Improved access of developing countries' research communities to EU FP7 funding through RTD	National level: - Access to FP7 funding has been mostly dependent on already existing personal ties between Peruvian and European researchers. This has improved somewhat with H2020 due to the more active information dissemination strategy both from EUD and CONCYTEC. - Participation in FP7 projects is considered very challenging. Significant finding is that two of the universities that invest most in research do not participate in any H2020 projects. University researchers chose not to invest in finding out how the system works, because the programmes are considered to be very competitive, and there is little perceived support to clarify doubts around the objectives and criteria proposals need to meet. Researchers are more familiar with other programmes, often from European Member States. Researchers also participate in North-American and Canadian research programmes. - It is, for example, not always clear how the priorities of a call should precisely be interpreted, or if a Peruvian organisation can be a lead institute for the application. It is difficult for universities and research institutes to get clarification on these issues. - There are also a number of practical issues that hinder full participation of Peruvian researchers in the European research programmes, such as the fact that some of the H2020 calls do not cover VAT. Covering these costs as a university could be a serious hurdle for participation and for a public university practically exclude them from participation. - To date there has been no capacity at EUD to be aware of these issues and to raise these issues in Brussels.
JC 24 Enhanced networking of developing countries' researchers at regional and international level	National level: - The FP7grant to set up a network of Latin American and European researchers, ERANET-LAC, has contributed to an enhanced network of researchers at international level.

5.3 EQ 3: Instruments and modalities

General

EQ 3 To what extent has DG DEVCO in its support to R&I used its available instruments in a way that maximizes their value?	
JC 31 Appropriateness of the financing modalities and types of funding under different EU instruments and the way they have been applied for enhancing R&I	In the case of the projects (PAQOCHA, IssAndes, *Parque de la Papa*, Willay) the choice between different modalities has implications for the level of interaction that project representatives have with the EUD. PAQOCHA as part of a tender only has contact with the EUD for the monitoring missions. *Soluciones Prácticas* indicated that these missions were considered valuable but it was felt there was less technical monitoring, not on a regular basis. *Parque de la Papa* is part of a consortium led by IIED in London. All contact with the EU is managed by IIED. Tendering is becoming more and more common as a modality for choosing actors with whom to work. This is partly due to the increase of actors that can offer the support to R&I. This means that projects are much less likely to receive consecutive funding like before when projects easily received funding for three phases. This has its consequences on the level of ambition of a project, because the process from developing a certain innovation to successful implementation and scaling up and out lasts at least eight years. Projects need several phases to go from development of technologies, to application of technologies, social innovation around the technologies and systematisation of lessons learnt. An example of this is IssAndes, the genetic resources conservation programme at CIP and PAQOCHA (so all three levels). The large gap between funding possibilities makes it difficult to plan for continuity. Projects do not necessarily have to be long, but there is a need for follow-up, sequenced projects. Both CIP and *Soluciones Prácticas* raise this point. EUD confirms that NGOs or other type of contractors are becoming responsible for the continuity of their interventions. This is contradictory with the time costly impact pathways from research to development impact and the complexity (and need for continuity) of managing projects with multiple stakeholders. Global level:

	) Funding of CGIAR centres is still very complex, using different channels and modalities (global funding, EU funding through IFAD, bilateral donors - DCI, Food facility, FP7). The different funding modalities pose serious challenges to planning interventions, both the window 1 funding as the 'bilateral' EU funding through IFAD.
JC 32 Strategic approach adopted to choosing different possible actors / channels with whom the EU can work to support R&I and how best to support them with the instruments and modalities available	National level:) In many cases, projects that are successful in achieving developmental impact, scale up results and make change sustainable by influencing policies build on previous interventions (funded by EU or otherwise). Examples on a national level are the PAQOCHA project by *Soluciones Prácticas*.) No clear strategy in making sure projects capitalise on investments (on taking advantage of work and experiences that already exist) made which are key to achieving an impact beyond the mere project results. Modalities like tendering do not permit to build on and capitalise previous investments through projects.) The time to present proposals for tenders is too short for certain complex projects with many partnerships with for example local or national governments. Demands for partnerships from the EU can be high and not matched with the necessary time to prepare the project proposals. *Soluciones Prácticas* signalled the risk of design errors because of the short period of time. Regional level:) Examples of building on previous work on a regional level is the innovative and impactful approach of the IssAndes project. This project builds on the previous work of Papa Andina and INCOPA, which was funded by the Swiss.) The contractor for the regional implementation of the food security strategy 2007 was not done by call for proposals, but through an Identification Mission. CIP, *Comunidad Andina de Naciones* (CAN) and GIZ were considered. The choice of CIP with the IssAndes project was because they had very good networks (institutional anchoring both on national and regional level). CIP was considered a solid organisation with big cost efficiency.) The EU does not have the flexibility to continue IssAndes (ended in 2014, opportunity for second call only in 2016/2017) and does not allow for continuity. Projects need more time to reach impact than four years.

5.4 EQ 4: DEVCO-RTD complementarity and coherence

FSNA sector

EQ 4 To what extent has EU support to R&I by DG DEVCO and by DG RTD been complementary and their collaboration promoted PCD?	
JC 41 Extent to which DGs DEVCO and RTD have formulated clear strategies on how they should cooperate in a complementary way and how the work of other relevant EU institutions (such as the EIB) is also complementary with their own	National level:) EUD does not have any clearly formulated strategy on cooperation with RTD. EUD: "There is complementarity in definitions but not in implementation.") EUD states that creating the bureaucratic link between RTD funds and DEVCO funds would cost too much.) Cooperation with EIB is not relevant according to EUD, because they are not present in the country.) According to EUD there is an improvement in engaging the EUD for more actions from different DGs, even in an observatory role. But also the opposite happens; that EUD is not informed, which causes damage and inefficiency. The Fund 'Latin American Cooperation and Technical Instrument' has been flexible to fill gaps rapidly - on COP positioning, and to systematise the EUROPAN experiences. It is not a lot of money but it works as grease. A similar fund could be created to bridge the gap between development and innovation.
JC 43 Level at which DEVCO support has benefited from complementary action financed through RTD and vice versa	National level:) DEVCO supported R&I projects are more directed at developmental outcomes. The RTD funded FSNA-related projects like QBOL and QDETECT are much more technology development oriented.) There is no clear strategy on the support to strengthening institutional capacities that contribute to the national innovation system. The mobility programmes are well known at Masters' levels, less so at graduate level. Without explicit reference to brain drain, CONCYTEC has initiated a mobility programme to attract talent from abroad at post-doc level. For the higher education component of EU support there is very little systematic support. Regional level:) ERANET-LAC, funded under FP7, is considered a useful regional research network.

	Global level:) CIP participates in several FP7 grants. The FP7 grants are directed at 'pure' research, with little to no attention to impact on development processes or institutional capacity strengthening. The CIP projects funded by DEVCO clearly did, but also needs the basic research work to build on.
JC 44 Extent to which different mechanisms to promote PCD (ex-ante impact assessments, inter-service consultation, etc.) have been deployed and acted-upon	National level:) The field assessment did not show any evidence of mechanisms to promote PCD in the case of Peru.

SISS sector

EQ 4 To what extent has EU support to R&I by DG DEVCO and by DG RTD been complementary and their collaboration promoted PCD?	
JC 43 Level at which DEVCO support has benefited from complementary action financed through RTD and vice versa	National level:) The project Willay has had a positive impact on the way the government takes on the development of ICT infrastructure in remote and poor regions through its Telecommunications Investment Fund (FITEL). After the Willay project ended, FITEL has received an FP7 INCO grant together with the Pontificia University (TUCAN3G, EUR 1 million, 2013-2015) to develop ICT technology in remote rural areas taking into account market development etc.

5.5 EQ 5: Transfer of R&I results into development processes

FSNA sector

EQ 5 To what extent has DEVCO support led to the transfer of R&I results into processes likely to impact on the achievement of EU development objectives?	
JC 51 Clear and logical thinking at sector level on how DEVCO support could ultimately lead through to research results being used in development processes	All the projects studied in the field mission build on previous projects or will be continued by other funders (PAQOCHA, IssAndes, SIFOR-*Parque de la Papa*, CIP's Genetic resources conservation). Evidence suggests that DG DEVCO and RTD financing modalities appear to lack systematic thought on how they can support the interlocking research, innovation and development processes that go beyond the research project itself, aiming to influence policy, institutional and practical change; and how they can be adaptive and flexible in supporting the technological, commercial, institutional and policy innovation processes that by their very nature have to adjust regularly in response to the lessons they learn. As a result, there exists a mismatch between the long impact pathway of support to R&I to development processes and the expected widespread, practical, commercial, policy and institutional impact. There is also a lack of continuity of the projects supported. The different phases of innovation impact pathways - research, development, testing, adaptation and the social (commercial, organisational, institutional, policy and practice) innovations that need to accompany the adoption of the innovation and its scaling up generally takes many more years than one project cycle allows for. As a result projects lower their ambitions for impact due to the shorter time horizons (and shorter periods of time available to prepare the proposals). Complex interventions with many partnerships become more difficult to plan for because of these shorter periods to prepare the proposals. Medium to long-term commitment from a donor is therefore considered very helpful. National level:) In the proposals *Soluciones Practicas* prepared for the EU tenders, the big lines are already set, but the details of the project e.g. the type of innovative technologies that will be tested in the project are defined together with the local people.) In the recent tender for CSOs, innovation was one of the criteria to judge the proposals. EUD officials indicate that 80% of the projects they fund, have aspects of research and innovation. *Soluciones Prácticas* however do not feel the EUD encourages or systematises the innovative approaches used in development projects.

	) There is very little evidence that DEVCO has developed clear and logical thinking on how to contribute to strategically support the strengthening of the national innovation system.
JC 52 Extent of internal lessons learning, sharing and uptake in the EU Institutions within the sectors supported in partner countries, and at international level	<u>National level:</u>) Evidence suggests that DEVCO and European External Action Service (EEAS) disinvested in internal lesson sharing at EUD level (example is the cancelling of the annual meeting of Latin American food security EUDs).) Evidence suggests that there is no systematisation of lessons learnt and of communication/sharing of best practices at EUD level between sectors and between EEAS and EUD, between EUD and Brussel headquarters and beyond.) CIP and *Soluciones Prácticas* notice there are less technical monitoring missions, generally regarded as useful by the project representatives.) *Soluciones Prácticas* noticed EU-supported projects do not allow much space for documenting, systematising and capitalising on experiences and lessons learnt.) The EUD faces difficulties to follow up projects. There are no resources reserved to monitor the longer-term impact of projects.) Evidence suggests that there is a reasonably strong practice of learning, sharing and uptake of lessons from passed experiences within the FSNA sector in Peru, rooted in the organisations themselves (e.g. *Soluciones Prácticas*, CIP, IICA have systematised lessons learned from EU funded and other projects) and share these with a wider public. There is however no apparent systematisation and capitalisation of these experiences by the EUD.) The alpaca project has a long history, and, various interviewees outlined how newer programmes built further on lessons learned from earlier programmes. A report on lessons learned from *Soluciones Prácticas* projects has been published with indirect support from the EU and submitted to the European Commission in 2014 but was not archived in CRIS. It was not mentioned by the EUD in interviews. <u>Regional level:</u>) There was very good contact with EUD Lima for example in the design of the project - the identification mission. There was flexibility from the part of the EUD on how to implement the project - both scientifically and administratively (e.g. space for 20 sub-contracts in the four countries). The two monitoring missions were perceived as useful for the team as well. Extra funding for visibility was provided to produce four communication products used at the European Month of Food security (story of the week, video, case study from Peru and completing a Brief. It was the EUD ambassador who pushed for continuation. There was very little communication between the EUD Lima and DEVCO headquarter in Brussels. The people in Brussels did not know about the ROM mission.) The CIP Regional Director has invested a lot in personally communicating with DEVCO headquarters on what CIP is working on. This is based on personal initiative and there are no formal channels to streamline this communication. Other projects like SIFOR, PAQOCHA or Willay do not reach out to the EUD or DEVCO headquarters so actively.) CIP has invested a lot communication on the project and the DEVCO unit managing the IssAndes project.) CIP has been requested by EUD to provide technical assistance to a similar project in Costa Rica (PRICA, *Proceso Regional de Integración Cooperativa de las Américas*) that started two years later.
JC 53 Extent of external lessons learning, sharing and uptake within the sectors supported in partner countries, and at international level	<u>National level:</u>) Evidence suggests that there is a reasonably strong practice of learning, sharing and uptake of lessons from passed experiences within the FSNA sector in Peru, rooted in the organisations themselves (e.g. *Soluciones Prácticas*, CIP, IICA have systematised lessons learned from EU funded and other projects) and share these with a wider public. There is however no apparent systematisation and capitalisation of these experiences by the EUD.) The alpaca project has a long history, and, various interviewees outlined how newer programmes built further on lessons learned from earlier programmes. A report on lessons learned from *Soluciones Prácticas* projects has been published with indirect support from the EU and submitted to the European Commission in 2014 but was not archived in CRIS. It was not mentioned by the EUD in interviews.) Budget for communication and systematisation of lessons on the EuroEcoTrade budget support was cut, even though experience with the communication strategy designed for EUROPAN had proved to be highly valuable. <u>Regional level:</u>) A lessons learnt report of the IssAndes project has been developed and shared with government officials CIP works closely with. There were four communication

	products made with extra funding from the EU which were used at the European Month of Food security (story of the week, video, case study from Peru and a Brief).
JC 54 Development processes and outcomes have been built on or used the results of research funded by DEVCO or shared through DEVCO supported research networks	National level: - The PAQOCHA project had impact on local and regional policies e.g. to set up regional alpaca producers' platforms, to work together with the *Ministerio de Viviendas*) to share agricultural best practices learned in the various projects building on the existing network of tambos (rural health hubs) and to train 'market innovation facilitators', together with the IICA. *Soluciones Práctica*s collaborated with different government institutions like SINEASE, MINAGRI and INIA to invest in national accreditation and recognition of the community extension workers, the kamayoc, trained in the PAQOCHA project. The EU provided extra funding to provide for the certification of the kamayoc. - The PAQOCHA project also impacted directly on development processes, e.g. through the development of the value chain of alpaca meat and fibre which was part of the joint development, implementation and evaluation of a 'Local Economic Development Plan'. The kamayoc played in an important part in improving the knowledge of farmers on the health of the animals. Better local polices on e.g. pasture management has also contributed to better health of the animals. - The *Bosques del Chinchipe* project was a reforestation project with a strong natural resources management component. Through an innovative agroforestry approach it has achieved making plots more profitable in a sustainable way. The project started with 500 hectare and grew to 3000 hectare because local stakeholders saw the benefits of the approach and were very enthusiastic about it. - The Caficultura Sostenible project in the province of San Martin builds on the results of the *Bosques del Chinchipe* project. The project develops and adapts technologies (on reforestation, soil fertility, post harvest and water management) to a sound market plan of forest harvested coffee that makes reforestation projects more profitable. This is having impact on national and global policies regarding greenhouse gas emissions. The agroforestry approach to coffee farming system is guiding climate change policies and the emission reductions that are being achieved or planned for have been taken up in the Intended Nationally Determined Contributions (INDCs) that are part of the climate change negotiations at COP21. They are working together with MINAGRI, SERFOR (National Forest Service) etc. Regional level: - IssAndes was recognised by the EUD as exceptionally successful and perceived as the only R&I related project they were directly managing. IssAndes has been able to mobilise a wide array of stakeholders like farmer organisations, private and public actors. They were able to establish a strong regional network to share experiences on the nutritional, cultural and commercial value of the native potato, but also on methodologies (e.g. impact pathway methodology) and food security project management aspects. These regional networks were built on existing networks. - In Peru IssAndes had a very strong impact on policies of ministries (MIDIS, MINAGRI and MINAM).In Ecuador they had an impact at provincial and community level. In Peru, CIP has contributed elements of the new law and strategy on nutrition and food security and the law on family agriculture. Working together with the ministry on the implementation of the law. These laws are prepared together with permanent multi-stakeholder and multi-sectoral commissions with different ministries and stakeholders (organisations, public and private). - Nutritional education programmes have been developed and implemented in the four countries, reaching parents and staff from local institutions and health networks. A statistical model that assesses the relation among production, nutrition and socioeconomic variables has been developed that can support decision-making processes related to similar interventions. A guide with lessons and recommendations on gender issues in food security and nutrition interventions has been developed. Global level: - The GPARD project SIFOR worked together closely with the Genetic Resources Conservation project by CIP. The projects have both had impact on seed conservation of native species, on developing farmers practices to adapt to climate change, which is impacting poor people in the Andes severely. - The SIFOR project contributes to the work of an association of six communities in the *Parque de la Papa* e.g. the development of communal seed banks, the development of new products and brands. - In the *Parque de la Papa* there are 400 varieties being grown in the field to test for certain traits and how they are reacting to changing conditions due to climate change. Communities are exploring possibilities of growing seed potatoes, because of the favorable conditions on high altitude. They function as live laboratories of

	climate change and link local knowledge with conventional knowledge. - The SIFOR project creates the linkages between these locally developed technologies, based on indigenous or traditional knowledge, with the other projects in Kenya, China and India and creates synergies between the different communities. - The SIFOR project work together with UNESCO and local governments on the conservation and protection of integrated landscapes and landscape governance within the framework of biocultural heritage. Also they work together with the FAO Commission on Genetic Resources for Food and Agriculture. - The project has supported a community in Huancavelica to grow different native potato varieties to market to a European chips producer. Five of the seven potato varieties come from the repatriation programme of CIP. - The CIP genetic resources conservation project works with ex situ and in situ seed banks managed by the community themselves. The communities now know to find CIP to get clean, disease-free breeding material. CIP helps to diversify this collection. - CIFOR implements a project financed by the EU on Securing tenure rights for forest-dependent communities. In the 1990's - 2010's a change is signalled in recognition of community land rights: forest tenure reform. The study is about how this reform is going. Study is on where this trend comes from, on the implementation, on participatory prospective analysis (working on the key concept of security of land tenure. The program is in an early phase, but the process of forming the Advisory Committee in Peru is already bringing together many different actors: Regional governments, SERFOR, MINAM, MINAGRI, Procuraduría, the EUD and various NGOs and organisations. This is already having an impact by creating a space for dialogue on forest tenure. Regional and national governments are learning to enter in effective and inclusive dialogue with forest communities. - CIFOR mentions the difficult balance between getting results out faster to reach impact like briefs and keeping up level of research with peer-reviewed journals. Sometimes you need to sacrifice the level of science (for example comparability) to reach an impact at a national level.

SISS sector

EQ 5 To what extent has DEVCO support led to the transfer of R&I results into processes likely to impact on the achievement of EU development objectives?	
JC 54 Development processes and outcomes have been built on or used the results of research funded by DEVCO or shared through DEVCO supported research networks	<u>National level:</u> - The project Willay improved the provision of public services in quality, time and costs. - It has had impact on national and local policies: it contributed to development of regional ICT agendas. - The project Willay has had a positive impact on the way the government approaches the development of ICT infrastructure in remote and poor regions through its Telecommunications Investment Fund (FITEL). Willay managed to change the mind set of this institution from thinking about only infrastructure and commercial use of ICT to taking into account how the infrastructure is used and by whom. FITEL has improved its broadband tendering procedures to take into account how and by whom ICT infrastructure is used in poor regions in Peru. The tender now includes a component aimed at capacity strengthening of (public sector) use of ICT. - The project has had impact on development processes through increasing transparency and accountability of local governments because of increased digital alphabetization of public officials *and* local communities. - The Willay project has had impact on the project implementer's own practice through experience with working in partnership.

5.6 EQ 6: EU capacities

FSNA sector

EQ 6 To what extent have the EU external relations services ensured adequate capacities to conduct policy dialogue related to R&I and to support research and innovation in partner countries?	
JC 61 Extent to which EU internal capacity to manage R&I support and conduct policy dialogue is in place at the levels required	There is no specific capacity at the EUD to manage R&I. 80% of the development projects they manage contain R&I components. There is little lesson learning and communication budgets have been cut, which hinder the systematisation of lessons and dissemination of results stemming from R&I support. Policy dialogue on how to support the incipient Peruvian national innovation system is only just taking off. DEVCO staff is not taking the lead in these issues. The ambassador of the EUD has offered to facilitate dialogue between research programmes managed by European Member States and CONCYTEC. <u>National level:</u> - There is evidence that the EUD lacks capacity to monitor the projects, especially the projects with a regional approach. - According to some sources, the EUD has little/no presence in technical meetings, for example the MINAM that calls regular expert meetings with development partners on environmental issues. <u>Regional level:</u> - Evidence suggests that there is no sufficient capacity dedicated to support R&I on a regional level. The coordination gap after the political crisis of the *Comunidad Andina* has not been filled yet. Organisations with a regional R&I approach like IICA were previously funded through CAN. There is no alternative yet.
JC 62 Extent to which R&I policy dialogue is operational at all levels	<u>National level:</u> - The majority of the projects put in efforts to engage in and influence policy dialogue at different levels. There is no active involvement of EUD in this policy dialogue. - The innovative approach to sector support with EUROPAN is an exception, but is not considered by EUD itself as R&I. Its innovative way of implementing the national health and nutrition policy has had a big impact and has been replicated beyond the communities where EUROPAN was active. The monitoring was based on a permanent sectorial policy dialogue; not about receipts, but looking at the efficiency of the system. It was done together with the MEF and included field visits to these poor regions to see the latest progress in implementation. - According to EUD a lot of project representatives do not see the EU as more than a donor - the capacity of the EU to influence policies is underutilised.
JC 63 Extent to which the EU facilitates R&I activities at all levels	<u>National level:</u> - For FP7 Peru was not chosen as a 'eligible country', so there was no coordination or communication from the EUD on it. Recently, the EUD has started to invest more in facilitating and communicating about R&I opportunities and activities for the Horizon 2020 programme. Also on the part of the Government, for Horizon2020, there is much more coordination since 2014. With support of the EUD, CONCYTEC organised the official launch of the Horizon2020 programme and other information sessions for research institutes and universities. - CONCYTEC mentions that they are receiving the work plans of H2020 too late to be able to generate proposals in time. For example, they receive the information in Oct 2015 for the work plan of 2016/2017.

6 Conclusions

EU support to R&I through DEVCO has been successful in promoting the overall development policy objectives of the EU. Links with and contributions to EU development objectives on poverty, food security and nutrition (FSNA), health, and transparency and accountability of local governments (SISS) are strong. Dialogue was part of the three projects examined in-depth at the national level. For EUROPAN, which is funded under budget support, EUD officials actively participated and contributed to achieving significant results. For the other programmes, funded under other modalities, EUD officials noted that organisations implementing the programmes did not consider the EUD contribution to policy dialogue, rather they considered the EUD more as a funder only. The regional IssAndes programme worked together with several ministries and achieved a strong impact on policies. The global level projects (CIFOR, SIFOR) work specifically on policy innovation and include multi-stakeholder dialogue, with national and local government agencies, NGOs and other organisations, including international organizations. The EUD is represented in the dialogue on tenure rights for forest-dependent

communities (CIFOR). The EUD engagement with the policy dialogues with local and regional policy makers organised by the Paqocha and Willay projects was seen as low.

Strengthening of the Peruvian research and innovation community is mainly done through the implementation of a National R&I Strategy, which includes the strengthening of the national innovation system. It is in its first stage. Alignment of DG DEVCO support to the national R&I strategy is therefore also at an incipient stage. The R&I components of DEVCO projects address national development priorities but are not yet explicitly linked to national strategies on innovation and development. EU support to Higher Education has been limited. Just recently the EU Delegation has taken the initiative to facilitate a coordination meeting between responsible national agencies and European Member States and the EC to improve coordination on Higher Education and mobility schemes. At the regional level, the political crisis within the Andean Community has severely weakened CAN as a partner and interlocutor for channelling regional EU support. Global level programmes from the CGIAR Centres active in the region work closely with relevant ministries in the countries and are well aligned with national, and EU priorities. Most EU funded projects funded under various financial modalities include capacity building and learning-by-doing institutional strengthening. There is no evidence of an *increased* focus on capacity building and enhancing institutional sustainability. The Peruvian government has increased its own capacity for communicating and stimulating participation of Peruvian institutions to participate in European R&I tenders, in particular Horizon 2020, and has initiated a mobility programme to attract talent from abroad at post-doc level. The EU does not systematically support these activities. Clearly those FP7 projects that did involve Peruvian partners and in particular, ERANET-LAC have contributed to enhanced regional networking.

In the case of Peru different financing modalities are used in combination, which makes a comparison possible. In general, R&I managers and project leaders indicate they prefer modalities that include a more intense involvement of the EU, i.e. through the EUD, Brussels officials, and/or identification and technical review missions, above (tender) modalities that do not provide such interaction and support. The main reasons are:

- To achieve the full cycle of technology development; piloting and scaling up, R&I programmes need continuity. Without it, the technological, commercial, institutional and policy innovations necessary to achieve the full development impact of the innovations they develop is unlikely to happen. Continuity in these cases means programmes to receive grants more than once or, coordination with other donors so that financing can be continued from a different source after EU financing stops. The highly successful IssAndes project illustrates the gap that appears if continuity of funding cannot be ensured, risking the watering down of the institutional and policy innovation impact it has so carefully built up over the project period.
- R&I programmes in particular need to be able to adjust their approaches, methods, programming and/or timing regularly; in correspondence with the lessons learned and/or bottlenecks encountered along the way. Due to rigid EU advance planning, budgeting and programming rules, such can only be achieved with the support of EU officials who have adequate knowledge of the programme, its progress and context as well as of the relevant EU rules and regulations.
- Documenting and capitalising on experiences and results often require additional funds, given the limited space in EU-supported projects for such activities; EUROPAN provides a good example of how this could be done with the help of EU officials and a special fund they had available.

Finally, research managers and coordinators from implementing agencies, universities and research institutes mention that colleagues prefer to apply for research programmes from the EU Member States or to Canadian or North American research programmes. These are seen as more open and their procedures more familiar, while EU procedures are perceived as too cumbersome and, even more important, prone to design errors due to the limited period of time generally available to the partners for elaborating the proposals. This latter is particularly true in the case for Research *and Innovation* proposals. These do not only need to prepare solid research and communication plans, but also need to do the mobilisation and achieve the commitment of key policy, institutional and commercial partners, as well as pertinent NGOs, user organisations, and communities.

On the complementarity between R&I support from DEVCO and RTD two observations are repeatedly mentioned. On the one hand, “There is complementarity in definitions but not in implementation”. In fact no clear strategy on cooperation between the two DGs is apparent and the perception is that they work in isolation from each other. For example, the development staff at the EUD is often not even informed about new projects being financed in the country or region before they actually start. Such a failure to make the EUD the link for implementation in the local/regional context, policy and institutional environments is bound to result in project design errors and inefficiencies. Yet the costs of creating an operational link at the EUD between RTD supported and DEVCO supported projects are thought to be

considerable. At the same time a recent improvement has been noticed in engaging the EUD for more actions from different EU DGs, even if in an observatory role. Besides, the Fund 'Latin American Cooperation and Technical Instrument' has proven a useful and flexible instrument in this respect, providing the EUD with the opportunity to timely fill gaps - on COP positioning, for example, and to systematise and publish the EUROPAN experience and lessons learned. Such a flexible fund can help bridge the gaps between research results and the actions needed to ensure large-scale innovation for development in R&I projects and programmes.

On the transfer of R&I results into development processes, including widespread use of innovations by smallholders and/or poor families, the projects studied provided rich insights. Each of the projects at the national, regional and global level presents strong evidence of valuable results from research and of effective multi-stakeholder approaches to commercial, institutional and policy innovation in order to create the conditions for ensuring the widespread impact of the innovations developed. The *PAQOCHA* project had impact on local and regional policies e.g. to set up regional alpaca producers' platforms, to work together with the *Ministerio de Viviendas y Saneamiento* to share agricultural best practices learned in the various projects building on the existing network of 'tambos' (rural health hubs) and to train 'market innovation facilitators', together with the IICA. *Soluciones Prácticas* collaborated with different government institutions like *Servicio Nacional de Sanidad Agraria* (SENASA), MINAGRI and INIA to invest in national accreditation and recognition of the community extension workers, the kamayoc, trained in the PAQOCHA project. The EU provided extra funding to provide for the certification of the kamayoc. The *Bosques del Chinchipe* project was a reforestation project with a strong Natural Resources Management component. Through an innovative agroforestry approach it has achieved making plots more profitable in a sustainable way. The *Cafecultura Sostenible* project in the province of San Martin builds on the results of the *Bosques del Chinchipe* project. The project develops and adapts technologies (on reforestation, soil fertility, post harvest and water management) to a sound market plan of forest-harvested coffee that makes reforestation projects more profitable. This is having impact on national and global policies regarding greenhouse gas emissions. The agroforestry approach to coffee farming system is guiding climate change policies and the emission reductions that are being achieved or planned for have been taken up in the Intended Nationally Determined Contributions (INDCs) that are part of the climate change negotiations at COP21. They are working together with MINAGRI, SERFOR (National Forest Service) etc.

At the regional level, *IssAndes* has been able to mobilise a wide array of stakeholders like farmer organisations, private sector and public actors, establishing a strong regional network for sharing experiences on the nutritional, cultural and commercial value of the native potato, but also on methodologies (e.g. impact pathway methodology) and food security project management aspects. These regional networks were built on existing networks. In Peru IssAndes had a very strong impact on policies of ministries (MIDIS, MINAGRI and MINAM). In Peru, CIP has contributed elements of the new law and strategy on nutrition and food security and the law on family agriculture; working together with the ministry on the implementation of the law. At the global level, for example, the *SIFOR* project links these locally developed technologies, based on indigenous or traditional knowledge, with the other projects in Kenya, China and India. It works together with UNESCO and local governments on the conservation and protection of integrated landscapes and landscape governance within the framework of bio-cultural heritage. Also they work with the FAO Commission on Genetic Resources for Food and Agriculture. The project has supported a community in Huancavelica to grow different native potato varieties to market to a European chips producer. Five of the seven potato varieties come from the repatriation programme of the CIP. The GPARD project SIFOR worked together closely with *the Genetic Resources Conservation project by CIP*. The projects have both had impact on seed conservation of native species, on developing farmers practices to adapt to climate change, which is impacting poor people in the Andes severely. The *Parque de la Papa* is an association of six communities that manage the projects in the *Parque de la Papa* e.g. the seed banks, the restaurant, the development of new products, the development of brands. ANDES also has a programme on education - moving beyond farmer field school. In the *Parque de la Papa* there are 400 varieties being grown in the field to test for certain traits and how they are reacting to changing conditions due to climate change. Communities are exploring possibilities of growing seed potatoes, because of the favourable conditions on high altitude. They function as live laboratories of climate change and link local knowledge with conventional knowledge. Finally, the *Willay project* worked together with and had a positive impact on the way the government through its Telecommunications Investment Fund (FITEL) approaches the development of ICT infrastructure in remote and poor regions. FITEL improved its broadband tendering procedures to take into account how and, by whom ICT infrastructure is used in poor regions in Peru. The tender now includes a component aimed at capacity strengthening of (public sector) use of ICT. The project has also had impact on development processes through increasing the transparency and accountability of local governments because of increased digital alphabetisation of public officials and, local communities.

The projects summarised above show that the impact pathways of R&I projects aiming at wide-spread innovation and large-scale impact among small-holders require several phases: from research, development, testing and adaptation of technologies, to the multi-stakeholder processes necessary to achieve the social (commercial, organisational, institutional, policy and practice) innovations required to enable their large scale adoption and use. Because such a process towards wide-spread innovation generally takes many more years than one project cycle allows for, each of the projects studied in the field mission builds upon previous projects or will be continued by other funders (PAQOCHA, IssAndes, SIFOR-*Parque de la Papa*, CIP's Genetic resources conservation). However, DEVCO and RTD R&I financing modalities appear to lack systematic thought on how to support such longer term, interlocking research, technological and social innovation efforts to create development impact far beyond the research itself. In addition, they seem to lack flexibility and adaptability in supporting the technological, commercial, institutional and policy innovation processes that, by their very nature, have to adjust regularly to the lessons they learn. In practice, therefore, a mismatch exists between the long-term impact pathway necessary for bringing R&I programmes to yield development impact (often ten or more years) and, the intervention logic implicit in EU project identification, preparation or tendering guidelines and procedures (4-5 years). This mismatch further underscored by the EU policy of not even funding very successful projects for two successive periods.

With regard to the EU external relations services' capacities to support R&I in partner countries, including the conduct of R&I policy dialogue, the evidence suggests that there is this capacity at the EUD is limited, while at the same time the large majority of development projects it manages contain R&I components, including multi-stakeholder policy dialogues. Also, there appears to be a lack of investment or even dis-investment in systematising and sharing lessons learned (for example, communication support to DEVCO projects has been cut). The innovative approach to sector budget support with EUROPAN is an exception and has benefited from active facilitation, communication and policy support from the EUD, which contributed to the broad impact of its institutional and policy innovations. Programme implementation was supported by a permanent policy dialogue, including a joint monitoring of the efficiency of the system as a whole together with the MEF. However, according to the EUD in most projects the EU is seen simply as a donor and the EU capacity to influence policies is underutilised. Besides, some evidence suggests the EUD lacks capacity to monitor the projects, particularly those with a regional coverage. And, according to some sources, it has little or no presence in technical meetings for example with MINAM, a ministry that calls regular expert meetings with development partners on environmental issues.

7 Annexes

7.1 Annex 1: List of people interviewed

EU Delegation

Name	Position	Institution
Gallard, Patrick	Attaché	Delegation of the European Union to Peru
Garcia, Tatiana	Responsible of Food Security projects	Delegation of the European Union to Peru
Velarde, Victor	Responsible of Higher Education scheme	Delegation of the European Union to Peru

Government

Name	Position	Institution
Canales, Luis	Responsible for the EU project portfolio	Peruvian Agency of International Cooperation
Cornejo, Celia	Head of the Planning and Evaluation Management	Innovate Peru
Huamanchumo, Cecilia	Head of the Development Unit	FONDECYT
Quijandría, Benjamin	Director of the National Program of Agrarian Innovation	National Institute of Agrarian Innovation
Solis, José Luis	Responsible for the National Programme of Science and Technology	CONCYTEC
Tapia, Lourdes	Specialist of the Direction of Policies and Programmes	CONCYTEC
Wiener Fresco, Hugo	Executive Director	FONDECYT

Universities

Name	Position	Institution
Vasquez, Enrique	Director of Innovation and Development	Universidad Pacífico
Zamudio, Carlos	Director of Research, Science and Technology	Universidad Peruana Cayetano Heredia

Research organisations

Name	Position	Institution
Cornelius, Jonathan	Regional Coordinator for Latin America	World Agroforestry Center
Devaux, André	Regional Director Latin America	International Potato Center
Ellis, Dave	Head of Genebank	International Potato Center
Kreuze, Jan	Coordinator of QBOL and QDETECT	International Potato Center
Kromann, Peter	Head of Virology	International Potato Center
Larson, Anne M.	Principal Scientist	CIFOR
Mathez, Sarah-Lan	Senior Research Fellow	World Agroforestry Center
Ordinola, Miguel	Coordinator of the IssAndes Project	International Potato Center
Quiroz, Roberto	Research Scientist and Leader	International Potato Center

Civil society and NGOs

Name	Position	Institution
Argumedo, Alejandro	Director of Programmes	ANDES
Carrasco, Alfonso	Director	Soluciones Prácticas
Febres, Maria	Specialist in Rural Development and Programme Management	IICA
Marcelo, Oliver	Coordinator of the Programme “Alianza, Energía y Ambiente”	IICA
Mavila, Manuel	Coordinator of the Programme “Manejo Forestal Sostenible”	IICA
Montero, Roberto	Programme Manager Production Systems and Market Access	Soluciones Prácticas
Pacheco, Rolando	Coordinator of the Project “Willay”	Soluciones Prácticas

7.2 Annex 2: List of documents consulted

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- Villanueva, P. and Montero (2014). *Hacia la configuración de sistemas locales de innovación con inclusión: la experiencia de los kamayoq en el sur andino.*

Country Note – South Africa

By Landis MacKellar and Philip Browne on field mission from 23-27 November 2015.

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List of Acronyms

ACP	African, Caribbean, and Pacific
AIDS	*Acquired immune deficiency syndrome*
AMA	Astronomy Management Authority
ART	Anti-retroviral therapy
ASSAf	Academy of Science of South Africa
AU	African Union
BRICS	Brasil, Rusia, India, China y Sudáfrica
CRIS	Common RELEX Information System
CSIR	Council for Scientific and Industrial Research
CSP	Country Strategy Paper
DCI	Development Cooperation Instrument
DEVCO	Directorate-General Development and Cooperation/EuropeAid
DG	Directorate-General
DST	Department of Science and Technology
EC	European Commission
ECDPM	European Centre for Development Policy Management
EDF	European Development Fund
EIB	European Investment Bank
ENPI	European Neighbourhood Policy Instrument
EnvCC	Environment and Climate Change
EQ	Evaluation Question
ERA	European Research Area
EU	European Union
EUD	EU Delegation
EUR	Euro
FANRPAN	Food, Agriculture and Natural Resources Policy Analysis Network
FP7	7th Framework Programme for Research and Technological Development
FSNA	Food Security, Nutrition and Agriculture
GDP	Gross Domestic Product
GERD	Gross domestic expenditure on research and development
HIV	*human immunodeficiency virus*
HSRC	Human Sciences Research Council
ICT	Information and communication technologies
IPV	Intimate Partner Violence
JC	Judgement Criterion
MDG	Millennium Development Goal
MESA	M*onitoring* for *Environment* and Security in Africa)
MIP	Multiannual Indicative Programme
MNCHW	Maternal, newborn, child and women's health
MS	Member State
NACI	National Advisory Council on Innovation
NDP	NDP-2030
NGO	Non-governmental organisation
NIP	National Indicative Programme
NIPMO	National Intellectual Property Management Office
NRDS	National Development Research Strategy
NRF	National Research Foundation
NSI	National System of Innovation
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
PCD	Policy Coherence for Development
PHC	Primary Health Care
PhD	Philosophy Doctor
PRIAP	the Permanent Register of Interested and Affected Parties
RTD	Directorate-General for Research & Innovation

SA	South Africa
SAASTA	South African Agency for Science and Technology Advancement
SAfECCS	South Africa-Europe Cooperation on Carbon Capture and Storage
SANSA	South African National Space Agency
SATuRN	South African Treatment and Resistance Network
SBS	Sector Budget Support
SET	Science, engineering and technology
SISS	Science, Information Society and Space
SME	Small and medium sized enterprises
SP	Strategic Partnership
SPSP	Sector Policy Support Programme
STI	Science, technology and innovation
TDCA	Trade, Development and Co-operation Agreement
TIA	Technology Innovation Agency
ToR	Terms of Reference
TYIP	Ten-Year Innovation Plan
UCT	University of Cape Town
UK	United Kingdom

Note: The Evaluation uses the common acronym "**EC**" to refer to either the "Commission of the European Union" (post-Lisbon Treaty) or the "European Commission" (pre-Lisbon Treaty), as applicable.

1 Introduction

1.1 Mandate, scope and purpose of the evaluation

As spelt out in the Terms of Reference the general objectives of this evaluation are:

- To provide the relevant external cooperation services of the EU and the wider public with an independent assessment of the support provided to research and innovation for development over the period 2007-2013;
- To identify key lessons and forward-looking recommendations.

The thematic scope of the evaluation encompasses the EU support to Research and Innovation (R&I) in four key sectors: (i) Food Security, Nutrition and Agriculture (FSNA), (ii) Health, (iii) Environment and Climate Change (EnvCC), and (iv) Science, Information Society and Space (SISS) (henceforth "thematic sectors")

The specific objectives of this evaluation are to provide an overall judgement on the extent to which the EU development co-operation policy has adopted a strategic approach to support R&I in the thematic sectors, and whether the approach was appropriate to enhance capacity to reach development objectives in these fields. Moreover, the ToR specify that the conclusions and lessons learned are expected to specifically address areas of particular interest, namely:

- The support provided to capacity building in partner countries;
- The level of the transfer of research results into social or economic processes likely to impact on poverty reduction in the longer term;
- The appropriateness of instruments and modalities made available; and
- The approaches, notably *country* versus *regional* support, or *direct* support to research versus *indirect* support through sectoral programmes that include research components.

The legal scope of the evaluation is delineated by the activities supported by the European Commission's Directorate-General Development and Cooperation/EuropeAid (DEVCO) through its cooperation instruments: the European Development Fund (EDF), the Development Cooperation Instrument (DCI) – both geographic and thematic budget lines – and European Neighbourhood Policy Instrument (ENPI).

While the Directorate-General for Research & Innovation (RTD) implements activities supporting R&I in developing countries, its policies, strategies, programmes and activities are not included in the scope of the evaluation and hence not the object of in-depth analysis here. They are, however, considered from a contextual point of view, and analysed from a complementarity and synergy perspective, together with, for instance, the activities of EU member states, other donors or multilateral organisations.

The temporal scope of the evaluation is the period of 2007-2013 which corresponds to the last EU multi-annual budget period and to that of the 10th EDF. Equally this is the period of RTD's Seventh Framework Programme (FP7).

1.2 Purpose of the note

The ten Country Notes for this evaluation serve to provide a national level view of what DG DEVCO support to R&I entails on the ground. They validate and expand the documentary analysis using the evidence collected during the field mission and the individual responses of EU Delegations (EUDs) to the online survey.

The Country Note is structured as follows. The introduction in Section 1 explains the rationale for the choice of the country. Section 2 outlines the methods use. Section 3 spells out the country context for DEVCO support to R&I and Section 4 provides an overview of the key DEVCO interventions. Section 5 presents the field mission findings for each EQ. These findings are categorised for each sector, per JC and per geographic level (national, regional, global) as far as applicable. Section 6 draws out any overall conclusions about the EU's cooperation on R&I with the country concerned.

The dates of the mission to South Africa were: 23-27 November 2015. The mission was conducted by: Landis MacKellar (team leader) and Philip Browne (national consultant). The team would like to thank those who took time to meet with them and particularly Natalyia Dolya of the EU Delegation.

1.3 Reasons for selecting this country for the Field Phase

South Africa was selected because:

- It was a major recipient of DEVCO support for R&I as well as a very successful participant in FP7 and Erasmus Mundus.
- Projects were identified in all major thematic areas.
- It was one of the few African countries with a Science & Technology Agreement with the EU.
- Unique in Africa, South Africa benefited from a DCI-financed Sector Budget Support Programme in the Department of Science and Technology.
- While there was no Science and Technology Counsellor, there was a programme officer responsible for the S&T portfolio in the EU Delegation. In addition, South Africa benefited from about 20% of the time of Mr Stéphane Hogan, Science and Technology Counsellor working out of the EUD in Addis Ababa.

1.4 Gaps of evidence addressed in the country

A number of issues identified at Desk stage were slated for further investigation. One was the impact of the SBS programme on the Department of Science and Technology (DST) – particularly the extent to which it built capacity to participate in FP7 and its impacts in terms of innovation leading to development results. The large number of FP7 projects offered an opportunity to examine whether and how FP7 research was translated into applications that entered into development process and led to concrete impacts, and how it was aligned with DEVCO support. Coordination between FP7 and DEVCO support to R&I was an issue, as was the extent to which sector SBS programmes contributed to R&I. Since some South African institutions had benefited from both DEVCO R&I support and FP7, South Africa offered a chance to compare and contrast institutional experience with these two sources of support. The impact of DEVCO R&I on the capacity, visibility, international networking, etc. of South African scientists. It was hoped to learn more about how R&I results were incorporated in policy dialogue and how DEVCO encouraged the take up of results.

2 Data collection methods used (including limits and constraints)

The mission consisted of interviews with

- Commission staff in the EUD;
- Staff at South African research institutions who were involved in DEVCO-supported R&I activities;
- Principal Investigators who had been recipients of FP7 grants;
- Officials at the Department of Science and Technology and the National Research Foundation.

At the beginning of the mission, the consultants were able to participate in a regular coordination meeting of the EUD programme officer responsible for S&T, Mr. Stéphane Hogan, the Science Counsellor from Addis Ababa, as well as Science Counsellors from a number of Member States (as well as the U.S. and Canada), an official from DG Connect in Brussels, and a South African institutions engaged in R&I. While it was not possible to meet directly with representatives of the private sector due to time constraint, the consultants heard a presentation from the Technology Innovation Agency on experience in providing risk capital to encourage SMEs to engage in innovation. The process by which government agencies are encouraged to apply new technologies in poverty alleviation was extensively discussed with officials of the Department of Science and Technology.

3 Country context

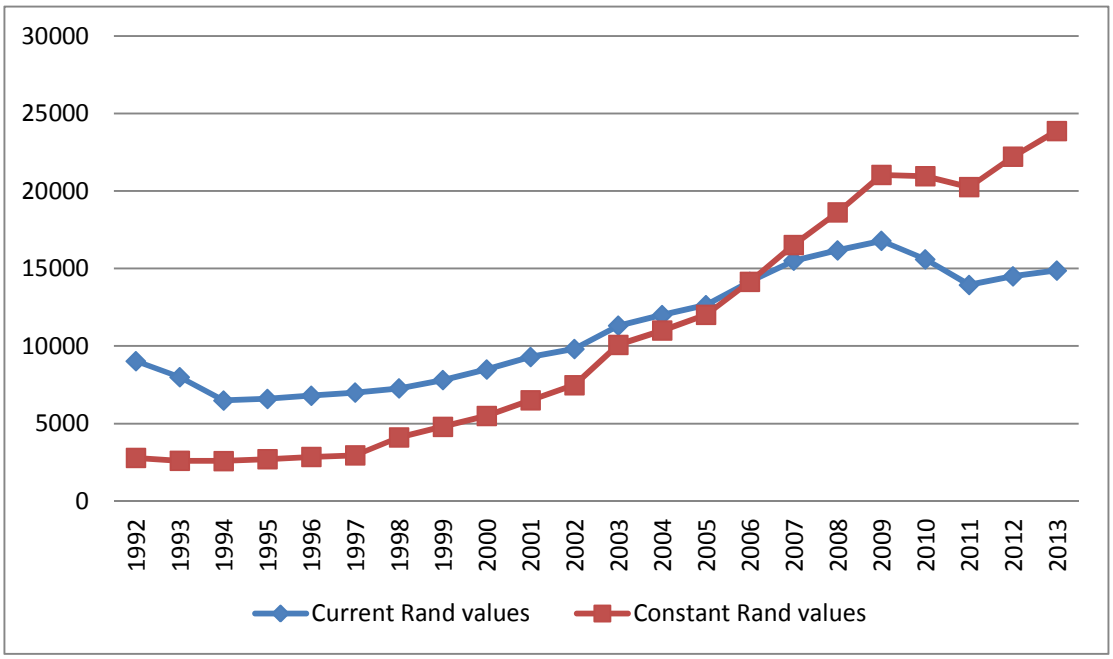
3.1 Overall description of country political, legal, and development context in relation to Research and Innovation (context in which the EU intervenes)

3.1.1 R&I situation in the country

The Government of South Africa has consistently prioritised Research and Development (R&D) and recognised its significant role in generating long-term growth in the economy. Government has sought both to accelerate technological advances and innovation and to ensure a wider dispersion of new and existing technologies. Gross domestic expenditure on R&D (GERD) as a percentage of GDP is used as a proxy for measuring R&D intensity in an economy. In 2009, after consistent increases in R&D expenditure since 2001, South Africa's ratio of expenditure to GDP fell to below 2005 levels, as reflected

in Figure 1 below. Business enterprises (the biggest contributors to GERD) accounted for just over 53% of total R&D expenditure in 2009, falling from close to 58% in 2006. This fall in the share of expenditure by business enterprises is probably as a result of the impact of the global economic crisis and explains the overall decline in R&D expenditure, as a percentage of GDP, in South Africa. The most recent statistical report on national research expenditure shows that South Africa's gross domestic expenditure on R&D (GERD) amounted to R23.871 billion at current Rand value in 2012/13 . This represented a nominal increase of 7.5% from the R22.209 billion recorded in 2011/12. This is the second consecutive year that GERD has increased. At constant 2005 Rand value, GERD amounted to R14.878 billion in 2012/13, representing a real increase of 2.6% from 2011/12. The long-term trend shows that South Africa has almost treble its R&D expenditure in real terms since the 1990s.

Figure 1 GERD in Current and Constant 2005 Rand Value (Million), South Africa, 1991/2 to 2012/13



Source: South African National Survey of Research and Development, 1991/92 to 20102/13

South Africa's overall expenditure on R&D exceeds that of many developing countries but compares poorly with other BRICS countries (with the exception of India) and lags greatly in terms of investments in R&D made by developed countries. In addition, countries such as Brazil, Russia and China (as well as many other developing and developed countries) have all seen a rise in the percentage of GDP spent on R&D between 2007 and 2009, despite the negative effects of the global financial crisis. The Government's Programme of Action (2015) sets a target for GERD at 1.5% of GDP by 2019.

While South Africa has experienced declining expenditure on R&D since the global financial crisis (reflected in falling a R&D expenditure ratio between 2008 and 2009), the country has nevertheless made significant advances in scientific research in key sectors that are particularly relevant to South Africa's development, including advances in biomedical stem cell technology, information security (fingerprint technology) and the development HIV/AIDS pharmaceuticals.

The Department of Science and Technology (DST) formulated its Ten-Year Innovation Plan in 2008, which introduced strategic R&D programmes in key technology areas, including the bio-economy sector, space science and technology, energy security, environmental sustainability and human and social dynamics. The plan also provided targets for investment in innovation and R&D. These included increasing expenditure on R&D to 2% of GDP by 2018, a substantial increase in patent registrations, and increasing South Africa's share of global research outputs from 0.5% in 2002 to 1% by 2018. While these targets were formulated prior to when the full effects of the global crisis could be understood and felt, they nevertheless provide an important benchmark for South African innovation policy. The National Development Plan-2030 builds on these targets and provides further proposals for improving South Africa's national research and innovation system. These proposals largely align with the weaknesses highlighted in the OECD's peer-review of South Africa's National System of Innovation (NSI) in 2007 and include:

- Enhancing linkages and cooperation between education institutions, state-owned enterprises and the private sector with regard to R&D and innovation;
- Improving mathematics and science outcomes at primary and secondary schooling level;
- Improving linkages and coordination within and between higher education institutions and other R&D institutions and providing a more stable funding model for education institutions conducting research and innovation development;
- Ensuring sufficient funding for research and research capacity is provided to transform the demographic composition of researchers and to support the emergence of young, female and black researchers;
- Relaxing immigration requirements for highly skilled science and mathematics professionals, including teachers, and ensuring that a suitable investment climate is provided to encourage and allow the private sector to compete effectively and innovatively both at a local and international level;
- Developing world-class centres and programmes, such as the Square Kilometre Array project, especially in areas where South Africa may have a comparative advantage;

Science and technology advancement in South Africa is supplemented by cooperation agreements with bilateral and multilateral development partners. Net ODA received in South Africa was measured in 2015 at 0.4% of Gross National Income according to the World Bank's World Development Indicators. South Africa is not reliant on ODA to any significant extent, so that the real value of ODA lies in its ability to provide solutions and means that leverage South Africa's own national resources more effectively, with implications for transfer of knowledge, best practices and embedding innovative approaches. South Africa has identified five specific areas of ODA:

- Innovation: developing new and more effective approaches;
- Piloting and testing: pioneering new approaches for replication purposes;
- Risk mitigation: creating an enabling environment thereby attracting investment in SME initiatives;
- Catalytic initiatives / best practices: unlocking domestic resources and activate potential;
- Skills transfer and address capacity gaps: ensuring that South African institutional capacity is enhanced for sustained long-term implementation.

The National Development Plan (NDP)-2030 highlights the fact that the National System of Innovation is about networks and partnerships.

3.1.2 R&I national policies, legal framework

Every post-apartheid administration since 1994 has placed a strong emphasis on Science and Technology / Research and Innovation as drivers of economic and social development. Government has also ensured that a comprehensive legislative, policy and strategy framework is in place to facilitate R&I. As the government body responsible for the science and technology sector the work of the Department of Science and Technology (DST) is guided by major policy documents, including the *White Paper on Science and Technology* (1996), the 2002 *National Development Research Strategy (NRDS)*, the *New Strategic Management Model for South Africa's Science and Technology System* (2004) and the 2007 *Ten-Year Innovation Plan (TYIP)*.

As set out in the *White Paper*, the DST is tasked with developing, coordinating and managing the National System of Innovation (NSI), which aims to strengthen human capital, foster sustainable economic growth and improve quality of life. In this context the DST is responsible for ensuring coordination and integration, as well as better management of all government-funded science and technology institutions, and to provide a holistic overview of public expenditure on science and technology. The DST funds basic research at universities and public entities, including science councils, so that they can train scientists, engineers and technologists and produce publications and patents. The DST is the custodial coordinator for the development of the NSI and influences this system through key strategies such as the *NRDS* and the *TYIP*. The latter, particularly, seeks to contribute to the transformation of the South African economy into a knowledge- based economy, in which the production and dissemination of knowledge will lead to socio- economic benefits and enrich all fields of human endeavour.

The *White Paper on Science and Technology* (1996) set out an early understanding of the centrality of R&D to national development, noting that the development and application of science and technology within a national system of innovation (NSI) in South Africa would be central to the success of the *Growth and Development Strategy (GDS)* articulated by the first post-apartheid administration. In 2000 the then Ministry of Arts, Culture, Science and Technology launched the *National Research and Tech-*

nology Foresight project to identify emerging technologies and market opportunities that could benefit South Africa, with the outputs of the study being used to guide government departments in the funding of critical areas of research and technology development.

The DST's *Innovation Towards a Knowledge-Based Economy – Ten Year Plan for South Africa (2008-2018)* was developed to drive South Africa's transformation towards a knowledge-based economy in which the production and dissemination of knowledge would, over time, increase the proportion of national income derived from knowledge-based industries, the percentage of the workforce employed in knowledge-based jobs and the ratio of firms using technology to innovate[112].

The *National Development Plan-2030* highlights the centrality of science, technology and innovation (STI) to national development and notes that developments in STI fundamentally alter the way people live, communicate and transact, with profound effects on economic growth and development[113]. STI is critical for equitable economic growth as it underpins economic advances and improvements in health systems, education and infrastructure. The *NDP-2030* argues that countries that are able to tackle poverty effectively by growing their economies are characterised by strong STI, but acknowledges that economic development takes time and that innovation should grow in an incremental manner. As an example of the long-term view that characterised DST by the end of the evaluation period, in its *Strategic Plan for the Fiscal Years 2015-2020* DST translated the *NDP-2030* focus on three phases of innovation into three phases for growth. In the first phase (2012–2017), the focus will be on "intensifying research and development spending, emphasising opportunities linked to existing industries". In the second phase (2018–2023), the "country should lay the foundations for more intensive improvements in productivity", and "innovation across state, business and social sectors should start to become pervasive". As 2030 approaches, "the emphasis should be on consolidating the gains of the second phase, with greater emphasis on innovation, improves productivity, more intensive pursuit of a knowledge economy, and better utilisation of comparative and competitive advantages in an integrated continent."[114]

The science, technology and innovation landscape is framed within a legislative architecture that seeks to promote research and development. The DST itself is governed by a comprehensive set of legislative mandates listed in Box 1 below.

[112] Innovation Towards a Knowledge-Based Economy Ten-Year Plan for South Africa (2008 – 2018), 2007, p. iv
[113] National Development Plan-2030, p. 24.
[114] Department of Science and Technology, Strategic Plan for the Fiscal Years 2015-2020, p. 6.

Box 3 Legislative mandates of DST

- Intellectual Property Rights from Publicly Financed Research and Development Act, 2008 (Act 51 of 2008): Provides for the more effective use of intellectual property emanating from publicly financed research and development, through the establishment of the National Intellectual Property Management Office (Nipmo), the Intellectual Property Fund, and offices of technology transfer at institutions;
- Technology Innovation Act, 2008 (Act 26 of 2008): Intended to promote the development and exploitation in the public interest of discoveries, inventions, innovations and improvements, and for that purpose establishes the Technology Innovation Agency (TIA);
- South African National Space Agency (Sansa) Act, 2008 (Act 36 of 2008): Establishes the Sansa to promote space science research, cooperation in space-related activities, and the creation of an environment conducive to the development of space technologies by industry;
- Natural Scientific Professions Act, 2003 (Act 27 of 2003): Establishes the South African Council for Natural Scientific Professions, and legislates the registration of professional natural scientists, natural scientists-in-training, natural science technologists and natural science technologists-in-training;
- National Research Foundation (NRF) Act, 1998 (Act 23 of 1998): Establishes the NRF to promote basic and applied research, as well as the extension and transfer of knowledge in the various fields of science and technology;
- National Advisory Council on Innovation (Naci) Act, 1997 (Act 55 of 1997): Establishes the Naci to advise the Minister of Science and Technology on the role and contribution of science, mathematics, innovation and technology in promoting and achieving national objectives;
- Human Sciences Research Council (HSRC) Act, 2008 (Act 17 of 2008): Provides for the HSRC, which carries out research that generates critical and independent knowledge relative to all aspects of human and social development;
- The Scientific Research Council Act, 1988 (Act 46 of 1988): Refers to the activities of the Council for Scientific and Industrial Research (CSIR), one of the leading scientific and technological research, development and implementation organisations in Africa, which undertakes directed research and development for socio-economic growth in areas including the built environment, defence, the environmental sciences, and biological, chemical and laser technologies;
- Astronomy Geographic Advantage Act, 2007 (Act 21 of 2007): Provides for the preservation and protection of areas in South Africa that are uniquely suited to optical and radio astronomy, and for intergovernmental cooperation and public consultation on matters concerning nationally significant astronomy advantage areas;
- The Science and Technology Laws, Amendment Act, 2014 (Act 7 of 2014) seeks to, among other things, streamline the process for the nomination and appointment of members of the boards or councils of such entities as well as the filling of vacancies on the boards;
- The Geoscience Amendment Act, 2010 (Act 12 of 2010), amends the Geoscience Act, 1993 (Act 100 of 1993), to mandate the Council for Geoscience to be the custodians of geotechnical information; to act as a national advisory authority in respect of geohazards related to infrastructure and development; and to undertake exploration and prospecting research in the mineral and petroleum sectors;
- Sanren, which is responsible for the roll-out of a high-speed broadband network to all academic and research institutions in the country, was awarded a private electronic communications network licence exemption under the Electronic Communications Act, 2005 (Act 36 of 2005).

The *White Paper on Science and Technology* approved by Cabinet in 1996 established a policy framework for science and technology in South Africa based on the concept of a National System of Innovation (NSI). The White Paper also set out the institutions to be established to promote the development of a well-functioning NSI. These were to be the national Ministry and DST, the National Advisory Council on Innovation, the National Research Foundation (NRF), the Innovation Fund, and national research facilities managed by government. A prime objective of the NSI was to enhance the rate and quality of technology transfer from the science, engineering and technology sector by providing quality human resources, effective hard technology transfer mechanisms, and creating more effective and efficient users of technology in the business and government sectors.

South Africa's *National Research and Development Strategy (NRDS)* was introduced in 2002 and was premised on the three pillars of innovation that encompassed science, engineering and technology (SET) human resources and transformation, and creating an effective government S&T system. The *NRDS* emphasised the importance of establishing a robust NSI that would constitute a set of functioning institutions, organisations and policies that interact constructively in the pursuit of a common set of social and economic goals and objectives, and that use the introduction of innovations as the key promoter of change[115]. The *NRDS* aimed at being a key enabler of economic growth alongside other strategies, such as the *Human Resource Development Strategy*, the *Integrated Manufacturing Strategy* and the *Strategic Plan for South African Agriculture*.

[115] South Africa's National Research and Development Strategy, 2002, p. 19.

In 2008 the DST produced its Ten-Year Innovation Plan (2008-18), which identified five "grand challenges": biotechnology and pharmaceuticals, space, energy security, climate change, and understanding of social dynamics[116]. These are in line with South Africa's technological advantages, dependence on coal and many social challenges. The *TYIP* was aimed at contributing to establishment of a knowledge-based economy for South Africa in which the production and dissemination of knowledge lead to economic benefits and enrich all fields of human endeavour[117]. The missions and platforms under the NRDS were expanded under the *TYIP* to include major initiatives in space science and technology, energy security, human and social dynamics in development, global change, and the bio-economy. The *TYIP* also set long-term goals based on the grand challenges it identified. They included:

- Becoming one of the top three emerging economies in the global pharmaceutical industry, based on innovative use of South Africa's indigenous knowledge and rich biodiversity;
- Deploying satellites that provide a range of scientific, security and specialised services for all spheres of government, the public and the private sector;
- Achieving a 25% share of the global hydrogen and fuel cell market with novel platinum group metal catalysts;
- Becoming a world leader in climate science and responding effectively to the multiple challenges associated with global and climate change;
- Meeting the 2014 millennium development goal to halve poverty.

In the *TYIP* the DST specifically highlights the linkages between underdevelopment and scope of science and technology to make a significant contribution in addressing challenges such as chronic poverty, unemployment and inequality. The TYIP stresses the need for improved, science-based information to direct development-oriented decision-making and references the global consensus that science and technology can play a growing role in addressing socioeconomic problems[118]. To address the fragmentation in the STI sector and issues of scalability the *TYIP* established the Technology Innovation Agency (TIA) geared to establishing a network of competence centres focused on market opportunities in partnership with industry and public research institutions.

3.1.3 R&I institutional framework (who does what)

The Department of Science and Technology (DST) derives its mandate from the 1996 *White Paper on Science and Technology*. The basic premise is that science, technology and innovation (STI) play a critical role in economic growth and socioeconomic development. The DST is mandated to promote South African science and innovation by funding Research and Development (R&D) at public research institutes and universities. The DST also has the powers to establish new institutions and support instruments for STI within the context of strengthening knowledge intensive activity within the South African economy and addressing the country's triple burden of poverty, unemployment and inequality. The DST implements the national research and innovation agenda through the architecture of ten entities that report directly to the Minister of Science and Technology, which are listed in the table below.

Table 9 Entities reporting to Ministry of Science and Technology

Entity	Mandate and Function
Council for Scientific and Industrial Research (CSIR)	The CSIR generates and applies knowledge in domains such as biosciences, the built environment, defence, peace, safety and security; materials science and manufacturing; and natural resources and the environment. The CSIR houses specialist research facilities of strategic importance for African science. These include information and communications technology (ICTs); laser technology, and space-related technology. Research and development activities include intellectual property management, technology transfer (for commercial gain as well as for social good), knowledge dissemination and impact assessment.
Human Sciences Research Council (HSRC)	The HSRC conducts large-scale, policy-relevant, social-scientific projects for public-sector users, non-governmental organisations and international development agencies. This is done in partnership with researchers globally, but specifically in Africa. The HSRC serves as a knowledge hub to bridge the gap between research, policy and action; thus increasing the impact of research. The HSRC's six multidis-

[116] OECD, Science, Technology And Industry Outlook 2012, p. 380.
[117] Department of Science and Technology, Innovation Towards a Knowledge-Based Economy: Ten-Year Plan for South Africa (2008 – 2018), p. iv.
[118] Ibid. pg. 24.

Entity	Mandate and Function
	ciplinary research programmes are:) Education and skills development;) Economic performance and development;) Population health;) Health systems and innovation;) HIV and AIDS, sexually transmitted infections and tuberculosis;) Democracy, governance and service delivery;) Human and social development.
National Advisory Council on Innovation (NACI)	NACI advises the Minister of Science and Technology on the role and contribution of innovation in promoting and achieving national objectives, namely to:) Improve and sustain the quality of life of all South Africans;) Develop human resources for science and technology;) Build the economy;) Strengthen the country's competitiveness in the international sphere.
National Research Foundation (NRF)	As an independent government agency, the NRF promotes and supports research in all fields of knowledge. It also conducts research and provides access to national research facilities. The NRF provides services to the research community, especially at higher education institutions and science councils, with a view to promoting high-level human capital development. The NRF aims to uphold excellence in all its investments in knowledge, people and infrastructure. The NRF consists of three divisions, namely:) Research and Innovation Support and Advancement Agency (Risa), which constitutes the research support and promotion agency of the NRF;) South African Agency for Science and Technology Advancement (Saasta); which provides and manages cross-cutting activities that advance science and technology in various communities in South Africa;) The national research facilities that undertake research in specific research fields.
South African National Space Agency (SANSA)	Sansa was created to promote the use of space and cooperation in space-related activities while fostering research in space science, advancing scientific engineering through the development of South Africa's human capital and providing support to industrial development in space technologies. The objectives of SANSA are to:) Promote the peaceful use of space;) Support the creation of an environment conducive to industrial development in space technology;) Foster research in space science, communications, navigation and space physics;) Advance scientific, engineering and technological competencies;) Capabilities through human capital development outreach programmes and infrastructure development;) Foster international cooperation in space-related activities.
Technology Innovation Agency (TIA)	The TIA was established with the objective of stimulating and intensifying technological innovation to improve economic growth and the quality of life of all South Africans by developing and exploiting technological innovations. Its core business objective is to support the development and commercialisation of competitive technology-based services and products. The agency primarily uses South Africa's science and technology base to develop new industries, create sustainable jobs and help diversify the economy. It invests in the following technology sectors: advanced manufacturing, agriculture, industrial biotechnology, health, mining, energy and ICT.
Academy of Science of South Africa (ASSAf)	The Academy of Science of South Africa (ASSAf) was formed in response to the post-1994 need for an academy of science that encompassed all fields of scientific enquiry and it included the full diversity of South African scientists. The Academy of Science of South Africa Act (Act 67 of 2001), as amended, came into operation in May 2002. ASSAf is the official national Academy of Science of South Africa and represents the country in the international community of science academies, with the following objectives:) To promote common ground in scientific thinking across all disciplines, including the physical, mathematical and life sciences, as well as the human, social and economic sciences;) To encourage and promote innovative and independent scientific thinking;) To promote the optimum development of the intellectual capacity of all people;) To provide effective advice and facilitate appropriate action in relation to the

Entity	Mandate and Function
	collective needs, opportunities and challenges of all South Africans; • To link South Africa with scientific communities at the highest levels, in particular within the Southern African Development Community, the rest of Africa and internationally.
South African Agency for Science and Technology Advancement (SAASTA)	The South African Agency for Science and Technology Advancement aims to advance public awareness, appreciation and engagement of science, engineering and technology in South Africa. SAASTA is a business unit of the National Research Foundation. The scope of SAASTA's activities include: • Building the quantity and quality of mathematics and science outputs at school level (developing SET human capital); • Raising the general interest in, engagement and appreciation of the public (and especially poorer communities) for the benefit of science (strengthening the SET culture); • Communicating science to South African citizens (bringing science and scientists closer to civil society).
Astronomy Management Authority (AMA)	AMA is the custodian of PRIAP, which is the Permanent Register of Interested and Affected Parties for the astronomy advantage areas. This is a statutory obligation for DST in compliance with the Astronomy Geographic Advantage Act, 2007. Parties listed in PRIAP must be consulted by the Astronomy Management Authority (AMA) or notified by the Minister of Science and Technology of certain intended actions to be taken in terms of the Astronomy Geographic Advantage Act.
National Intellectual Property Management Office (NIPMO)	The National Intellectual Property Management Office (NIPMO) was established in mid-2011 in terms of the Act to promote and manage the identification, disclosure and statutory protection, and management and commercialisation of the IP referred to it by a recipient of public R&D funds. NIPMO's aim is to ensure that recipients of funding from a government funding agency assess, record and report on the benefit to society of IP emanating from publicly financed R&D. Recipients must protect IP emanating from publicly financed R&D from appropriation and ensure that it is available to the people of South Africa. A recipient must identify commercialisation opportunities for IP emanating from publicly financed R&D.

While not dependent from the DST, another important entity is the Medical Research Council, a parastatal agency responsible for promoting and carrying out research related to health. Focusing on the top ten causes of death in South Africa, including HIV/AIDS and TB, the scope of this research encompasses basic laboratory research, clinical research, and public health and health systems research.

3.2 Description of EU strategic priorities for the country, especially in the areas of R&I and key thematic sectors

The CSP 2007-2013 identified three priority areas: promoting pro-poor, sustainable economic growth; improving the capacity and provision of basic services for the poor at provincial and municipal level; and promoting good governance. Among the non-focal sectors involving R&I are science and technology, sustainable resource management, and environmental protection including meeting the challenge of climate change and sound management of chemicals. Science and technology within the EU framework programmes and within development co-operation between the EU and South Africa had the aim of establishing science and technology capacity and enabling science-based interventions for poverty alleviation and economic growth promotion. In the MIP 2007-2013, the focal sectors were promoting employment and capacity development for service delivery and social cohesion; non-focal sectors were governance, regional and pan-African support, and facilities relating to the Trade, Development, and Co-operation Agreement. Aligning with Government strategies, science and technology, especially information technologies, were regarded as a major avenue for employment creation. R&D support to establish sustainable livelihoods, foster the spread of new technologies to Small and Medium Enterprises, and improve social inclusion was seen as a means of increasing the contribution of R&D to economic growth and sustainable development. HIV/AIDS was identified as a major cross-cutting issue.

EU support for R&I in South Africa has a long history. An agreement dedicated to co-operation in science and technology came into force in November 1997 and, as a result, South Africa was able to participate in EU Framework Programmes for research and technological development. In October 1999,

South Africa and the EU signed a Trade, Development and Co-operation Agreement (TDCA).[119] In 2006, the partnership framework was expanded through the establishment of a Strategic Partnership (SP)[120]. The TDCA and the SP covered, among other things, science and technology.

The EU has promoted R&I In the country through various means:

- An Sector Policy Support Programme (SPSP) focussed on "Innovation for Poverty Alleviation" (see box below);
- Research projects, training and capacity building activities in specific areas (e.g. agriculture, HIV/Aids, energy);
- Exchange of students via global mobility programmes;
- Policy dialogue.

Policy dialogue has received special emphasis under the SA-EU Trade, Development and Co-operation Agreement (TDCA), The TDCA provides the legal framework for the relations between the two parties and was designed to strengthen cooperation and pursue several key common objectives, including: strengthening dialogue between the parties, supporting South Africa in its economic and social transition process, the country's economic integration in southern Africa and in the world economy, and expanding and liberalising trade in goods, services and capital between the parties, toward a Free Trade Area. The agreement, which came into full force in 2004, is also governed by the Cotonou Agreement between the EU and ACP (African, Caribbean and Pacific) countries.

A number of "dialogue support projects" in the key areas of co-operation identified in the TDCA/SP were financed via the "TDCA Dialogue Facility" (*D-19592*). The Dialogue Facility was used to finance several projects (esp. studies and events to foster sharing of experience) which had a strong dimension on innovation and which involved academic institutions on both sides (EU and SA). For instance, the Dialogue facility financed the elaboration of a "Research Infrastructure Road Map"[121] (projects of 130,000 EUR, with as key partners: Department of Science and Technology (DST) on the SA side and RTD on the EU side). In 2013, DST (SA) and DG INNOV (EU) were considering launching (via the Dialogue Facility) an impact study on international research partnerships. Generally, R&I is a strong cross-cutting dimension is the whole EU portfolio and, as the SBS evaluation makes clear, informs all many areas of EU-SA dialogue. Dialogue support projects covered environment and sustainable development, health, green growth sustainable energy and more. DEVCO was directly involved in support to policy dialogue on national health insurance.

Dialogue has been particularly influenced by the clear priorities of the SA government, which is clearly interested in attracting know-how and, funds for policy experimentation. There is high level interest in government, academia, and the private sector for new methods, approaches, and exchange of experiences with other countries to feed the ongoing country-level debate. Many SBS-funded activities respond to government interest in piloting the outputs of their internal policy research processes. Factors underlying the strength of dialogue included a strong legal basis, a good S&T policy base in-country, the EU priority on "smart growth," the availability of EU research framework programmes, and good EUD capacity. Areas of mutually reinforcing interest were, on the SA side, interest in attracting funding, interest in accessing the best available knowledge, and interest in partnerships with global experts; on the EU side, the relatively strong research base in SA, geographic advantage in specific areas such as astronomy, and SA's interest in being a regional promoter of S&T. Challenges identified were lack of specific sector / thematic EUD expertise, limited availability of headquarter staff, the need to coordinate S&T with other sectors and relatively weak commitment from other African Union members.

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[119] The TDCA provides the legal framework for the relations between the two parties and was designed to strengthen cooperation and pursue several key common objectives, including: strengthening dialogue between the parties, supporting South Africa in its economic and social transition process, the country's economic integration in southern Africa and in the world economy, and expanding and liberalising trade in goods, services and capital between the parties, toward a Free Trade Area. The agreement, which came into full force in 2004, is also governed by the Cotonou Agreement between the EU and ACP (African, Caribbean and Pacific) countries.

[120] The Strategic Partnership is a special cooperation tool with countries outside the EU enlargement and neighbouring areas. There are ten country-level EU Strategic Partnerships so far, involving Brazil, Canada, China, India, Japan, Mexico, Russian Federation, South Africa, South Korea and United States. These are all countries with which EU has special relationships, due to their economic and political worldwide position and common interests.

[121] The DST was aiming to put in place policies to enhance the current SA post-doctoral applied research infrastructure so as to make it comparable to that found elsewhere (EU). The project aimed at facilitating a research study in SA by both EU and SA experts and formal exchanges involving the SA research infrastructure community and EU experts. The idea was to have an agreed "road map" for the next ten years to ensure an enhanced and competitive research infrastructure environment in South Africa.

The EU Research and Innovation Counsellor in Addis Abeba devotes about 20% of his time to dealing with EU-South Africa bilateral cooperation. He contributes to the implementation of the EU-South Africa bilateral cooperation agreement on Science and Technology, in particular to the preparation and follow-up of the EU-South Africa Joint S&T Cooperation Committee meetings, identifying opportunities and challenges for cooperation and promoting EU policy objectives. In addition, he promotes cooperation with Counsellors dealing with research and innovation issues in Member States' embassies/representations in South Africa.

4 Overview of EU-funded key interventions

Table 10 Overview of EU-funded key interventions in South Africa

#	Sector	Contract title	CRIS number	Contractor	Year	Total amount contracted (in EUR)
DEVCO support						
1	Health	Research and establish the role of educators in mitigating the impact of the HIV/AIDS epidemic on the educational system in South Africa	c-146639	CENTRE FOR EDUCATION POLICY DEVELOPMENT TRUST	2007	321,065
2	Health	Drug Resistance Surveillance and Treatment Monitoring Network for the Public Sector HIV Antiretroviral Treatment Programme in the Free State	c-147790	MEDICAL RESEARCH COUNCIL OF SOUTH AFRICA	2007	3,473,320
3	SISS	Research Support to the Limpopo Centre for LED	c-149433	CARDNO EMERGING MARKETS (UK) LTD	2008	186,176
4	Other	Sector Budget Support Implementation Contract for Innovation for Poverty Alleviation	c-158856	REPUBLIEK VAN SUID AFRIKA	2008	29,680,000
5	EnvCC	South Africa-Europe Cooperation on Carbon Capture and Storage (SAfECCS)	c-243909	NATURAL ENVIRONMENT RESEARCH COUNCIL	2010	431,124
6	Other	Support Services for the Identification of a Poverty Reduction Programme for South Africa	c-245924	ACE INTERNATIONAL CONSULTANTS SL	2010	168,993
7	Other	Innovation for Poverty Alleviation SBS Mid Term Review	c-270440	AGRECO GEIE	2011	116,670
8	Higher Education	Erasmus Munuds				
RTD support (FP7 projects)						
9	Health	*EMERALD:* Emerging mental health systems in low-and middle-income countries		University of Cape Town		
10	Health	*PREPARE:* Promoting sexual- and reproductive health among adolescents in southern and eastern Africa – mobilising parents, schools, and communities		University of Cape Town		
11	Health	*EquitAble* Enabling universal and equitable access to heath care for vulnerable people in poor resource settings (Stellenbosch)		Stellenbosch University		
12	EnvCC	*PREFACE:* Enhancing prediction of tropical Atlantic climate and its impacts		University of Cape Town		
13	SISS	*GeoNetCast*		Centre for High Performance Computing		

The above table starts with a list of all the contracts financed by DEVCO identified in the inventory for this evaluation. The second part of the table lists RTD-financed (specifically FP7) projects identified during the visit. In the context of graduation policy, it becomes increasingly important to have a com-

plete picture of RTD's work in South Africa so as to be able to understand the potential complementarity of any remaining support from DEVCO.

The field mission dealt with interventions # 2 and # 4, in addition to Erasmus Mundus (# 8) and the FP7 projects # 9 -13 Interventions.# 2 and # 3 represent two out of the three interventions (in addition to the Roadmap produced under the EU-SA Dialogue Facility, which will be discussed separately) identified by the EUD as the most important DEVCO-financed actions. Time constraints did not permit investigation of # 5 on carbon capture, but this is covered to some extent in the EUD survey response.

It became clear through the desk research and preparatory field work that South Africa presented a special opportunity to address questions regarding the relationship between DEVCO support and RTD's FP7. Two themes that were persistent in desk work were (i) that a major purpose of DEVCO support was (and should be) capacity building to enable partner countries' scientific establishments to participate in FP7 and Horizon 2020 and (ii) that RDT framework programmes, demand-driven via the Call for Proposals approach, were not sufficiently aligned to development priorities. South Africa, with a major capacity building programme via budget support to the DST as well as strong FP7 participation, offered a good opportunity to probe these questions further, not only in terms of EQ 4 strictly considered but in terms of broader questions.

Therefore, a number of FP7 projects were visited to address some of the points raised in the JCs (see Section 5). Selection of these was ad hoc. In view of limited field time, it was only practical to spend two days outside Pretoria, and the obvious choice was Cape Town because of the presence of the Medical Research Council there as well as two universities (Cape Town and Stellenbosch) and one research institute of the Centre for Scientific and Industrial Research (the Center for High Performance Computing) that were active FP7 participants. Further project selection was based on Principal Investigator availability and the desire to broaden thematic sector coverage to include.

Health sector

Project # 2: Drug Resistance Surveillance and Treatment Monitoring Network for the Public Sector HIV Antiretroviral Treatment Programme in the Free State

Description:

This project ran from 2007 to the end of 2013 and the lead implementing institution was the Medical Research Council of South Africa, a public institution. The original project region was Free State Province, South Africa and through the South African Treatment and Resistance Network (SATuRN), it extended to Gauteng and Kwa Zulu-Natal provinces and Botswana. The beneficiaries were existing public health services in the three provinces. Patients with virological failure and resistance criteria, and patients with co-morbid infection of HIV and Tuberculosis received clinical benefits of assessment and treatment recommendations from specialists. The project developed capacity, advised national programmes and provided a model for Southern Africa. The network monitored drug resistance and adherence through surveys and cohort studies and evaluated selected interventions.

The project financed a number of PhD studies by South African students and generated many scientific presentations and publications. Another primary objective under this Action was the development of the Southern African Treatment and Resistance Network (SATuRN), a collaborative network in South Africa and other countries in Southern Africa. SATuRN provided the core infrastructure and coordinating mechanism for a number of activities under this grant, including establishing the surveillance databases and mirror of the Stanford drug resistance database, the low cost genotyping methods, end user training, international collaborations and the research component.

Rationale:

South Africa and neighbouring countries of southern Africa suffer from HIV infection rates that are among the highest in the world. The fight against HIV/AIDS is a central government priority and is considered a cross-cutting theme in the EU's 2007-13 country strategy. With the passage of time and spread of Anti-retroviral Therapy (ART), drug resistance has become a major problem.

Findings:

According to the Principal Investigator, the project was prescient, because at the time that the project note was first transmitted to the EUD programme officer in charge of health, HIV drug resistance was not yet a major concern. In the same interview, it was confirmed that the project had provided direct clinical benefits to patients, developed a low-cost test for drug resistance that is currently in widespread use, carried out drug resistance testing, established at least one medical Centre of Excellence for the treatment of complex cases (at University of Free State), and purchased a certain amount of equipment, The importance of the low-cost test developed was particularly stressed by the health programme officer in the EUD.

The SATuRN network, strengthened and extended into Zimbabwe and Botswana is still in existence and functioning. A significant number of personnel were trained through SATuRN. Ties were formed between project researchers and researchers at Stanford University and London School of Hygiene and Tropical Medicine. Stanford is the global repository of genetic information on drug resistance and is a crucial resource for South Africa and its neighbours.

The project has made a major contribution to the efforts to tackle the problem. The regional SATuRN network is still in existence and functioning well.

Project #9: EMERALD – FP 7 305968 - Emerging mental health systems in low-and middle-income countries (University of Cape Town (UCT))

Description:

EMERALD was essentially a Health Systems Strengthening project with a mental health focus. Six countries were involved – Ethiopia, India, Nepal, South Africa, Uganda, and Nigeria. The lead European institution was King's College London. The substantive work packages were

- Capacity building for researchers, policy makers, and service users (Ethiopia);
- Health economics analysis: (i) costing the scaling up of services, (ii) household surveys in each country looking at economic costs of living with mental illness and economic benefits of receiving services (UCT);
- Processes of delivering mental health services;
- Information systems for mental health;
- Communication and dissemination of results.

The capacity building component involved:

- Policy makers - systematic review of training materials in each country, emphasis on WHO guidelines;
- Researchers - mapped existing Masters level teaching materials and adapted them to the six countries. Ten PhD students were supervised by EMERALD Principal Investigators;
- Users – surveyed users and their involvement in the policy process.

Rationale:

The Global Burden of Disease Project has long identified mental health problem and one that is drastically underfunded relative to the economic and social burden it imposes. This is particularly the case in African countries, where mental health services are largely unintegrated into primary health care systems. By estimating the economic costs of mental illness and the economic benefits of receiving treatment, as well as studying low-cost means of delivering care, the project addressed a radical lack of medications and psychosocial counselling on the continent.

Findings:

Based on an interview with the Principal Investigator at University of Cape Town, The project forged close ties with Ministries of Health in all six countries. At the last consortium meeting at UCT ministry representatives from all six countries participated. WHO worked with one person in each country to implement the costing tool developed. The cost and benefit analyses served as the basis for an article in *The Lancet* in 2011. Concrete benefits for South Africa were:

- Training materials for provincial health planners;
- Cost estimates related to scaling up of mental health services;
- Estimates of costs of living with mental illness and benefits of receiving treatment.

Project #10: PREPARE – FP7 241945 - Promoting sexual- and reproductive health among adolescents in southern and eastern Africa – mobilising parents, schools, and communities (UCT)

Description:

The purpose of this project was to develop research-based, culture- and gender-sensitive, sustainable, community-based interventions to promote sexual- and reproductive health among adolescents aged 12-14 years in southern and East Africa, with schools as the gateway for delivery. Four African (two South African, Tanzania, Uganda) and four European (Maastricht, Exeter, Bergen, Oslo) universities participated, with Berge serving as consortium leader. Innovations in the project included the way it addressed Intimate Partner Violence (IPV) and its use of a biomarker (H2SV).

Rationale:

The serious problem of HIV/AIDS has been discussed above. The project was consistent with priorities described under area 4.3.2.1 of the FP7 call – Strategies and interventions for improving repro-

ductive health. The linkage of IPV and sexual and reproductive health was founded on current understanding that initiation into sex and IPV are closely linked.

Findings:

Based on an interview with the Principal Investigator, the project developed user-friendly training materials far superior to those that were available previously and delivered teacher training, monitoring, and support. There was some initial resistance from the Department of Education at provincial level but this was overcome. Results are being taken up in South Africa, Uganda, and Tanzania. A number of PhD and Masters students were employed. A research paper describing project results is currently being drafted.

Project # 11: EquiTable – FP 223501 – Enabling universal and equitable access to heath care for vulnerable people in poor resource settings (Stellenbosch)

Description:

This project was active in 17 project sites in Namibia, Sudan, Malawi, and South Africa. The lead institution was Trinity College Dublin. Co-funding was provided by DST. Substantive work packages were:

- Policy analysis;
- Qualitative analysis of facilities;
- Quantitative surveys and development of a manual;
  - ⇓ Developed model and manual to quantitatively estimate vulnerability and access; taken up by a number of governments including Sudan;
- Dissemination:
  - ⇓ Aligned with Africa Decade for Disability (NGO reporting to African Union).

Rationale:

There is concern that, as countries develop, the disabled are being left behind. The heavy burden of disease from disability, a significant part of it attributable to trauma injuries, has been established by the Global Burden of Disease study. The South African case is unique because, in part the legacy of apartheid, disability grants have a long history. The perversity is that, since disability grants can provide an excellent income, there is now a substantial moral hazard problem and disability has become a significant drain on the social security system. Improved disability policies thus have a significant efficiency, as well as an equity, dimension.

Findings:

All partners worked with governments on attitudinal change. In South Africa, Department of Health not as closely involved as desired at the central level, but provincial participation was good. The project worked with central NGOs, for example, Disabled Persons of South Africa. In South Africa, the project financed three PhDs and a number of Masters. A significant portion of the funding that built capacity to apply for FP7 grants came from Norwegian NGOs.

EnvCC sector

Project # 12: PREFACE – FP 603521 - Enhancing prediction of tropical Atlantic climate and its impacts (UCT)

Description:

This is an extremely large project, EUR 10 million spread over 20 countries, ten of them in Africa. The goals of PREFACE were:

- To reduce uncertainties in our knowledge of the functioning of Tropical Atlantic climate;
- To improve climate prediction and the quantification of climate change impacts in the region;
- To improve understanding of the cumulative effects of the multiple stressors of climate variability, greenhouse induced climate change, and fisheries on marine ecosystems, and ecosystem services (e.g., fisheries, coastal vulnerability);
- To assess the socio-economic vulnerabilities and evaluate the resilience of Atlantic African fishing communities to climate-driven ecosystem shifts and global markets.

Rationale:

Tropical Atlantic climate recently experienced pronounced shifts of great socio-economic importance. The oceanic changes were largest in the eastern boundary upwelling systems. African countries bordering the Atlantic strongly depend upon their ocean - societal development, fisheries, and tourism. They were strongly affected by these climatic changes and will face important adaptation challenges associated with global warming. Furthermore, these upwelling regions are also of great climatic im-

portance, playing a key role in regulating global climate. Paradoxically, the Tropical Atlantic is a region of key uncertainty in earth-climate system: state-of-the-art climate models exhibit large systematic error, climate change projections are highly uncertain, and it is largely unknown how climate change will impact marine ecosystems.

Findings:

The project is at the stage of model development. While the project's basic goal is to improve ocean-atmosphere modelling in the context of climate change research, it deals with climate variability, as well, and improved models will make possible better predictions of African drought and improved management of fisheries. A decision was made to allocate 10% of funding to African partners, and these funds are financing professors' salaries and providing PhD bursaries. There have been summer schools and conferences in Cape Town. PhD students are fully integrated into international networks.

SISS sector

Project # 13: GeoNetCast - FP7 project - (Centre for High Performance Computing, DST)

Description:

The GeoNetCast project is an umbrella earth observation project which has spawned a number of applications designed to disseminate and apply satellite data. GeoNetCast is a near real-time, global network of satellite-based data dissemination systems designed to distribute space-based, air-borne and in situ data, metadata and products to diverse communities. GeoNetCast built internet capacity and also fed into private sector. Spinoff projects include DevCoCast, focusing on GeoNetCast applications for and by developing countries. The DevCoCast project plans to disseminate and support the use of environmental data to and from developing countries. Among the applications are monitoring brush fires and commercial fishing, both of significant for South Africa.

Rationale:

The family of projects around GeoNetCast aims to integrate developing countries in the fullest sense into applications of the latest earth observation satellite technology, both as users of information generated and as providers, as well. The Earth observation project involved Ghana, Namibia, Senegal, Tanzania, Plymouth Marine Lab and the Centre for High Performance Computing. Both basic research and application were involved.

Findings:

EAMNet (Europe-Africa Marine Net) sponsored training (pan-African Masters programme) and Europe-Africa exchanges. Countries in EAMNET were Ghana, Cote d'Ivoire, Mozambique, Tanzania, Uganda. Uder DEVCO Cast, focusing on empowering researchers, receivers were installed in universities and ministries. MESA (M*onitoring* for *Environment* and Security in Africa) provided data directly to governments. Ideally, both are accomplished at the same time. Using the technology developed, a study was produced on water quality in 50 African dams. The private sector becomes involved as a value added service provider for fisheries, etc. In India, for example, small fishermen are being fed data on where to fish.

Other

Programme #4: Innovation for Poverty Alleviation - Sector Budget Support to Department of Science and Technology

Description:

The EU supported the Department of Science and Technolgy (DST) of South Africa from 2008 to 2012 to implement the country's Science and Technology policy, with a particular focus on applied research that contributes to poverty alleviation through employment creation. The SPSP was based on the National Research and Development Strategy (NRDS) 2002, which builds on the White Paper and on the Ten Year Innovation Plan (TYIP) 2008-2018, approved in 2007 as the renewed S&T policy framework. These strategic documents are described above.

Goals of the SPSP were:

- Enhancing the development of sustainable livelihoods and sustainable economic development, including support to the Farmer-to-Pharma interventions and the development of the green economy;
- Improving human settlements with a focus on access to basic and social services;
- Developing, establishing and improving science, technology and innovation infrastructure, including Information and Communication Technology (ICT) services and applications (i.e. Information services, space applications and geographic information systems);

- Developing human capital, including the promotion of youth participation in science and technology;
- Improving South Africa's response to global environmental challenges, including biodiversity and climate change;
- Improving institutional capacity and regional collaboration.

Expected results were:

- Creation of sustainable jobs through science, technology and innovation interventions;
- Establishment of sustainable livelihoods through small-scale, S&T-based agro-processing and aquaculture industries in line with the bio-economy objectives of the sector;
- Enhancing human settlements through appropriate technologies for, among others, access to clean water, ICT and renewable energy;
- Support to SMEs in terms of technology demonstration;
- Improved access to on-line government services and S&T knowledge through applied ICTs;
- The development and improvement of global environmental science and response;
- Strengthening of the science sector.

Other results anticipated from the SPSP were promotion of science and technology amongst disadvantaged youth; improved access to on-line government services and S&T knowledge through applied ICTs; technology transfer to SMEs; strengthening of DST as an institution; and an increase in resources for S&T efforts targeting poverty reduction.

Rationale:

Sector Budget Support was to finance the testing of how S&T could alleviate poverty, including capacity building for that purpose. There was a specific allocation for policy dialogue. The stress placed by all post-apartheid governments on the potential for science and technology to alleviate poverty and reduce inequalities has been described in Section 3 above. In line with South African R&I strategy there was a focus on narrowing the gap between knowledge production and application. The comparative advantage of the DST for this SBS was its cross-cutting role and ability to engage relevant Departments, both at central and provincial level, to demonstrate and pilot promising technologies, whether financed by DEVCO, FP7, or other sources. It cannot only advise but provide training, as well. Officials interviewed stressed that the purpose of the SBS programme was never to build capacity for South African scientists to participate in FP7.

Findings:

The project is largely regarded as successful, although the EUD noted that, while DST is very strong, their emphasis on impact is still rather new and there is still need to bring in Departments better. The EU was of the view that DST now realises that innovation needs to be demand driven and is increasingly reaching out to the private sector. Based on the project Final Evaluation (not available at the Desk Phase) and field interviews with the EUD and DST, the project scored high on relevance and consistency with national priorities. Relevance at the grass-roots levels was not always guaranteed, because the basic model followed was that of technologies looking for an application rather than needs looking for a technology. There were some doubts over whether local government structures had been sufficiently engaged to ensure scaling and replication. In the Final Evaluation, it was found that the failure to better engage the private sector (as recommended in the Mid-term Review) impaired commercial and financial viability. However, in a number of field mission interviews, including at the EUD, it was stated that it is difficult to involve the private sector, in large part because of firms' reluctance to enter into multi-partner ventures. At the time of the Final Evaluation, thirteen specific subprojects had been completed, mostly related to livelihoods and job creation. Of these three were judged successful and six to have delivered limited results. Involvement of the private sector and strong partnership with Departments were held to be determinants of success.

Policy dialogue events, consisting of meetings organised between Government, EU, Member States (MS), and other stakeholders as well as five thematic conferences, were successful and well attended and documented.

Higher Education

Programme # 8: Erasmus Mundus

Description:

According to the EUD programme officer responsible, South Africa was a very strong participant in Erasmus Mundus. Action 1 financed Masters and PhDs, Action 2 (partially funded by a special alloca-

tion under the NIP) financed ties between South African and European universities, and Action 3 financed policy dialogue. Action 2 organised events, followed the process of consortium formation, and discussed problems of Historically Disadvantaged Universities with the Department of Education. However, it mainly concerned scholarship opportunities for staff and students. Over five years, some 780 scholarships were awarded, half for staff and one-quarter apiece for Masters and PhDs. The rule was that Historically Disadvantaged Universities had to be included. There was no problem at all secure staff participation.

Findings:

The EUD has been able to use Erasmus Mundus to forge stronger links with the Department of Education to address issues of internationalization of higher education. These issues found their way into policy dialogue and raised the profile and visibility of the EUD.

Broadly speaking, there is a shortage of good black PhD students in South Africa, in part because many forego further education after obtaining their Masters, whereupon they find employment in the public sector. Researchers interviewed also spoke poorly of the quality of secondary school science education outside the elite schools. DST and the National Research Foundation are attempting to address this deficit.

5 Field mission findings, by relevant EQ

The tables below with the field mission evidence for each EQ also include relevant evidence on the impact of RTD interventions. As explained above the South Africa-EU relationship in R&I is different from other developing countries. To understand the complementarity of DEVCO and RTD interventions in R&I it therefore becomes useful to look at the potential relevance of RTD contributions under each evaluation question. Moreover, to clearly distinguish between DEVCO and RTD interventions all findings related to RTD/FP7 are put in *italics*.

5.1 EQ 1: Development policy objectives

EQ 1 To what extent has EU support to R&I through DEVCO been successful in promoting the overall development policy objectives of the EU?	
JC 11 Link between R&I activities and EU development objectives (as per European Consensus and Agenda for Change – MDGs, etc.)	National level: - EU Sector Budget Support to the DST was consistent with the EC policy, programming framework and the aid effectiveness agenda, as laid out in the SA-EU Trade, Development and Co-operation Agreement (TDCA), the Development Co-operation Instrument (DCI), the "Communication from the Commission to the Council and the European Parliament: towards an EU-South Africa Strategic Partnership" (2006). - The other two major DEVCO projects (drug resistance, analysed here in some detail, and Carbon Capture, not analysed here) were fully consistent with the EU development agenda and commitments. - *All FP7 projects examined here, while not explicitly driven by a development agenda, had concrete applications for development in South Africa and the region. These opportunities were appreciated by the Principal Investigators and many examples of concrete take up were provided.*
JC 12 Extent to which R&I has informed sector policy dialogue and sector support at national and regional levels	National level: - According to the EUD, R&I stakeholders participated in the South Africa Green Summit which was, in turn, linked to the national climate response strategy and the Transition to Green Economy component of the South African National Development Plan 2030. The DEVCO-financed Climate Capture project had input into to EU-SA Working Group on Carbon Capture. - In health, there have been policy dialogues concerning universal health coverage and decentralisation of health services. In both cases, Government, the EUD, research organisations, and civil society were represented. R&I generated in the HIV/AIDS drug resistance project featured prominently in EU-SA health policy dialogue. - DST organised a policy dialogue "Science, Technology and Innovation for the Creation of Sustainable Livelihoods" in which Government, the EUD, and researchers participated. The results of this dialogue informed the DST 2015-20 Strategic Plan. - The Dialogue Facility has played an important role in supporting policy dialogue between South Africa and EU allowing to share experiences from the national R&I activities. - *Through FP7 funding EMERALD is a six-country consortium with Ethiopia, SA, Uganda, Nigeria, Nepal, India in collaboration with Kings College London. Six*

	work packages including management and administration, costing tools for scaling up package of services, calculating costs of living with mental illness, stakeholder engagement with government. M&E systems and dissemination of knowledge. In South Africa the EMERALD project has strong links with Department of Health policy makers, with a focus on strengthening health systems and working with the Department of Health on implementing the new Mental Health Policy. • *The four-country EQUITABLE project (Malawi, Sudan, Namibia and South Africa) focuses on access to equitable health services for disabled people. The project has engaged with the Department of Health on disability policies in the context of the African Decade for People with Disability.* • *The FP7 PREFACE project established collaboration with the Water Resource Commission, with a focus on policy dialogue around water usage.* • *DST and EU inject South African R&I into the EU-AU 8th Partnership, but DST notes a lack of commitment from non-South African AU members.* • *Through FP7 funded project "Uptake of Climate related Research Results through Knowledge Platforms with African Collaboration Partners" the Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN) in association with the University of the Witwatersrand have generated research-based evidence for policy advocacy. Through strong collaborative and experiential learning with constituent stakeholders at national and regional level the partners have progressively developed a food and agricultural policy engagement and action cycle as an approach to innovation and learning for policy and capacity development at regional and national levels.*

5.2 EQ 2: Impact on partner country research communities

EQ 2 To what extent has DEVCO funding of R&I enabled research communities in partner countries to build up and develop their own R&I capacity, including the ability to actively engage in research networks (regional and international)?	
JC 21 Degree of alignment and coherence of DG DEVCO support to R&I with relevant policies and strategies	National level: • The DEVCO projects identified in the inventory above were all relevant to South African country priorities as identified by the DST. The high level of EU bilateral support for R&I in South Africa is coherent with the strong national commitment described above. It is also coherent with a relatively strong government structure for managing R&I, the fact that well-considered national priorities in R&I have been developed, and good institutional capacity for research, implying in turn real opportunities for complementarity with work financed by RTD. • *In South Africa FP7 funded projects have demonstrated clear alignment with a range of national policy agendas. DST adopts a strategic approach to co-funding FP7 projects in order to ensure coherence with national R&I priorities.*
JC 22 Increased focus of EU support on 'capacity building' and enhancing institutional sustainability	National level: • Erasmus Mundus – SA is one of few countries which has had a substantial bilateral allocation used to fund partnerships between SA and European universities. The main engagement is with the Department of Higher Education and Training. There has been effort to diversify the programme in order to include historically disadvantaged South African universities so as to broaden the capabilities for research rather than reinforce existing gaps. • The Erasmus Plus 2014-2020 programme is focused on enhancing degree mobility and credit mobility together with capacity building for higher education through institution to institution collaboration. This is a bilateral programme to South Africa with 40% allocated to mobility ad 60% to capacity building. It is anticipated that the scholarship programme will have a "trickle down" effect in a variety of ways and the through supporting transformation strategies for participating academic institutions the capacity of academic staff will be strengthened. Opportunities exist to support projects that will address some fundamental capacity issues around governance and curriculum development. • The major DEVCO SBS initiative in the DST is often characterised as "capacity building," but care must be used in interpreting the term. It was definitely not intended to improve capacity to participate in FP7; South Africa already scores very high on that already. Rather, it was to build capacity in the DST to be able to test new technologies emerging from R&I for their applicability to poverty alleviation and engage with relevant Departments and other stakeholders to promote them. • Through the PrimCare SPSP grants to civil society the EU has made notable contributions to developing key capacities in the health sector. A significant grant to the Health Systems Trust has supported Primary Health Care (PHC) re-

	engineering in districts in Mpumalanga and Northern Cape provinces through strengthening PHC management capacity and supporting quality improvement plans.) *All of the FP7 projects visited had built capacity by training PhDs and Masters students, including through summer schools, and had contributed to capacity building by involving senior researchers and graduate students in regional and global networks. South African Principal Investigators interviewed felt strongly that such support had reduced brain drain that would otherwise have occurred.*) *Related to the last point, FP7 projects strengthened institutional sustainability, both in South Africa and the region, by providing researchers with opportunities to participate in state-of-the-art international science, opportunities without which they would have in all likelihood moved elsewhere.*) *An FP7 with an especially strong regional dimension is GEONETCAST has focused on capacity building focus to develop earth observation expertise through increasing the number of Masters and PhDs across Africa learning to interpret and analyse data - research expertise with some overspill into the application domain. FP7 Consortium DEVCOCAST / GEONETCAST including VITO in Belgium, Plymouth Marine Institute, UCT, Universities in Ghana, Mozambique, Dar es Salaam, Kampala, Benin, Cote d'Ivoire.*
JC 23 Improved access of developing countries' research communities to EU FP7 funding through RTD Summary assessments by sector	) There was no evidence during the field mission that strengthening access to FP7 was a DEVCO prioirity.
JC 24 Enhanced networking of developing countries' researchers at regional and inter-national level	National level:) *Through the PREPARE project the Medical Research Council has been able to network with universities in Europe (Bergen, Oslo, Exeter and Maastricht), and this collaboration has contributed to the development of research, intervention and evaluation tools.*

5.3 EQ 3: Instruments and modalities

EQ 3 To what extent has DG DEVCO in its support to R&I used its available instruments in a way that maximises their value?	
JC 31 Appropriateness of the financing modalities and types of funding under different EU instruments and the way they have been applied for enhancing R&I	National level) As noted by EUD staff, it has been possible in South Africa to achieve complementarity by using DEVCO SBS to build capacity at the DST while leaving RTD framework programmes to operate on their own. In the overall context of a hoped-for new phase of SBS, DST is embarking on a systematic review of FP7 research results in order to find those that would be appropriate to develop for poverty alleviation and sustainable livelihood applications.) When asked whether the DEVCO drug resistance project could not equally well have been funded through RTD, the immediate answer was that the amount of money involved put this beyond the reach of most FP7 grants. Another issue is whether DEVCO-funded research would be able to finance salaries in the same way as FP7 projects.
JC 32 Strategic approach adopted to choosing different possible actors / channels with whom the EU can work to support R&I and how best to support them with the instruments and modalities available	National level:) Through the PrimCare SPSP in the Ministry of Health, grants are provided to civil society organisations working in the primary health care area. The delivery of equitable primary health care is a major government priority and this support is an excellent example of a strategic approach that aligns with national development priorities and at the same time adds upstream R&I value to work already being carried out by the Department of Health. Key examples of projects supported are the work being carried out by the Africa Centre (University of KwaZulu-Natal) to improve access to and quality of rural maternal and child health services by integrating the provision of antiretroviral therapy (ART) into maternal, newborn, child and women's health (MNCWH) in line with the national MNCWH and Nutrition Strategy. Other grants went to the Universities of Stellenbosch and Cape Town (a training programme for general practitioners and research on community involvement in the quality of service, respectively), and the SOs Soul City (behavioural change communication), Health System Trust (operational management training) and Cell Life (SMS health prompts for pregnant women and women with your children).) *A number of FP7 projects, while primarily research oriented, worked with NGOs*

	to ensure relevance and explore take up. For example, the EquiTable project worked closely with Disabled Persons of South Africa and, at the regional level, the Africa Decade for Disability (an NGO reporting to the African Union). - The need to better involve the private sector is now broadly recognised. However, EUD staff interviewed cited the difficulty of drawing private firms into multi-partner endeavours. The South African private sector already engages in a significant amount of R&I.

5.4 EQ 4: DEVCO-RTD complementarity and coherence

EQ 4 To what extent has EU support to R&I by DG DEVCO and by DG RTD been complementary and their collaboration promoted PCD?	
JC 41 Extent to which DGs DEVCO and RTD have formulated clear strategies on how they should cooperate in a complementary way and how the work of other relevant EU institutions (such as the EIB) is also complementary with their own	National level: - There is no formal coordination mechanism in place, but the fact that the Science Counsellor Mr. Hogan in Addis spends 20% of his time working on South Africa, visiting three or four times a year, ensures that there is de facto coordination between RTD and DEVCO.
JC 42 Degree to which DEVCO support addresses issues that could/would not have been better, or equally well, addressed through RTD and vice versa	National level: - *At both the EUD and in the DST, officials independently and spontaneously drew attention to the fact that FP7 would never have been able to finance capacity building budget support.* - *Asked why the DEVCO drug resistance project could not equally well have been financed by FP7, the immediate response was the amount of money involved. FP7 projects may be large in total, but that money must be split among a number of institutions. It is also not clear that DEVCO's project modality would be suitable for financing salaries and bursaries.* - *FP7 was particularly well suited to financing projects relatively far upstream, or perhaps better, mid-stream in the R&I pipeline. PREFACE and GeoNETCAST are examples of these.* - DEVCO budget support and the Dialogue Facility were uniquely placed to finance policy for and dialogues in which R&I results could be communicated to policymakers.
JC 43 Level at which DEVCO support has benefited from complementary action financed through RTD and vice versa	- *While not yet implemented, the DST has expressed interest in using future DEVCO budget support to review FP7 results for possible application to poverty alleviation and sustainable livelihoods.* - *A number of FP7 initiatives promoted African involvement in research more broadly. ERA-Africa brought together European and African researchers, The ESASTAP-PLUS project to promote FP7 (and Horizon 2020) participation by South Africa was regarded by the EUD as a great success. It also promoted South Africa in Europe. CAST-Net sought to promote African response to the EU Strategy for Africa.*

5.5 EQ 5: Transfer of R&I results into development processes

EQ 5 To what extent has DEVCO support led to the transfer of R&I results into processes likely to impact on the achievement of EU development objectives?	
JC 51 Clear and logical thinking at sector level on how DEVCO support could ultimately lead through to research results being used in development processes	National level: - The Department of Science and Technology (DST) has clearly articulated the role that R&I should play in supporting South Africa's core development challenges, and in particular how innovation can support poverty reduction and employment generation objectives. The DST, along with the entities funded through the department, strive to align the national research and innovation agenda with the development objectives set out in the National Development Plan. It is evident that strategic discussions between the EU, European bilateral partners and the DST have consistently placed R&I within the context of the country's development priorities. The DST acknowledges that EU support to R&I contributes to further strengthening South Africa's already well-developed science and technology architecture and enhances capacity to apply science and technology for poverty alleviation through such modalities as SME incubation,

	support and growth. - *According to officials interviewed, DST also, in part through the co-funding process, attempts to impose some strategic discipline on the demand-driven FP7 process. As a funding agency, the National Research Foundation is also employing a strategic approach. According to persons interviewed, NRF is stressing value for money and, as one official put it, "All options are on the table. These include evaluating the value added of South Africa's cooperation with other African partners* - The EDULINK Programme provides support to ACP partner countries including South Africa in the context of fostering a balanced approach to investment across the education sector as a whole. For South Africa the critical value added of the programme is how it can stimulate potential for economic growth by increasing the supply of high level qualified human resources available to the country. The relationship with Department of Higher Education and Training has been good and has also created linkages with other higher education stakeholders. The EU has engaged with the higher education sector through policy dialogues on difficult development-linked issues such as student fees and equitable access. The DST takes a strong interest in the EDULINK programme.
JC 54 Development processes and outcomes have been built on or used the results of research funded by DEVCO or shared through DEVCO supported research networks	National level: - Research undertaken through the DEVCO drug resistance project analysed here generated substantial new national level data on HIV drug resistance that has been fed into the international data base of drug resistance. The research findings will influence current South African policy on HIV treatment regimens. - *All of the FP7 projects, with the possible exception of PREFACE, which is still in the model development stage, have generated results that have fed into development processes and policies.* - For description of the success rate of DST's attempts to inject S&T into po-verty alleviation (in the context of DEVCO budget support), see Section 3.

5.6 EQ 6: EU capacities

EQ 6 To what extent have the EU external relations services ensured adequate capacities to conduct policy dialogue related to R&I and to support research and innovation in partner countries?	
JC 61 Extent to which EU internal capacity to manage R&I support and conduct policy dialogue is in place at the levels required	National level: - EUD internal capacity to deal with R&I is relatively good in South Africa. One programme officer who has been long in post in the Delegation handles R&I in her portfolio. She liases closely with Mr. Stéphane Hogan, the Science Counsellor in Addis, who devotes about 20% of his effort to South Africa. A Counsellor for education deals with Erasmus Mundus and Edulink while an Attaché for health follows DEVCO support in that sector. All persons interviewed were familiar with FP7 projects while not necessarily following every one.
JC 62 Extent to which R&I policy dialogue is operational at all levels	National level: - Through the Dialogue Facility and with a relatively strong grasp on developments in R&I the EUD has, in cooperation with DST, succeeded in ensuring that R&I is integrated into policy dialogue where relevant. This is true at both provincial and central government levels.
JC 63 Extent to which the EU facilitates R&I activities at all levels	National level: - Based on interviews t the EUD and DST, the EUD has actively supported R&I through events, Science Days, promotion of mobility and collaboration activities, etc. One aspect of this is the holding of coordination and information-sharing meetings several times a year at the EUD, with participation by Government and MS and non-MS R&I officers.

6 Conclusions

This field mission has concentrated mostly on two aspects of DEVCO's cooperation with South Africa: the role of sector budget support for R&I, and the complementarity between DEVCO support and RTD FP7 support. While this evaluation does not directly concern RTD, the mission has also addressed the issue, still open at the end of the Desk Phase, of whether FP7 support, driven by the Call for Proposals approach and objectives centred on European scientific excellence, respond to the EU development agenda. South African participation in regional and global DEVCO-financed programmes was not a major theme of the field mission since these were already covered in the Desk Phase.

By the standard criteria for development cooperation quality – relevance to country goals and priorities, effectiveness and efficiency, impact, sustainability, and EU value added – DEVCO's cooperation in R&I with South Africa has been exemplary. Apart from strengthening the quality and quantity of

partnerships between research and innovation stakeholders in EU Member states and South Africa, it is has also strengthened South Africa's S&T leadership in the region. Successful research cooperation has clearly provided a foundation for ongoing S&T policy dialogue which has further boosted research cooperation.

Credit is to be given on both sides of the bilateral relationship. South Africa has long identified S&T for poverty alleviation as a major axis of development policy and elaborated strategies and action plans associated with national development priorities. The relevant national coordinating institution, the DST, is one of the smallest ministries but it is headed by a knowledgeable and proactive minister who enables the DST to punch above its weight. EU sector budget support to that institution has developed capacity to improve the application of R&I to poverty alleviation and can serve as a potential model for the region. Despite the need to strengthen the Historically Disadvantage Universities – which has been addressed by the EU in its mobility programmes – the university sector is strong with an international reputation in the research arena. So, too, with some variability, are the major research institutes associated with national Departments. The need to better involve the private sector is recognised both by government and research institutions, as are the facts that the private sector already engages in a significant amount of R&I and is reluctant to participate in multi-partner initiatives.

Because of the importance attached to R&I by Government, the availability of high-quality researchers to participate, and the coordinating role played by theof DST, policy dialogue in all sectors has well benefitted significantly from DEVCO-financed R&I. The Policy Dialogue Facility, and the DST, played key roles in this regard.

The role of the EUD cannot be underestimated. While capacity is no doubt stretched, the presence of engaged programme officers covering S&T, education, and health has made a large contribution to DEVCO support success. Support from the RTD S&T Advisor in Addis was repeatedly cited as a factor in the success of EU cooperation in South Africa.

One of the concerns of this evaluation has been the commented-on disconnect between FP7, an open calls instrument with legal basis in ensuring European scientific excellence, and EU development goals. Nothing in this field mission found evidence of a conflict. Given the level of South African scientific excellence, there was no particular need for capacity building to participate in FP7, a point made in particular by DST and validated in interviews with researchers who had participated in FP7. FP7 projects have made large contributions to capacity building in the form of bursaries, incorporation into scientific research networks, research collaborations etc. These projects have often kept researchers in post when they might well have gone elsewhere. The model of DEVCO support – in the form of SPSP to a strong Ministry charged with overseeing R&I policy, including setting priorities for FP7 and acting on these through co-funding – could be a model for other countries.

Mobility programmes such as Erasmus Mundus have functioned well in South Africa., with no shortage of participants. Playing a role in the mobility equation is the fact that European researchers may find it as attractive to work in South Africa as the other way around.

This mission has found multiple instances of concrete development impacts. Perhaps the clearest is the development and application, through the DEVCO-financed HIV drug resistance project, of low-cost assay methods that have been implemented and the integration of South African and neighbouring countries participating in the SATuRN netrwork, into the global drug resistance network. SBS to DST is broadly considered to have contributed to focusing R&I on concrete development results linked to national priorities.

Both DEVCO and FP7 projects have had policy implications throughout the region. These are particularly evident in areas such as primary health care, climate change and food security.

"Those that have, shall receive" is an old saying. It is clear that the high level of capacity that exists in South Africa and its economic strength have made for ideal conditions for the success of EU-South African cooperation in R&I. The country offers an excellent case study in what can be done to stimulate similarly successful results in countries less favourably endowed at the outset.

7 Annex: List of people interviewed

EU Delegation

Name	Position	Institution
Bertizzolo, Flora	Attache - Health	Delegation of the European Union to the Republic of South Africa
Dolya, Natalija	Project Officer: Environment, Climate Change and Science & Technology	Delegation of the European Union to the Republic of South Africa
Larose, Christophe	First Counsellor, Head of Section: Governance and social sectors	Delegation of the European Union to the Republic of South Africa
Hogan, Stephane	Science Counsellor	Delegation of European Union to Ethiopia

Government and parastatal institutions

Name	Position	Institution
Bernard, Steward	Senior Researcher: Oceanography	Council for Scientific and Industrial Research
Bhagwandin, (Dr.) Niresh	Director, Strategic Research Initiative	Medical Research Council
du Plessis, Philip	Contracts and Budgets	Medical Research Council
du Toit, Lisa	Director: Development Partnerships	Department of Science and Technology
Matshediso, Toto	Deputy-Director: Multilateral Cooperation and Africa	Department of Science and Technology
Matthews (Dr.), Catherine	Director, Health Systems Research Unit	Medical Research Council
Matubatuba, Tugela	Deputy-Director, Multilateral Cooperation and Africa	Department of Science and Technology
Seebregts, Chris	Project Implementer, PREPARE	Medical Research Council
Stroebel (Dr.), Aldo	Executive Director: International Relations and Cooperation	National Research Foundation

Research organisations

Name	Position	Institution
Docrat, Sumaiyah	Doctoral Student, Alan J Flisher Centre for Public Mental Health, Department of Psychiatry and Mental Health	University of Cape Town
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Country Note – Tunisia

By James Mackie, Fatma M'Selmi and Matthias Deneckere on field mission from 25 November - 1 December 2015.

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List of Acronyms

AFD	Agence Française de Développement
ANPR	National Agency for the Promotion of Scientific Research
APII	National Agency for the Promotion of Industry and Innovation
AU	African Union
AUC	African Union Commission
CERTE	Centre de recherche et des technologies des eaux
CSE	Country Strategy Evaluation
CSP	Country Strategy Paper
DCI	Development Cooperation Instrument
DEVCO	Directorate-General Development and Cooperation/EuropeAid
DG EAC	Directorate-General for Education & Culture
EC	European Commission
EDF	European Development Fund
ENP	European Neighbourhood Policy
ENPI	European Neighbourhood Policy Instrument
EnvCC	Environment and Climate Change
EQ	Evaluation Question
EU	European Union
EUD	EU Delegation
EUR	Euro
FIPA	Agency for the Promotion of Foreign Investments
FP (6/7)	(6^{th}/7^{th}) Framework Programme for Research and Technological Development
FSNA	Food Security, Nutrition and Agriculture
GDP	Gross Domestic Product
GIZ	Gesellschaft für Internationale Zusammenarbeit
IMS	Innovation Management System
INNORPI	National Institute of Standardisation and Industrial Property
ICT	Information & Communication Technology
JAES	Joint Africa-EU Strategy
JC	Judgement Criteria
MDGs	Millennium Development Goals
MHESR	Ministry of Higher Education and Scientific Research
MIC	Middle-Income Country
MIEM	Ministry of Industry, Energy and Mines
MoCo	Monitoring Committee for Euro-Mediterranean Cooperation in Research and Technological Development
NESRI	Network of Tunisian Experts in Support to International Research and Innovation
NGO	Non-governmental organisation
NIP	National Indicative Programme
NIS	National Innovation System
PASRI	Projet d'Appui au Système de Recherche et de l'Innovation
PhD	Doctor of Philosophy
PIRD	Prime d'investissement en Recherche-Développement
REC	Regional Economic Community
RO	Research Organisation
RTD	Directorate-General for Research & Innovation
R&I	Research & Innovation
SISS	Science, Information Society and Space
SME	Small and Medium-sized Enterprise
S&T	Science & Technology
UMA	Arab Maghreb Union
UN	United Nations

Note: The Evaluation uses the common acronym "**EC**" to refer to either the "Commission of the European Union" (post-Lisbon Treaty) or the "European Commission" (pre-Lisbon Treaty), as applicable.

1 Introduction

1.1 Mandate, scope and purpose of the evaluation

As spelt out in the Terms of Reference the general objectives of this evaluation are:

- To provide the relevant external cooperation services of the EU and the wider public with an independent assessment of the support provided to research and innovation for development over the period 2007-2013;
- To identify key lessons and forward-looking recommendations.

The thematic scope of the evaluation encompasses the EU support to Research and Innovation (R&I) in four key sectors: (i) Food Security, Nutrition and Agriculture (FSNA), (ii) Health, (iii) Environment and Climate Change (EnvCC), and (iv) Science, Information Society and Space (SISS) (henceforth "thematic sectors")

The specific objectives of this evaluation are to provide an overall judgement on the extent to which the EU development co-operation policy has adopted a strategic approach to support R&I in the thematic sectors, and whether the approach was appropriate to enhance capacity to reach development objectives in these fields. Moreover, the ToR specify that the conclusions and lessons learned are expected to specifically address areas of particular interest, namely:

- The support provided to capacity building in partner countries;
- The level of the transfer of research results into social or economic processes likely to impact on poverty reduction in the longer term;
- The appropriateness of instruments and modalities made available; and
- The approaches, notably *country* versus *regional* support, or *direct* support to research versus *indirect* support through sectoral programmes that include research components.

The legal scope of the evaluation is delineated by the activities supported by the European Comission's Directorate-General Development and Cooperation/EuropeAid (DEVCO) through its cooperation instruments: the European Development Fund (EDF), the Development Cooperation Instrument (DCI) – both geographic and thematic budget lines – and European Neighbourhood Policy Instrument (ENPI).

While the Directorate-General for Research & Innovation (RTD) implements activities supporting R&I in developing countries, its policies, strategies, programmes and activities are not included in the scope of the evaluation and hence not the object of in-depth analysis here. They are, however, considered from a contextual point of view, and analysed from a complementarity and synergy perspective, together with, for instance, the activities of EU member states, other donors or multilateral organisations.

The temporal scope of the evaluation is the period of 2007-2013 which corresponds to the last EU multi-annual budget period and to that of the 10th EDF. Equally this is the period of RTD's Seventh Framework Programme (FP7).

1.2 Purpose of the note

The ten Country Notes for this evaluation serve to provide a national level view of what DG DEVCO support to R&I entails on the ground. They validate and expand the documentary analysis using the evidence collected during the field mission and the individual responses of EU Delegations (EUDs) to the online survey.

The Country Note is structured as follows. The introduction in Section 1 explains the rationale for the choice of the country. Section 2 outlines the methods use. Section 3 spells out the country context for DEVCO support to R&I and Section 4 provides an overview of the key DEVCO interventions. Section 5 presents the field mission findings for each EQ. These findings are categorised for each sector, per JC and per geographic level (national, regional, global) as far as applicable. Section 6 draws out any overall conclusions about the EU's cooperation on R&I with the country concerned.

The dates of the mission to Tunisia were: 25 November - 1 December 2015. The mission was conducted by: James Mackie (international expert and team leader), Fatma M'Selmi (national consultant) and Matthias Deneckere (ECDPM).

The team would like to thank the staff of the EUD to Tunisia for their help, availability and assistance, as well as the representatives of the Government of Tunisia and the various research organisations (RO), universities and NGOs visited for their openness and willingness to engage.

1.3 Reasons for selecting this country for the Field Phase

Tunisia was selected for three reasons: First, it would ensure the representation of the Southern European Neighbourhood in the Field Phase. Second, Tunisia has significantly benefited from a DEVCO-funded programme called the PASRI (*Projet d'Appui au Système de Recherche et de l'Innovation*), which aimed to improve the national R&I system in Tunisia by strengthening R&I governance, bringing together academic research and industry, and boosting national and international networking. Third, Tunisia also benefited to a high degree from Erasmus Mundus, Tempus, and 7th Framework Programme of the EU for Research and Technological Development (FP7). As a Middle-Income Country (MIC), Tunisia has some capacity to participate in FP7 projects, but is still facing problems with regards to R&I governance. Especially linking both ends of the innovation chain, from research to production, is a particular challenge.

1.4 Gaps of evidence addressed in the country

The general purposes of the Tunisia field mission were to:

- Assess how R&I support through PASRI influenced EU development policy objectives in Tunisia;
- Hear local views and collect examples of impact;
- Judge how instruments and modalities affect support for R&I and hear local views of the rationale for choices made;
- Find examples and hear views related to the complementarity of DEVCO and RTD support;
- Hear EUD and local views of EU capacities.

More specifically, it was designed to identify:

- Views of various stakeholders (governmental, academic and private sector) on the PASRI;
- The extent to which DEVCO actions increased capacity of national institutions to participate in FP7 (and by implication, Horizon 2020);
- How effectively support to public and private sector institutions was combined;
- How complementary DEVCO and RTD support were, particularly DEVCO support to capacity building as it is related to RTD FP participation.

2 Data collection methods (including limits and constraints)

The field visit to Tunis (Tunisia) took place from 25 November to 1 December 2015 so as to meet with relevant organisations working in the field of R&I. A briefing was held with the EU Delegation to Tunisia at the start of the visit on 25 November.

During the mission, 49 people were interviewed representing 21 organisations, including national ministries, government agencies, research institutes and universities, and companies. Involving companies and research institutes allowed the team to collect views form end beneficiaries of the PASRI. In addition, views were gathered from a number of Member States development agencies, one of which (*Gesellschaft für Internationale Zusammenarbeit*, or GIZ) was deeply involved in the implementation of the EU-funded PASRI. A debriefing was held at the EUD on 30 November, which helped to corroborate some of the information gathered during the desk research and the interviews. The EUD representatives also helped in contacting and identifying additional contacts for the data collection process.

A limitation of the visit was that the mission was mostly focused on the PASRI, which represents the largest share of DEVCO-funding in Tunisia in the field of R&I. It proved impossible to also elicit information on other projects such as the *Programme Environnement Energie*.

3 Country context

3.1 Overall description of country political, legal, and development context in relation to Research and Innovation (context in which the EU intervenes)

3.1.1 R&I situation in the country

Despite the economic growth sustained during the last decades, Tunisia has failed to catch up significantly with the standards of living of the most advanced economies, unlike some Asian countries, which had standards of living relatively similar to that of Tunisia a couple of decades ago. Tunisia thus appears caught in a middle-income country trap. It does not manage to move from a middle-income status country to that of a high-income country status. Although Tunisia has increased Gross Domes-

tic Product (GDP) per capita at a faster pace than many other countries in North Africa and the Middle East during the last decades[122], yet this rise in standard of living was limited by a weak labour productivity. To sustainably raise the productivity and consequently allow Tunisia to escape the trap of middle-income country, better performance in R&I and innovation is essential. Nevertheless, although it has improved in some respects, it is still insufficient to result in significant economic impact. Like most countries in North Africa and the Middle East, Tunisia allocates an insufficient amount of financial resources to R&I, as suggested by the low estimated level of its R&I intensity[123] (the ratio of gross domestic expenditure on R&I and GDP). This national effort in R&I is insufficient to contribute to increased living standards in the country.

Despite the low estimated R&I intensity for Tunisia, the national stock of researchers is relatively high compared to that of many countries in the region, thanks to a large flow of students and graduates of the second cycle of higher education which leads to an advanced research qualification and a good representation of women. The growing stock of researchers is not significantly lower than that of European countries and the United States.[124]

The lack of national R&I efforts in Tunisia is largely due to the lack of R&I funding business sector, while this sector is the main contributor to the R&I effort in many developed countries. The financing and performance of R&I in Tunisia are mostly the fact of the state, contrary to trends in advanced economies.

The recent survey "Enterprise Surveys" [125] of the World Bank showed that the companies in Tunisia with more than five employees, reveal that just under a fifth of companies in Tunisia declare they have invested in internal or external R&I. At the same time, the Tunisian private sector consists of many companies with less than five employees, who have few resources to invest in research and more generally in innovation activities.

3.1.2 R&I national policies, legal framework

During the last two decades, the Tunisian State has included scientific research as an essential sector of support and assistance of its development strategies. Its policy contributes to the consolidation of the NIS (National Innovation System), so that it can have a positive influence on the social and economic national development.

In this context, the Tunisian government has launched, since the 1990s, a new industrial policy oriented towards the support of R&D and of technological innovation. This policy defines a strategic industrial position in the medium term, which should allow export growth, an upgrading of the industry, diversification of economic activities beyond the traditional historical sectors of the Tunisian economy, and cross-fertilization between several economic sectors leading to the emergence of new activities.

Since its publication in 2008, the National Industrial Strategy has not been implemented in a comprehensive manner. The socio-political events linked to the Arab Spring in the early 2010s led to a certain paralysis of the central government and the Tunisian economy as a whole. As a result the national industrial policy faced serious constraints in identifying resources (e.g. financial & non-financial instruments) to achieve the objectives of the strategic redeployment of Tunisian economic activities, and left many obstacles to overcome (e.g. related regulatory framework for private investment and open markets).

Beyond the intrinsic failures of the R&I national policy, the economy does not have a regulatory framework to promote investment and competition in the private sector. Yet empirical studies show that such framework is a necessary condition to enable businesses to innovate, improve productivity, and ultimately creating jobs (World Bank, 2014A, 2015, 2010a). The weaknesses of the regulatory framework are such that a even new R&I-relevant policy is likely to have no significant positive effect on the performance of the R&I Tunisian system. Indeed, the regulatory framework leads to inefficiencies in resources allocation between sectors and a low process of creative destruction.

The Tunisian regulatory framework is composed currently of multiple customs, taxes, and financial incentives that are confusing, complex and lack transparency for companies. Moreover, the regulatory modalities fixing the incentives are often modified by decree, making them even less clear for busi-

[122] For example, In terms of GDP per capita, Tunisia has enhanced its regional ranking from 13th place in 1970 and 1980, to 12th in 1990, finishing in 10th place in 2000 and 2013.
[123] The National Observatory of Science and Technology estimates the R&D intensity of Tunisia at 0.71% in 2009, 0.69% in 2010, 0.71% in 2011 and 0.68% in 2012.
[124] Hassan, E., 2015, *Diagnostic du système national de recherché et d'innovation en Tunisie. Synthèse finale.* Report prepared as part of the PASRI programme, funded by the European Union.
[125] World Bank Group, European Bank for Reconstruction and Development & European Investment Bank. 2015. *Tunisia Country Profile 2013 (updated 2015).* Washington, D.C.: World Bank.

nesses. For example, the investment incentives code was amended more than sixty times in recent decades.

3.1.3 R&I institutional framework (who does what)

After decades marked by multiple changes in the institutional framework for the governance of the national system of R&I, there are several key institutions (e.g. head of government, Ministry of Higher Education and Scientific Research (MHESR), Ministry of Industry, Energy and Mines (MIEM), Ministry of Development of investment and international cooperation, and other sector ministries directly involved in R&I such as those in charge of agriculture and health) able to ensure the system's orientation function, namely the definition of broad objectives and budgets for their achievement.

In addition, the national system of research and innovation has a range of institutions ensure the translation of the main objectives into more precise priorities, programmes and resources. These include general horizontal and vertical directorates of the ministries directly involved in R&I, programming agencies such as National Agency for The Promotion of Scientific Research (ANPR), the National Agency for Promotion of Industry and Innovation (APII), Institution of Agricultural Research and Higher Education (IRESA) and other support agencies like The Agency for Promotion of Foreign Investments (FIPA) and National Institute of Standardization and Industrial Property (INNORPI).

Finally, the system has consultative and coordinating bodies that support orientation and programming functions. These include the Higher Council of scientific research and technological innovation, the National Advisory Council for Scientific Research and Technology, and the High-Level Committee for the science and technology.

Yet the current institutional framework of governance of the R&I system suffers from many failures. The different actors of the system do not fully play their role. There is no formal coordination mechanism between representatives of the MHESR, MIEM and sector ministries directly involved in R&I. Such mechanisms do not exist either between programming agencies, including ANPR and APII. Collaboration between the different actors involved in the implementation of R&I are poorly developed as well.

3.2 Description of EU strategic priorities for the country, especially in the areas of R&I and key thematic sectors

The Country Strategy Paper (CSP) 2007-2013 identifies research in the area of education as one potential area for EU support to Tunisia. Promoting innovation is also identified as essential for improving commercial competitiveness. The National Indicative Programme (NIP) 2011-2013 (after the Mid-Term Review) points out that R&I is an EU priority for the European Neighbourhood Policy (ENP) and an area which the EU has traditionally supported in Tunisia. Tunisia established a national R&D system in 1996. The EU and Tunisia signed a Science & Technology Co-operation Agreement in 2003. Moreover, Tunisian researchers have been the most important group from the Mediterranean to participate in FP5 and 6 (INCO-MED)[126]. For the years 2007-2010, 371 Tunisian institutions have responded many to FP7 calls. Food, Agriculture, Biotechnology, Health and Environment are the main sectors of interest.

The Country Strategy Evaluation (CSE) 2011[127] (covering the period 1996-2008) concludes that EU country strategy corresponds well to the Tunisian government policy, including in the area of R&I and Science & Technology (S&T) and is based on a good level of policy dialogue. EU policy in the region also reflects these priorities well.

The NIP 2006-2010 announced an R&I support programme (EUR 12 million) that was intended to improve Tunisian participation in FP7 and more generally in international research as well as support the promotion of innovation in the Tunisian business sector.

The NIP 2011-2013 lists four priorities of which "business competitiveness in the agricultural, industrial and services sectors" is one. It outlines a support programme (EUR 76-84 million) in this area (main focus is industrial and services sector – agriculture is seen as a possible third), which lists among its objectives the improvement of business capacity for innovation. The improvement of promotion of innovation in the business community is also listed as a performance indicator for the programme. There are also minor references to research in the support programme to the Justice sector. On the other

[126] CSP 2007-2013, Footnote 3 (p. 17): highest participation rate per capita for the Mediterranean region for both FP5 and 6. On page 24 the CSP suggests this could be further developed under FP7.
[127] European Commission (2011): Country Strategy Evaluation Tunisia 2011.

hand, in the Donor Co-ordination Matrix 2009 (NIP Annex III) R&I per se is not marked as a sector priority. Mobility is covered only in terms of worker mobility within the Tunisian economy.

For a small country, Tunisian nationals have benefited from a large number (207) of Erasmus Mundus scholarships during the 2007-2013 period amounting to a total of EUR 4.7 million. Half of these (101) went to doctoral students, about a third (69) benefited academic staff and the remainder (37) were for post-docs (see table at the end of the profile).

Tunisian universities have also benefited from several Tempus IV projects in the period 2008-2013. 37 projects were joint projects related to institutional capacity development, whereas 10 projects addressed structural measures with regard to the Higher education governance system of Tunisia.

Some 45 Tunisian researchers have been involved in successful FP7 applications. About half of these have been in the FSNA sector, a third in EnvCC and the remaining 10 in SISS. There are none for the Health sector.

4 Overview of EU-funded key interventions

Table 11 Overview of EU-funded key interventions in Tunisia

#	Sector	Contract title	CRIS number	Contractor	Year	Total amount contracted (in EUR)
1	EnvCC	Assistance Technique pour le Centre International des Technologies de l'Environnement de Tunis (CITET) dans le cadre de la composante Environnement du " Programme Environnement Energie"	c-271255 (ENPI/2007/019-239)[128]	GOPA-GESELLSCHAFT FUR ORGANISATIONPLANUNG UND AUSBILDUNG MBH	2011	2,568,673
2	Other	Assistance Technique pour l'étude, l'évaluation et l'optimisation des instruments financiers d'incitation à l'innovation et la création d'entreprise	c-256944 (ENPI/2008/020-221)[129]	DFC SA	2011	127,674
3	SISS	AT pour le Renforcement des Capacités de l'Agence Nationale de Promotion de la Recherche Scientifique (ANPR)	c-253212 (ENPI/2007/019-073)[130]	DANISH MANAGEMENT AS	2011	176,760
4	SISS	Assistance Technique pour la mise en oeuvre d'un plan d'actions relatifs au programme de Recherche-Développement Innovation dans le domaine des technologies de l'information et de la communication	c-253273 (ENPI/2007/019-073)[131]	ASTEC GLOBAL CONSULTANCY LIMITED	2010	140,353
5	SISS	Mission d'identification et de formulation du programme d'appui à la recherche et l'innovation (PASRI) en Tunisie	c-168010 (ENPI/2007/019-080)[132]	HTSPE LIMITED	2008	36,937
6	***SISS***	***PASRI***	***D-20512***		***2009***	***12,000,000***
6.a	SISS	Devis Programme de Croisière N°1 du 09/04/2012 au 31/03/2013 pour le PASRI	c-291276	ALJUMHURIYAH AT TUNISIYAH	2012	4,164,760
6.b	SISS	La mobilisation d'expertise long terme et court terme au profit d'institutions et d'entreprises tunisiennes dans le cadre de la mise	c-304253	POHL CONSULTING & ASSOCIATES GMBH	2012	4,325,080

[128] ENPI decision title in CRIS: *Programme Environnement et Energie* (PEE).
[129] ENPI decision title in CRIS: *Programme d'appui à l'intégration économique*.
[130] ENPI decision title in CRIS: *Programme d'Appui à l'Accord d'Association et au Plan d'Action* (P3A2)
[131] ENPI decision title in CRIS: *Programme d'Appui à l'Accord d'Association et au Plan d'Action* (P3A2)
[132] ENPI decision title in CRIS: *Allocation Globale ENPI Cooperation Sud 2007*.

#	Sector	Contract title	CRIS number	Contractor	Year	Total amount contract-ed (in EUR)
		en œuvre du projet d'appui au système de recherche et innovation (PASRI)				
6.c	SISS	Activités B.9.1 (Approche audit technologique) et B.9.2 (Transfert Technologique) du PASRI.	c-280471	DEUTSCHE GESELLSCHAFT FUR INTERNATIONALE ZUSAMMENARBEIT (GIZ)	2011	2,700,000
6.d	SISS	Devis Programme de démarrage 15/07/2011 au 31/12/2011	c-271205	ALJUMHURIYAH AT TUNISIYAH	2011	31,874
6.e	SISS	Mission d'appui au démarrage du Projet d'Appui au Système de Recherche-Innovation (PASRI) en Tunisie	c-264795	DFC SA	2011	128,078

The field mission concentrated on PASRI (programme #6).

SISS sector

Programme # 6: Projet d'Appui au Système de Recherche et de l'Innovation (PASRI)

Description

The PASRI (*Programme d'Appui au Système de Recherche et de l'Innovation*) aimed to provide solutions to the main problems identified in the innovation chain and support the strengthening of links between research institutions and the private sector. It further aimed to support the capacity building of research institutes, boost their participation in national, regional and international research frameworks, and develop innovation job profiles in companies. PASRI ran from January 2012 to end 2015. The programme consisted of three axes:

1. *Governance:* strengthening the governance of the NIS that manages the relations between institutional actors and companies.
2. *Interfacing:* dynamising the research and economic environments and the interfaces between them both to build better synergies between the actors and develop project relations between them, with the aim of fulfilling the sectoral priorities and the needs of the companies, and promoting innovative projects.
3. *Networking*: developing networking activities at national and international level to strengthen the capacity of Tunisia to participate in research programmes such as FP7.

In the light of these three priorities, PASRI mainly covers two types of activities:

1. Structural activities contributing to the basis of a National Innovation System (NIS), including the following:
   - ⇓ A study on the *governance* of the NIS and the design of an action plan for the management and organisation of the NIS;
   - ⇓ The *training of new professional profiles* that are required for the functioning of interface institutions;
   - ⇓ A *diagnostic* on the support for financial instruments dedicated to innovation;
   - ⇓ The development of a *virtual network* of NIS actors.
2. Priming activities consisting of pilot projects focused on catalysing collaboration between NIS actors. Activities included:
   - ⇓ Establishing an *Innovation Management System (IMS)* in a sample of 200 companies (with a budget of EUR 2 million).
   - ⇓ Making available 100 *mobility grants* for PhD (MOBIDOC) and post-doctorate (MOBIDOC-postdoc) researchers to carry out research in companies. They are intended to encourage research on topics related to innovation in business, thus building synergy between research and industry. A budget of EUR 2.2 million was available for this.

The activities under the PASRI were managed by different actors, of which the main ones were the ANPR and GIZ.

Under the governance axis, a major report was developed presenting an independent diagnostic of the national R&I system in Tunisia. It formulated a number of recommendations for the national authorities of Tunisia to strengthen the performance and coherence of its R&I governance system and the several actors involved. The aim of the report was to form the basis for national R&I strategy and an action plan. A 'bibliometric' analysis on the strengths, weaknesses and opportunities of research in Tunisia was also conducted.

Another activity under the PASRI was the establishment of an IMS through training courses for seven new professional profiles that were aimed at strengthening the interface between research and industry. Profiles included that of project and programme manager, research structures manager, interfacing structures manager, valorisation and transfer agent, and marketing officer. The aim was to develop a network of people with professional profiles that respond better to the needs of a functioning NIS. This component was managed by GIZ, which cooperated with 40 consultants, both Tunisian and international, to provide the training. According to one person interviewed, 2,000 people per year have participated in such trainings, representing in total some 200 firms.

The MOBIDOC grants represented a third key part of the PASRI, which aim to boost the linkages between research and production. MOBIDOC provided grants for PhD and post-doctoral research done within a private company on a topic of interest to that company, in collaboration with ROs, therefore aimed to encourage synergies between academic and industry interests. For each MOBIDOC prsject, there are four partners: the PhD candidate or post-doc researcher, the RO accompanying the candidate, the private company housing the candidate, and the ANPR, which serves as a mediator. The MOBIDOCs started in April 2013. MOBIDOC grants cover a period of 36 months, whereas the post-doctoral grants cover 24 months. The aim of the MOBIDOC is to encourage employment of academic researchers in firms, but also encourage them to create their own businesses. Ten promising MOBIDOCS were selected for a coaching programme for 'researcher-entrepreneurs' to be funded by PASRI.

Under the networking axis, a stated objective of the PASRI was to support Tunisian ROs in applying for FP7 funding. A substantial share of PASRI was dedicated to support international networking for Tunisian organisations and boost their participation in FP7. The ANPR organised 32 basic training sessions, with 417 people attending. 2 advanced training courses of five days were also organised, attended by 29 people. In addition, coaching was provided, in cycles of 20 days, to accompany organisations or individuals in the formalisation of ideas in a project proposal and identifying consortium partners and a coordinator. Of the 25 people who benefited from coaching, seven submitted a project, of which two were selected for the waiting list (i.e., no funding granted as yet).

Rationale

Tunisia is facing considerable challenges with competitiveness and youth unemployment, especially since the 2011 revolution. While there is a strong research activity (according to one interviewee, there are around 1,000 PhD graduations every year[133]), funding for research continues to be challenging, and a substantial share of PhD graduates are unemployed because their skills do not correspond to industry needs. Moreover, while research leads to a considerable amount of articles in peer-reviewed journals, this only rarely results in patents. Indeed, linkages between the academic world and industry are considered weak, as academic research priorities are not aligned with the demands from the private sector, therefore inhibiting innovation. While it is not impossible to do PhDs in the industry, the legal framework to do that is lacking, especially in terms of addressing intellectual property rights issues. Furthermore, at the governmental level, there is a lack of dialogue between several ministries (notably between the MHESR and the MIEM), illustrating a governance problem. What is seen as a major cause of this is the lack of any overarching strategic direction at the governmental level in the domain of R&I. Legal frameworks are also felt to constrain improved synergies between the industry and research worlds.

Before the PASRI, there were some EU projects containing R&I components, but no single project was dedicated specifically to R&I. In 2008-2009, this changed, as it was deemed necessary to address the challenges mentioned above by including a programme in the EU's Tunisia National Indicative Programme a component that was specially dedicated to R&I to strengthen the linkages between the academic and productive sectors, (i.e. along the whole value chain. The PASRI aimed to foster

[133] MHESR figures for 2013/2014 are 11,408 PhD students and 825 dissertations passed (*Données statistiques générales sur les universités tunisiennes* 2010/2011 – 2014/2015).

harmonisation and cooperation between ministries, and between government, private sector and the academic world, while also strengthening Tunisian participation in FP7 consortia.

Because of the lack of an overarching national strategy outlining priorities and responsibilities, it was deemed necessary to have a dedicated axis under the programme focused on governance. According to an EU official interviewed, the ultimate objective of cooperation under PASRI is to ensure the country takes the initiative and picks up the responsibility, while also triggering institutional change and leveraging support from other actors.

The 2011 revolution in Tunisia radically changed the context in which the PASRI operated. The revolution initiated a period of considerable institutional instability, yet at the same it created openings for franker discussions on the governance dimension of R&I in Tunisia. Post-revolution governments have largely side-tracked R&I in favour of other priorities for the country. In addition, several changes in key government positions have further inhibited progress under the PASRI due to a lack of continuity (e.g. the ANPR had 3 different directors-general in the course of the PASRI). R&I governance and institutional stability therefore continue to be major challenges.

Findings

The general picture emerging from the interviews done during the field mission is positive, as most people interviewed agreed that the PASRI has contributed in bringing research and industry closer together to foster innovation. Still, there is an overall feeling that the PASRI is unfinished business and faces considerable sustainability issues. On the first axis, on governance, largely positive feedback was received on the diagnostic studies. Particularly the diagnostic study on the national R&I system was widely seen as extremely useful to increase understanding of the R&I governance in Tunisia and the main challenges that need to be addressed. Indeed, governance is largely recognised as a major, if not the key issue inhibiting research and innovation in a concerted way. There was broad recognition that there is a need to fill in the lack of a vision and strategic orientation at government level on R&I. It was also widely acknowledged that the research sector and the industry live in separate worlds, although the PASRI has contributed to an increased understanding of the need for dialogue between both, especially between the MHESR and the MIEM. The gulf between the two is apparently partly due to outdated legal constraints and regulations that do not allow researchers in universities to work with industries, resulting in a lot of the contacts between the research and industry communities that do exist taking place off the record. It seems that such constraints are being addressed in the new national Five-Year Plan that is currently being prepared, but the results of this remain to be seen. Some persons argued that R&I is a cross-cutting issue that should involve the leadership of the Prime Minister's office to ensure more coherent action.

For the interfacing axis, the MOBIDOC was seen overall as a positive programme to bring companies and ROs closer together and promote industry-relevant academic research. It is regarded as one of the most successful and visible programmes under the PASRI. Still, there are some constraints, and it is difficult to assess outcomes as none of the MOBIDOC students has yet completed their PhDs or Post-doctoral research. Unexpected problems may still arise, e.g. with future employment in industry or in universities as neither yet fully recognise the others standards of success[134]. There also continue to be different motivations between the research and industrial worlds that need to be resolved e.g. regarding the publication of research results and intellectual property issues.

The ANPR's supporting role in project management was considered useful particularly for universities, though not for organisations with EPST (public academic and technological institution) statute, such as the *Institut Pasteur* or the *Centre de Recherche et des technologies des eaux* (CERTE).

The trainings organised by GIZ were widely used, although the satisfaction among participants appears to be mixed. While some companies interviewed were very positive as the trainings helped them to strengthen capacities in several domains (such as intellectual property rights or project management), other participants were more critical about the quality of the trainings or the selected subjects.

Finally, for the networking axis, the evidence suggests that good progress has been made. Several information sessions, trainings and coaching cycles on FP7/Horizon 2020 funding opportunities and procedures have been organised. Reactions from a few course participants met were however mixed with some arguing that they did not gain much from the training but others enthusiastically described all they had learnt and how they had used this to build up a culture of innovation in their SME. The PASRI also led to the creation of NESRI (Network of Tunisian Experts in Support to International Research and Innovation) a new network based on voluntary contributions from academics involved in PASRI training to support (e.g with a guide of best practice, etc.) other researchers in applying for

[134] University employment selection committees assess candidates on the basis of their publications record and not on the basis of patents or achievements in terms of start-ups.

FP7/ Horizon 2020 funding. This is a very promising evolution, but it remains to be seen to what extent the network will be able to sustain itself, given that it is still in the very early stages and in need of additional resources.

An important observation made was that Tunisian researchers are strongly oriented towards Europe, both in the research world and in industry, where people look to Europe for solutions often before they look elsewhere in the country or in Africa (although there are some contacts with neighbouring countries in the Maghreb). Looking South to Sub-Saharan Africa does not come naturally, though people do recognise that there are opportunities there that Tunisia is well equipped to exploit.

The sustainability of the impact of the PASRI remains an open question. While the PASRI has resulted in some noteworthy outcomes, the whole operation could still easily run into the sand. A big question is whether the government will provide the required leadership, vision and organisation to sustain the results of the programme. Commitment does seem to be there among senior officials, although it is impossible to judge this at the political level. Regardless of this, the ANPR, which was established just a couple of years before PASRI started, does now seem to be sufficiently established as an actor. Managing PASRI was an important element in allowing ANPR to establish itself in difficult times, but the agency now seems to also have a range of other projects to manage. There is enough enthusiasm in various circles around the MOBIDOC, so that component at least seems very likely to be continued. It even seems that the Tunisian government could make available a budget for it. The ANPR's capacity to manage the finances for FP7/Horizon 2020 projects on behalf of project holders is also a positive asset welcomed by university researchers as a very useful service.

Some people interviewed argued that PASRI was too broad, and therefore ended up skimming the surface. Others, however, argued that the integrated view of the whole R&I system (rather than focusing on selected parts of it) was exactly one of the strengths of the programme. There is quite some expectation among stakeholders that the EU will continue its support, although most do expect that a possible PASRI 2 will be different from the original PASRI. Especially the MOBIDOC seems a strong candidate for a follow-up. At the same time the EUD is adamant that PASRI 2 is not on the cards. The government now has to make the first move and really take ownership of the work of PASRI before any further support can be considered though they are ready to support in different ways.

In sum, the DEVCO funding under the PASRI is complementary to RTD funding as it contributes to strengthening the capacities of Tunisian national R&I system and ROs to develop R&I in the country and participate in FP7/Horizon 2020 consortia. The concept of the PASRI seems well thought through and successful. At the same time the EU and the government also took quite some risks in giving most of the management of such a complex programme to a new outfit (the ANPR) while giving another package of the PASRI to a well-established major external actor (GIZ) with experience in running similar projects. This resulted in various management and practical difficulties along the way and some elements of the programme moved much faster than others in a way that did not facilitate good coordination. Regardless of this, the difficulties do largely seem to have been overcome and the PASRI represents a serious attempt to address the R&I continuum that has reached a number of notable successes in challenging circumstances. At the same time, sustainability is still a question mark and longer term commitment is needed to consolidate results that are still inadequate and fragile.

5 Field mission findings, by relevant EQ

5.1 EQ 1: Development policy objectives

SISS sector

EQ 1 To what extent has EU support to R&I through DEVCO been successful in promoting the overall development policy objectives of the EU?	
JC 11 Link between R&I activities and EU development objectives (as per European Consensus and Agenda for Change – MDGs, etc.)	National level: The link with EU development objectives is clearly made in EUD policy and project documents - The EU has contributed to the development of education at all levels in Tunisia, in line with Millennium Development Goal (MDG) 2. - Steps have been taken to ensure that the principles of Aid Effectiveness are followed in the execution of the PASRI. - The PASRI aims to contribute to the economic development of Tunisia by promoting research and innovation in a collaborative manner, while also addressing governance concerns.
JC 12 Extent to which R&I has informed sector policy	National level: Contributing directly to informed sector policy dialogue is a central feature of the EUD's work in R&I in Tunisia.

dialogue and sector support at national and regional levels	) Several persons interviewed agreed that the PASRI has helped in increasing awareness on the need to invest more in innovation and bridge the gap between academic research and the industry. A representative from GIZ noted that there has been a shift in the political discourse that now recognises that innovation is key. However, the discourse is still limited in terms of strategy and best practices.) One of the main achievements, often cited in interviews, was that the MHESR and MIEM now communicate better. At the same time, it is recognised that other ministries, e.g. health or agriculture, also need to be involved in the policy dialogue on R&I. It seems that the new five-year plan to be published at the end of 2015 will include the commitment to develop a national R&I vision.) Dialogue with the private sector also improved, including through the dissemination of a Guide on Intellectual Property that was produced with support from the PASRI.) Interviewees recognised that R&I is a cross-cutting issue that should involve the Prime Minister's office. The idea of a High Council on R&I grouping different ministers and chaired by the Prime Minister was mentioned several times. An official interviewed said that the idea is gaining more and more traction, but it remains to be seen whether this will materialise.) Overall, EU support has contributed to a better dialogue between the MHESR and the MIEM. Links with sectoral ministries remain weak, however, and more effort will be needed to ensure that research results would feed into sectoral policies (and, conversely, sectoral needs could inform research priorities), although some ideas to facilitate this are being explored.

5.2 EQ 2: Impact on partner country research communities

SISS sector

EQ 2 To what extent has DEVCO funding of R&I enabled research communities in partner countries to build up and develop their own R&I capacity, including the ability to actively engage in research networks (regional and international)?	
JC 21 Degree of alignment and coherence of DG DEVCO support to R&I with relevant policies and strategies	National level: Much of the work of PASRI has been about encouraging the government to develop a national R&I strategy. The lack of relevant policies at the national level made alignment difficult, but steps have been taken to convince the Tunisian government to outline its priorities for R&I in a vision.) The lack of a national vision or strategy for R&I in Tunisia was one of the main concerns for the EU, and with PASRI, steps have been taken to fill this void. A diagnostic study on the national R&I system conducted as part of PASRI has informed the preparations of a new five-year plan, presented in December 2015, which is likely to include the commitment to develop a national R&I vision.) The IMS trainings organised by GIZ built on a previous similar innovation programme called "i9".) The MOBIDOC programme was linked to an existing government programme called the PIRD (*Prime d'investissement en Recherche-Développement),* which initially gave a prime to universities for innovation and exploitation projects. When MOBIDOC was put in place, the PIRD was adapted to provide support for research materiel to MOBIDOC beneficiaries.
JC 22 Increased focus of EU support on 'capacity building' and enhancing institutional sustainability	National level: The R&I governance system in Tunisia shows many weaknesses that inhibit institutional sustainability. While the PASRI has been able to address some of these to improve governance and build much-needed capacities in the field of R&I, it remains unfinished businesses. The whole operation could easily still run into the sand if no political leadership is taken to sustain the impact of PASRI and create a better legal and policy environment for R&I activities that benefit the development of the country. Still, there are positive signs that the commitment is there among senior officials.) Capacity building and institutional sustainability of the EU, and were addressed through the PASRI. The training modules provided under the PASRI and led by GIZ aimed to build the capacities of researchers, businesses and government officials in several domains such as intellectual property rights or programme management. Interviewees held mostly positive opinions on the usefulness of these trainings. While some ROs found that the trainings did not address the right priorities, most of them were happy with the results and stated that it has helped to build their capacities in a variety of domains in a sustainable way.) A consultant interviewed argued that the GIZ trainings were constrained because it was not possible to hire Tunisian academics due to European regulations. This

	disqualified many excellent Tunisian experts from being involved. As a consequence, the number of Tunisian experts involved in the trainings (40%) could have been higher if academics could have been hired. - The MOBIDOCs were often cited as one of the most successful components of the PASRI, although the programme did encounter some difficulties because of the absence of a legal framework regulating intellectual property rights. MOBIDOC's long-term effects could not be assessed at the moment of the evaluation, as MOBIDOC research projects were still ongoing. It therefore remains to be seen to what extent MOBIDOC will succeed in boosting employment of PhD researchers in private companies or support them in starting their own businesses. There was, however, wide agreement that the MOBIDOC should be continued even after the end of PASRI. According to a researcher interviewed, the Minister of Education of Tunisia has assured that it will make budget available to continue the MOBIDOC. - With support from PASRI, the APII has developed a web portal on the system of management of innovation, together with CSCE and ANPR. It was based on consultation with several existing platforms in France and Luxembourg. The platform offers, inter alia, access to a set of guides, e.g. on how to create an innovative businesses, that have been developed by APII with support from the PASRI. At the time of the interview, APII is also developing a platform on the financing innovative enterprises. This aimed to support starting companies with mobilising financing by providing seed money to selected innovative projects. PASRI provided funding to set up the platform, but now APII was looking for other partners to sustain it. They were still identifying external funding (from the EU, AFD, the Tunisian government or Tunisian enterprises) to support this platform. - According to several people interviewed, the 2011 revolution provided both challenges and opportunities for the PASRI in terms of governance. On the one hand, the sector suffered from a frequent shuffling of posts (e.g. the ANPR has had three different Directors-General since the revolution, and there have been four different Ministers of Higher Education and Research since 2011) and a sense of a lack of clear vision for the country's future. For the new government, R&I seemed to be no priority. On the other hand, some interviewees also argued that the revolution created openings to put old practices and thinking into question. - PASRI has been successful in addressing the governance issue to a certain extent. With support from the PASRI, the ANPR has conducted a diagnostics study on the strengths and weaknesses of the national R&I system was widely welcomed as a good basis to reveal the environment in which R&I activities are being implemented and to address some of its issues and legal constraints (e.g. regarding intellectual property rights). - Some interviewees saw signs that progress was being made towards more stability: a new 5-year Plan was to be published soon after the mission took place, which may help give a stronger sense of direction to the country, though some people were more sceptical about this. There was an intention to include the establishment of a Directorate for Innovation and the creation of a post of Secretary of State for Innovation in the next 5-year plan to address the lack of a national innovation system in Tunisia and form the bridge between research and industry. - The establishment of the NESRI support network also looks promising, but its sustainability is unsure given its reliance on voluntary inputs. - The end of PASRI raised some concerns over the future of the ANPR, which was only recently established when the PASRI started. Managing the PASRI has been an important element in allowing ANPR to establish itself in a difficult time. Most interviewees argued that the ANPR is likely to stay in place, albeit not at the same level. After the PASRI was terminated in October 2015, the ANPR indeed appeared ready to continue, as it also has a range of other projects to manage (including Erasmus+ projects and another ENP project called TATRAC (*Tissu Associatif et Transfert de Connaissances),* funded by the Sicily government, on training in project design, project management and research networks. - For the EU, institutional stability and sustainability continue to be key concerns. Tunisian authorities have formulated a request for a second PASRI, but this needs to be reviewed. The EU seems unlikely to immediately put in place a PASRI 2 because it argues that the Tunisian government first needs to take up its responsibilities and allocate a part of its budget to R&I actions. According to an EUD official, the EU could provide complementary actions to this e.g. coaching. Another objective of the EU is to leverage support from other donors. According the EUD official, the EU does not want to be the sole locomotive.

	Several Tunisian officials and researchers interviewed recognised the need that Tunisia first put its own house in order in order to continue EU support. One official noted that a follow-up programme would need a stronger involvement of the Ministry of Industry under a system of joint governance, while also concentrating the programme on a more limited number of actions and topics. A Tunisian researcher also noted that a potential PASRI 2 should be more focused on top-down governance restructuring to deal with the fragmented decision-making.
JC 23 Improved access of developing countries' research communities to EU FP7 funding through RTD Summary assessments by sector	<u>National level:</u> Tunisian participation in FP7 funded projects is good. Researchers are regularly invited by European based consortia and their access to these is felt to be relatively straightforward largely by using their existing networks. However, there are as yet only a couple of instances of Tunisian ROs leading such FP7 funded project consortia - According to Brach & H'henni (2013), Tunisia has been very successful with regard to participation in the EU Framework Programmes for R&I. Throughout 2008-2012, Tunisian institutes and firms participated in 88 grants agreements with a total worth of EUR 11 million. Tunisia ranks third among Mediterranean partner countries, yielding only to Egypt and Morocco. According to the report, Tunisia has especially excelled in attracting research supporting actions, with a somewhat weaker performance in research projects. Public research institutions accounted for half of the successful proposals, whereas Small and Medium Enterprises (SMEs) only account for about 7.3% of successful proposals and 5.6 percent of the total amount of funds. Tunisia performs particularly well in the fields of health, agriculture and environment, but is underrepresented in a number of other areas, including social sciences, IT or energy cooperation. Under FP7, Tunisia saw a slight decrease in the number of proposals as compared to earlier Framework Programmes, but a higher success rate, lying between 13 to 17% according to an official. - A government official noted that the PASRI has succeeded in building increased awareness and capacity for Horizon 2020 participation. However, the Brach & H'henni (2013) report also notes that the diffusion of gained competence remains limited. Successful participation relates more to the commitment of individual researchers than to successfully developed institutional cooperation structures and systematic prioritisation of research at the political. A low degree of inter- and intra-institutional communication and coordination among the main actors inhibits diffusion of competence. - Four Tunisian ROs were cited as having the capacity to also function as project coordinator, including the *Institut Pasteur de Tunis* and the CERTE. Their capacities to manage FP7 projects was largely based on previous experience under FP7, as well as support from well-established networks, especially in Europe. Some other organisations did manage smaller Tempus projects. - Also a number of private companies participated in FP7. A researcher working for a private company noted, however, that one needs a good knowledge of the procedures and a good network to be successful in this. The researcher was also interested in Horizon 2020, but stated he wanted to be better informed about the procedures. He saw a role for the ANPR is supporting this. The researcher also noted that his company preferred to not be a coordinator of a project. This is a strategic choice for them, as the firm is more interested in the scientific and innovation aspects of the project, in order to develop a scientific acquis. Indeed, the person interviewed said that participation in the FP7 project provided technology transfer opportunities.
JC 24 Enhanced networking of developing countries' researchers at regional and inter-national level	<u>National level:</u> Enhancing networking was central to the approach of the PASRI. - Networking was one of the three main axes of the PASRI. The aim was to boost networking for Tunisian researchers both at the national and the international level, and increase their participation in programmes such as FP7. According to interviewees, networking occurred often around the training courses provided by the PASRI, e.g. the several coaching and information activities to participate in FP7. Researchers interviewed indicated that PASRI support has helped them in forming partnerships. - A promising outcome of these activities is the establishment of NESRI, a voluntary network of researchers with different levels of experience with EU-funded projects to provide support with applications under FP7. They offer support in finding calls for proposals and partners, assembling a team, writing a proposal etc. The network was founded by 20 researchers, and draws on a pool of experts. However, a structure to pilot the network and build the necessary skills is needed. Therefore, NESRI would need resources to be sustained. - The network of National Contact Points was cited by a researcher as a useful

	effort to organise information days and targeted coaching. However, it did not have the capacities to respond to all demands. Moreover, one researcher that previously served as National Contact Point argued that there was little guidance from the government on task description or targets for contact points. The National Contact Point Structure was seen as insufficient for Horizon 2020. Now, a Liaison Office has been installed that makes the link between RTD and the EUD. There is also a National Erasmus + office for Tunisia that provides support under Erasmus Mundus, the Marie Curie Fellowships and Tempus. The PASRI did not provide any support to the National Contact Points. • Another initiative supported through the PASRI was the development of an Agro-Food portal, implemented by the *Pole de Competitivité de Bizerte en Agro-alimentaire*. The portal aims to offer support in terms of strategic and commercial monitoring, information about traineeship grants, network initiatives facilitation, and sources for research funding. In addition, the portal offers a database of CVs of researchers in the agro-industry, with a description of their expertise and services offered. It also provides information on valorisation and certification. End users of the portal are governmental actors and support structures, as well as training structures and industrial actors. The PASRI only supported the development of the portal. Its maintenance and support comes from the own resources of the *Pole de Competitivité de Bizerte.* It therefore counts on another partnership with the Ministry of Industry to be able to sustain the portal. <u>Regional level:</u> Tunisia is very oriented towards Europe, both in the research world and the industrial world. Tunisians first look to Europe for solutions and partnerships before they look elsewhere, even inside the country. Networks in Africa are limited. • According to an EUD official, there is only limited networking with other countries in the European Neighbourhood, although there is some collaboration with neighbouring countries in Northern Africa. • Networking with African partners is also very weak. Tunisian interest in the AU research grants is very low as a result. Still, a government official noted that there is an increased tendency in Tunisia to look at Africa as well. Tunisia attended, as the only North African country, the AU Summit on R&I in Uganda in 2015. Tunisian officials also planned to attend a United Nations-funded conference on innovation in Kenya in December 2015 with the aim to develop partnerships there. Tunisia is therefore starting to looking for opportunities for its excess of expertise, i.e. find employment opportunities in Africa for unemployed doctor-level researchers. Tunisia was also involved in the preparations of the 5+5 meeting on research policy (bringing together five Ministers from the North and five from the South of the Mediterranean). Another interviewee mentioned that Tunisia has signed a roadmap and nine S&T cooperation agreements with South Africa. Cooperation with the AU and Arab Maghreb Union (UMA) was said to be mostly symbolic. • The AU Research Grants proved to be little known among Tunisian researchers.

5.3 EQ 3: Instruments and modalities

SISS sector

EQ 3 To what extent has DG DEVCO in its support to R&I used its available instruments in a way that maximizes their value?	
JC 31 Appropriateness of the financing modalities and types of funding under different EU instruments and the way they have been applied for enhanc-ing R&I	<u>National level:</u> The project modality for PASRI did not raise particular comments from interviewees and seemed appropriate. Tunisian researchers tended to avoid responding to FP7 call for proposals as leaders and tended to work in consortia led by EU based partners. Procedures for administering EU grants (particularly for FP7) are excessive and largely unworkable for Tunisian university based researchers because of contradictions with government/university accounting regulations. The solution to this has been for the ANPR to develop the capacity to manage EU project grants on behalf of academics and other researchers. • Many actors see the EU as a privileged partner, and Tunisia is quite successful in participating in several EU programmes. The success rate of Tunisian ROs for FP7/Horizon 2020 calls is between 13 and 17%. One government official noted that Tunisia seeks to reinforce the partnership and diversify the cooperation with the EU. The EU-Tunisia Horizon 2020 association agreement that was signed just shortly after the field mission was widely seen as a good opportunity to influence Horizon 2020 calls to encourage them to include research topics that are relevant for the Tunisian context and needs of society (rather than just in the

	interest of the individual researcher). However, procedures for FP7/Horizon 2020 are generally perceived as demanding, and many ROs do not have the capacities to apply for or manage FP7 funding. DEVCO support through PASRI has aimed to strengthen such capacities. - Tunisia also benefited from support of programmes managed by the EC's Directorate-General for Education and Culture (DG EAC), especially through the Tempus IV programme. Tempus support was largely focused on research governance and capacity support, but did not fund actual research activities. Though Tempus IV support was not coordinated with PASRI, some synergies might have been achieved. - A representative from a private company was less satisfied with the results from the PASRI support, arguing that it would be better if the EU would provide support to more concrete research projects. He saw Horizon 2020 as a good model, although it is too focused on Europe. A new fund based on Horizon 2020 could be adapted to Tunisian priorities. He noted that existing government funds for R&I are only open to the public sector. A new fund could dedicate a fixed share to private companies as well. <u>Regional level:</u> - There was little awareness of funding opportunities channelled through the African Union (AU) in the form of AU Research Grants. Most people interviewed were not or only vaguely aware of this programme.
JC 32 Strategic approach adopted to choosing different possible actors / channels with whom the EU can work to support R&I and how best to support them with the instruments and modalities available	<u>National level:</u> A strategic approach was adopted in the choice of partners for the PASRI - The EU channelled funds under the PASRI through different actors, of which the main ones where the ANPR (which managed e.g. the MOBIDOCs and the diagnostics studies) and GIZ (which managed the IMS trainings). According to a representative from GIZ, their support under the PASRI as an external partner is not sustainable on the long term, although GIZ did have the added value in that it represents neither the industry nor the academic world (unlike ANPR, which has a scientific bias). It therefore is better placed to bridge both worlds. - A difficulty of this fragmented management of the PASRI, according to a GIZ representative, was that different aspects of PASRI ran at different speeds. While GIZ is an experienced partner in the field, ANPR is a relatively new agency with limited experience and capacity that moreover faced a degree of institutional instability (ANPR had three different Directors-General in the course of the PASRI). This made synchronisation between the efforts of both partners difficult. A GIZ representative called this split in management a mistake in the design of the PASRI.
JC 33 Level of efforts taken to choose between and to combine different modalities and channels	<u>National level:</u> - A real effort was made to choose between different channels for the administration of channels for the PASRI (see evidence above for JC32) - However, there was no evidence of much effort being taken to choose between modalities.

5.4 EQ 4: DEVCO-RTD complementarity and coherence

SISS sector

EQ 4 To what extent has EU support to R&I by DG DEVCO and by DG RTD been complementary and their collaboration promoted PCD?	
JC 41 Extent to which DGs DEVCO and RTD have formulated clear strategies on how they should cooperate in a complementary way and how the work of other relevant EU institutions (such as the EIB) is also complementary with their own	<u>National level:</u> While there is a certain degree of complementarity between RTD- and DEVCO-funded projects, there only seems to be limited strategic thinking behind it. - No evidence was found of a clear agreement between EUD and RTD officials on a clear division of labour. - However, DEVCO's support has been focussed on capacity building, both individual and institutional, for R&I leaving RTD to offer funding for actual research. - DEVCO funding for MOBIDOCs also supports applied research collaboration between ROs and firms. Applied research relevant to Tunisian needs is essentially not covered by RTD FP7 except incidentally.
JC 42 Degree to which DEVCO support addresses issues that could/would	<u>National level:</u> There is no evidence of real overlap in funding and the roles of the different EU actors appear to be fairly well separated and understood. - DEVCO support channelled through PASRI was complementary to FP7/Horizon

not have been better, or equally well, addressed through RTD and vice versa	2020 in that it helped to build capacity to apply for and participate in FP7/Horizon 2020 projects. - PASRI does address Tunisian researcher needs in terms of capacity building for project design and management. It has training courses for what are seen as new professional profiles, it has supported the establishment of a project management desk at ANPR to help ROs administer EU funded projects and it has prompted the creation of NESRI as a support network of experiences researchers to help newcomers design projects and write proposals - Some Tunisian ROs benefited from the ERA-WIDE project, where non-European ROs can be coordinator. ERA-WIDE specifically aims to reinforce the cooperation capacities of research centres located in the ENP countries. The *Institut Pasteur de Tunis*, for instance, participated in a project called GENOMIDIKA, which aimed to address the epidemiological transition with a decrease of infectious diseases and an increase in the prevalence of non-communicable diseases. - Apart from FP7, Tunisia also benefited well from the Erasmus Mundus and Tempus programmes. Tempus grants covered two types of capacity strengthening projects: joint programmes that focused on changes in the governance of a university, and structural programmes, which focused on the governance of the national system, i.e. the relations between universities, the government, companies etc. In total, Tunisia had 37 joint projects and ten structural measures in the period 2008-2013. These were complementary to FP7 projects in that they focused on education quality, research infrastructure and capacities, and governance reform, rather than actual research. Tempus also provided support and training for PhD students, which was complementary to the DEVCO-funded MOBIDOC grants because Tempus grants did not cover their actual research activities. 13 universities, as well as government instances have benefited from Tempus, especially in terms of equipment for education and research, travel costs, preparation of courses and programmes, networking etc. - In addition to the National Erasmus + office of Tunisia, the ANPR was also involved by offering support in managing financial accounts of Tempus projects to universities who did not have the capacity to do this themselves. Differences between EU and Tunisian guidelines and legal frameworks, however, complicated the management of such projects, according to a Tunisian official.
JC 43 Level at which DEVCO support has benefited from complementary action financed through RTD and vice versa	National level: A level of mutual support between the programmes supported by DEVCO and those supported by RTD does exist but the link between the work of each is not closely coordinated. Rather it is the product of the different mandates of the two DGs. Closer coordination in-country could possibly lead to benefits in terms of increased synergies. - Tunisia benefited quite significantly from EU Research Framework Programmes. - A cooperation agreement on Horizon 2020 between the EU and Tunisia was signed shortly after the field visit. This is widely seen as an important step, as it would allow Tunisia to influence the content of the calls for proposals under Horizon 2020 and have topics included that are more relevant for the Tunisian context and needs. - A substantial share of PASRI was dedicated to support international networking for Tunisian organisations and boost their participation in FP7 and Horizon 2020. Several representatives from Tunisian ROs indicated that they lack both the capacities and the networks to deliver on the heavy application procedures for FP7. The ANPR organised 32 training sessions, with 414 people attending. Advanced trainings of five days were also organised, with 30 people attending. In addition, coaching cycles were held to accompany organisations or individuals in the formalisation of ideas in a project proposal and identify consortium partners and a coordinator. This shows great complementarity between DEVCO-support and FP7. Of the 25 people who have benefited from coaching, Seven have eventually submitted a project, of which two were selected for the waiting list (i.e., no funding was granted in first instance). - Tunisia also benefited from support of programmes managed by DG EAC, especially through the Tempus IV programme. Tempus support was largely focused on research governance and capacity support, but did not fund actual research activities. Though Tempus IV support was not coordinated with PASRI, some synergies might have been achieved - Tunisia has contributed financially to the ERANET-MED programme for work on transfer of technology in the textile industry. This modality, managed by RTD, was seen by a Tunisian researcher as a good opportunity to jointly address

	common EU-Tunisia challenges, although its scale was considered to limited. - The ANPR provided support to Tunisian ROs in their management of FP7 projects, especially financial management. This ANPR support was mostly seen as positive by Tunisian researchers, although one researcher noted that the support mechanism was not as flexible as hoped. Demands of procedures of the ANPR changed frequently, causing a degree of instability of the system. Procedures for refunding of procured equipment were cited as particularly heavy. - ANPR also developed a Guide on EU projects, jointly developed with the government in 2011. This is a good example of DEVCO funding being used in complementarity to other EU programmes. However, a researcher noted that due to a change in ANPR leadership, the guide now no longer is being applied. - A Tunisian official interviewed also noted that also the Tunisian universities lack the strategy to explore synergies between different EU programmes such as PASRI, Erasmus Mundus, Tempus and FP7. While universities have signed a contract with the MHESR in which they state their objectives, they do not include EU projects in their strategy.
JC 44 Extent to which different mechanisms to promote PCD (ex-ante impact assessments, inter-service consultation, etc.) have been de-ployed and acted-upon	National level: - No evidence of measures to promote PCD being taken in the context of R&I was identified

5.5 EQ 5: Transfer of R&I results into development processes

SISS sector

EQ 5 To what extent has DEVCO support led to the transfer of R&I results into processes likely to impact on the achievement of EU development objectives?	
JC 51 Clear and logical thinking at sector level on how DEVCO support could ultimately lead through to research results being used in development processes	National level: The design of the PASRI shows a clear analysis of the R&I situation in Tunisia and a corresponding logical approach to tackling the issues identified. - PASRI deliberately takes a comprehensive approach and tackles the R&I sector at various levels: government, ROs, industry, institutions and individuals - From the start of the design of the project, it was deemed necessary that the PASRI would focus on research *and* innovation. One of the three main axes of PASRI was to strengthen the interfacing between academic research and the industry and promote collaboration between both to ensure that research results better feed into innovation processes, ultimately strengthening the Tunisian economy. The MOBIDOC was an essential component to implement this thinking, in that it aimed to provide better employment opportunities for researchers at Masters or PhD level in the productive sector. The MOBIDOC programme has led to 243 partnerships being signed, of which 168 doctorate agreements and 75 at the post-doctoral level. So far, research activities under the MOBIDOC have resulted in four patents, and a number of others are on the way. - One government official, however, also noted that the MOBIDOC research projects were very targeted, without clear overall objectives. A researcher furthermore said that the MOBIDOC did not sufficiently reflect on intellectual property rights. This resulted in frequent discussions between academics, whose aim is the publication of the research, and the industry, which wanted to protect intellectual property. The result is, according to the researcher interviewed, that the MOBIDOC did not yield the returns it could have given.
JC 52 Extent of internal lessons learning, sharing and uptake in the EU Institu-tions within the sectors supported in partner countries, and at interna-tional level	National level: - The EUD has clearly followed the PASRI project closely and is very aware of the main issues that have arisen. A key lesson it has explicitly retained is the need to ensure government ownership before any further R&I support measures are taken. - An evaluation of the PASR is being considered which would be an opportunity to identify lessons more systematically.
JC 53 Extent of external les-sons learning, sharing	National level: Some lesson learning from PASRI is taking place but now that the project is over an evaluation would provide a stronger basis for more widespread external lesson

and uptake within the sectors supported in partner countries, and at international level	learning. - Knowledge of PASRI is fairly widespread in relevant circles in Tunis though not all actors are fully aware of all its components. (Various government departments, ROs, firms, academics and individuals are aware of the project.) - No evidence was identified on whether lessons from the PASRI project have been shared externally beyond Tunisia. An evaluation would also provide the basis for external lesson learning
JC 54 Development processes and outcomes have been built on or used the results of research funded by DEVCO or shared through DEVCO supported research networks	National level: There has been impact from PASRI on development processes through several channels the two most direct being research carried in firms by MOBIDOC researchers and 200 individuals from firms who trained on R&I processes. Some of the MOBIDOCS are also expected to lead to new start-ups. It is however still a bit early to see examples of industrial production or outputs that have used the results of this research. Equally there are still quite a number of obstacles to overcome to really create a dynamic process. - Ten promising MOBIDOCs have been selected for coaching as *chercheur-entrepreneur (*'researcher-entrepreneur' – i.e. with ideas showing potential for establishing start-ups) to boost entrepreneurship among academics. These were trained by the APII in collaboration with the ANPR, and gained coaching on businesses models, intellectual property, management, market research financing and related topics. Some of these were already in start-up phase at the time of the field mission. - One government official argued that a potential PASRI 2 should focus more on material aspects, e.g. the technology transfer offices, rather than studies. Current technology transfer offices in Tunisia are still in a pilot phase and often lack resources and mutualisation. - A GIZ representative mentioned that some 200 firms were trained through the IMS trainings. Yet, there were big differences in how companies received the trainings, due to the divergent definitions of innovation they hold. A final evaluation of the GIZ trainings showed that some 130 companies that were trained and accompanied showed a positive impact in terms of innovation practices. This was especially strong in the Information & Communication Technology (ICT) and Agro-food sectors, which were perceived as being more open to innovation. In other companies, impact was less visible because the trained innovation manager had left the firm for another company that took advantage of his skills. A representative from a private company that participated in the IMS trainings expressed great satisfaction with the trainings, stating that it was very beneficial for her company and readily applicable. - According to a government official, EU support was concentrated on a limited number of laboratories. One is the Technopole Borj Cedria, which houses four centres all with separate structures, but in total houses only 25 laboratories. Such heavy structures were said to limit the impact of EU assistance. The official argued that the Tunisian government needs to take up its responsibility to put in place better research policies that facilitate the participation in the transition and job creation, while also investing a larger budget to R&I (from less than 1% of GDP to 2-3%). - A consultant noted that links between the academic world and the industry exist, albeit more informally. There are several legal and administrative constraints that does not grant the academic world to get involved in the industry. As a result such links have developed in an informal and hidden parallel system in recent years. Development processes are therefore hindered by a constraining governance and legal system. Improving this would require changing several official documents e.g. on intellectual property. According to this consultant, the PASRI failed to address such institutional, economic, sociological… barriers from a more structural perspective to bring about radical change and foster real innovation. Nevertheless, the interviewee recognised that the PASRI deserves merit in that it changed minds among stakeholders towards a more collaborative and synergetic approach. He cited the diagnostics study on the National system of innovation as an important contributor to his, as well as the trainings organised by GIZ and the MOBIDOCs. However, due to limited resources, the overall impact remained limited as well.

5.6 EQ 6: EU capacities

SISS sector

EQ 6 To what extent have the EU external relations services ensured adequate capacities to conduct policy dialogue related to R&I and to support research and innovation in partner countries?	
JC 61 Extent to which EU internal capacity to manage R&I support and conduct policy dialogue is in place at the levels required	National level: Staffing at the EUD was adequate to follow the PASRI project and sector policy dialogue with the government. However, more capacity would probably be required if greater coordination on R&I is to be achieved with other EU actors. - At the EUD to Tunisia, one staff member is responsible for following up projects in the field of R&I.
JC 62 Extent to which R&I policy dialogue is operational at all levels	National level: There is considerable policy dialogue going on at various levels in and outside government on how best to promote R&I in Tunisia. PASRI has played a clear part in stimulating this dialogue and in encouraging actors to engage in the debate. - One of the main achievements of PASRI is seen by many as being to have got the two ministries of Higher Education and Research and of Industry and Energy to talk to each other about national R&I policy. - Tunisia has signed an S&T Agreement with the EU. Which foresees the support to the economy through S&T. A Horizon 2020 cooperation agreement has also been concluded. While some interviewees welcomed this as it would allow Tunisia to have its say in the content of the calls, one researcher noted that Tunisia first needs to define its own research priorities in a strategy. - One Tunisian researcher noted that there is a lack of dialogue between the EU and Tunisia at the political level. According to this person, the EU seems to impose its approaches on R&I without having sufficient knowledge of the local context. In his opinion, both the EU and Tunisia are to blame for the lack of a concerted cooperation strategy. The Tunisian government was said to lack vision and priorities, whereas the EU was claimed to focus cooperation too much to academic research with little developmental impact, especially for SMEs. He noted that Tunisia would benefit from an SME Charter similar to the one that exists for pre-accession countries, as it would allow SMEs to play their developmental role. He further noted that the EU has a problem with contextualising policy and programmes. Western consultants and researchers do not make the effort to understand the local context. - One interviewee mentioned that Tunisia participates in the MoCo (Monitoring Committee for Euro-Mediterranean Cooperation in Research and Technological Development), which is composed of High-Level representatives of Research Ministries in the 43 countries/members of the Union for the Mediterranean, with the support of the EU. While it is a complicated organisation, it was also said to be important to foster cooperation across Africa as well as the Arab world, where countries now mostly look to the EU.
JC 63 Extent to which the EU facilitates R&I activities at all levels	National level: The EU actively facilitates various R&I activities at different levels in Tunisia - PASRI takes a broad comprehensive approach to supporting the development of R&I in Tunisia at different levels - Yet according to one government official, the PASRI was too ambitious, as it wanted to address to many issues (interfacing, clusters, networking etc.) with rather modest funding). It therefore did not manage to realise very tangible results and have a positive impact on R&I. Also the context of the revolution had a negative effect on the eventual impact of the programme. - Tunisia has signed an S&T Agreement with the EU. Which foresees the support to the economy through S&T. A Horizon 2020 cooperation agreement has also been concluded. While some interviewees welcomed this as it would allow Tunisia to have its say in the content of the calls, one researcher noted that Tunisia first needs to define its own research priorities in a strategy. - An ex-MHESR official noted that the EU cooperation is too much focused on the MHESR, with little involvement of the Ministry of Industry or other sectoral ministries. He argued that a more horizontal approach in this dialogue would be welcome. Global level: - Leveraging support for R&I from other donors is a key objective of the EU. Other donors are indeed present, but on a much smaller scale, often focused on education exchanges, (e.g. France through the *Institut de recherche pour le*

	développement, or the Government of Sicily that funded a small project on maritime research). The EU has tried to coordinate these small initiatives as much as possible, but according to an EUD official, this was a difficult exercise with more than 500 projects. The EC also coordinated common actions with the *Agence française de développement* (AFD) on the cluster sector, but this was a very targeted action. Overall, the EU remained the sole big donor for the R&I sector in Tunisia.

6 Conclusions

The EU is explicit about providing support to R&I in Tunisia and, through DEVCO, has actively supported an ambitious and imaginative, even visionary, project, PASRI, to stimulate national thinking and actions on R&I in the country. The project focuses on various weak points in the national R&I system including the development of government policy in the area, institutional and individual capacity building in the research sector and the links between the research and industrial communities. It has thus been a valued partner for Tunisian actors interested in promoting R&I in the country.

Tunisia has a strong research sector something that is visible in the high participation rates of Tunisian researchers in FP7 projects and by the fact that Tunisia has just become the first African country to be formally associated with Horizon 2020 (EUD-AU 2015). It also has a commercial sector that is externally oriented and well linked with European and other international markets. This includes dynamic SMEs in fast moving sectors such as ICT or climate change adaptation work. If anything Tunisians tend to look North to Europe for networks, markets, research and innovation before they look internally, which gives an indication of the need to improve linkages and networks inside the country and between the research and industrial sectors and between both public and private actors. At the same time Tunisia is burdened with old-fashioned government processes and systems that inhibit dynamism and linkages within these sectors. The 2011 revolution has gone some way to calling this system into question and encouraging change and internal reflection. In this respect PASRI started at just the right moment and was able to build on and use the wave of openness to change that came after 2011 to advantage in encouraging dialogue and reflection. Yet the revolution also resulted in some instability in government with various changes in personnel and leadership at different levels during the period the project has operated that have caused discontinuities.

The mission coincided with the end of PASRI and while there was unanimity among all interviewees that the process PASRI was instrumental in stimulating the debate and getting a wide variety of initiatives started these needed to be taken further, there was as yet little or no clarity on how this would be done and what role the EU could and should usefully play in the next steps. PASRI is clearly unfinished business and it is important that the momentum it helped create is built upon. At the same time it is clear that the government is the actor that needs to give the signal on how best this should be done. The soon to be published Five-Year Plan may well be the instrument for setting the framework for this.

As well as seeking to stimulate government thinking and a reflection on a possible national R&I strategy, PASRI has also supported efforts to create linkages between the research and industrial communities. This has not been without difficulty and opinions are divided how this is best done but it is clear that the diversified approach adopted that focussed on capacity building, stimulating new professional profiles, information and networking platforms, engaging with growth clusters, research grants for PhDs and post-doc research in industry has been imaginative and has met with many successes albeit also with some failures. At the end of the process it is however clear what ideas work in which circumstances and a lot can be learnt from the experience. Above all the approach has meant that the entire R&I chain from fundamental research, through applied research, innovation, piloting and dissemination and extension work has been touched by the project.

Finally it should be noted that other EU efforts also have an impact on R&I in Tunisia. EU research funds (FP7) are also widely used in Tunisia, but the research community needs to move to the next level where Tunisians are not just involved in EU led project consortia but are also team leaders and project managers and make connections with partners in north Africa. PASRI has also had some impact in encouraging this through capacity building work. Equally other EU programmes such as Erasmus Mundus and Tempus and even investment by the EIB in some of the growth poles have all contributed to the European effort to create the conditions and stimulate R&I in the country. However, the degree of active coordination between these different inputs is not great and could be taken further so as to stimulate more synergies.

7 Annexes

7.1 Annex 1: List of people interviewed

EU Delegation

Name	Position	Institution
Cortezon Gomez, Alberto	Head of Private Sector, Institutional Support & Economic Reforms Section	European Commission
Khemiri, Rajeh	Project Manager	European Commission

EU Member State Embassies and agencies

Name	Position	Institution
Ben Naceur, Wided (Via phone call)	Chargée de projet (clusters)	Agence Française de Développement (AFD)
Gdoura, Ahmed	Manager	BID Consulting (Partenaire local Pohl Consulting)
Lotz, Philippe	Chef du Programme IDEE	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
Mazghouni, Nesrine	Experte au Programme IDEE	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
Zaghdane, Karim	Chef de Composante : Initiative spéciale « stabilisation économique et emploi des jeunes »	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Government

Name	Position	Institution
Arfa, Mohamed	Directeur, Centre de Soutien à la Création d'Entreprises	Agence de Promotion de l'Industrie et de l'Innovation (APII)
Ben Younes, Mohamed Arbi	Administrateur du projet MOBIDOC	Agence Nationale de Promotion de la Recherche Scientifique (ANPR)
Boudabbous, Abdellatif	Président	National Advisory Evaluation Committee of Scientific Research Activities
Hamzaoui, Hasna	Team leader PASRI	Ministry of Industry, Energy and Mines
Hnid, Adel	Chargé du secrétariat Général ANPR-Administrateur	Agence Nationale de Promotion de la Recherche Scientifique (ANPR)
Jaouadi, Mariem	Ingénieur chargée du montage de projets	Agence Nationale de Promotion de la Recherche Scientifique (ANPR)
Jlassi, Sameh	Chef de l'équipe financière	Agence Nationale de Promotion de la Recherche Scientifique (ANPR)
Klaii, Ridha	Directeur Général de l'Infrastructure industrielle et technologique au ministère de l'Industrie	Ministry of Industry, Energy and Mines
Lachaal, Nada	Sous Directrice	Ministry of Industry, Energy and Mines
Lazhari, Néjib	Directeur Général	Ministry of Higher Education and Scientific Research (MHESR) - Directorate-General of Research
Sahlaoui, Fethi	Sous Directeur	Ministry of Industry, Energy and Mines
Zayani, Khmaies	Directeur Général	Ministry of Higher Education and Scientific Research (MHESR) - DG of Scientific Research Valorization

Universities, research organisations and NGOs

Name	Position	Institution
Abdelhaq, Sonia	Biologiste Principale	Institut Pasteur de Tunis (IPT)
Baba Sy, Mohamedou	En Charge des BD-SIG et Modélisation Programme EAU	Sahara and Sahel Observatory
Bello, Abdoulkarim	Environnementaliste / conseiller	Sahara and Sahel Observatory
Ben Abdallah, Sihem	Chercheuse	Centre de Recherches et Technologies des Eaux (CERTE)

Name	Position	Institution
Ben Mosbeh, Amira (via skype)	Assistante technologique	Pôle de Compétitivité de Bizerte (PCB) en Agro-alimentaire
Biltaifa, Nihel	Ingénieur/ SCP/RAC National Focal Point	Centre International des Technologies de l'Environnement de Tunis
Bousselmi, Latifa	Chercheuse	Centre de Recherches et Technologies des Eaux (CERTE)
Briki, Mourad	Coordinateur du projet	Sahara and Sahel Observatory
Douggui, Leila (via skype)	Ingénieur Chargée de l'Innovation	Pôle de Compétitivité de Bizerte (PCB) en Agro-alimentaire
Ezzine, Jelel	Professeur / founder of a professional Master	National Engineering School of Tunis (ENIT)
Gharbi, Samia (via skype)	Responsable formation	Pôle de Compétitivité de Bizerte (PCB) en Agro-alimentaire
Ghazel, Adel	Professeur en Télécommunications/ Directeur du laboratoire de recherche GRESCOM	Ecole Supérieure des Communications de Tunis (SUP'COM)
Guizeni Ben Ammar, Rim	Responsable Coopération Internatio-nale	Centre International des Technologies de l'Environnement de Tunis
Harzallah, Mohamed Salah	Coordinateur	Bureau National Erasmus+ Tunisie
Jrad, Amel	Directrice Générale	Centre International des Technologies de l'Environnement de Tunis
Louzir, Hechmi	Directeur Général / Professeur en Médecine : Immunologie	Institut Pasteur de Tunis (IPT)
M'Hiri, Fadhel	Directeur	Centre International des Technologies de l'Environnement de Tunis
Mimouni, Mustapha	Expert en télédétection	Sahara and Sahel Observatory
Rezig, Bahri	Professeur / founder of a professional Master/ Head of Photovoltaic & Semi-conducting Materials Laboratory	National Engineering School of Tunis (ENIT)
Saidi, Kamel	Ingénieur en chef, Sous-directeur	Centre International des Technologies de l'Environnement de Tunis
Soumri, Moufida	Responsable financière	Institut Pasteur de Tunis (IPT)
Sta, Mohamed Sabri (via skype)	Responsable veille stratégique	Pôle de Compétitivité de Bizerte (PCB) en Agro-alimentaire
Thibon, Maxime	Conseiller Scientifique et Technique	Sahara and Sahel Observatory
Zaiter, Mahjouba (via skype)	Coordinatrice projet LACTIMED au sein du PCB	Pôle de Compétitivité de Bizerte (PCB) en Agro-alimentaire

Private Sector

Name	Position	Company
Abda, Ribeh	Senior Ingineer, Test & Quality Con-trol Division Manager	Company (took part in PASRI): EBSYS
Ben Driss, Khaled	Directeur associé - BU Software En-gineering	Company (took part in PASRI): EBSYS
Bouthour, Hajar	Responsable Marketing	Company (took part in PASRI): HLi Tunisie
Chakroun, Mehdi	Energy and Large Industrial Projects Logistics Division Manager	Company: SAROST SA
Gana, Slim	Marine Engineering and Geosciences Division Manager	Company: SAROST SA

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Country Note – Ukraine

By Landis MacKellar and Viktor Karamushka on field mission from 12-16 October 2015.

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List of Acronyms

AINA	Advanced innovative approach
COMBIOM	Cooperation in Molecular Biomedicine between EU and Ukraine
COSME	Programme for the Competitiveness of Enterprises and Small and Medium-sized Enterprises
CRIS	Common RELEX Information System
CSP	Country Strategy Paper
DCI	Development Co-operation Instrument
DEVCO	Directorate-General for International Cooperation and Development
DG	Directorate-General
EDF	European Development Fund
EEN	Enterprise Europe Network
EIB	European Investment Bank
EM	Erasmus Mundus
ENP	European Neighbourhood Policy
ENPI	European Neighbourhood and Partnership Instrument
EnvCC	Environment and Climate Change
EQ	Evaluation question
ERA	European Research Area
EU	European Union
EUD	European Union Delegation
EUR	Euro
FP	Framework Programme
FSNA	Food Security, Nutrition and Agriculture
IIASA	International Institute for Applied Systems Analysis
INOGATE	Interstate Oil and Gas Transport to Europe
INTAS	International Association for the Promotion of Cooperation with Scientists from NIS
JC	Judgment Criterion
JRC	Joint Research Centre
JSO	Joint Support Office
MDG	Millennium Development Goal
MinE&S	Ministry of Education and Science
MS	Member State
NAP	National Action Plan
NASU	National Academy of Science of Ukraine
NCP	National Contact Point
NGO	Non-governmental organisation
NIP	National Indicative Programme
PCD	Policy Coherence for Development
PhD	Doctor of Philosophy
RTD	Directorate-General for Research and Innovation
SCURPE	State Committee of Ukraine for Regulatory Policy and Entrepreneurship
SISS	Science, Information Society and Space
SME	Small and medium-sized entreprises
STCU	Science & Technology Centre of Ukraine
STI	Science, Technology and Innovation
ToR	Terms of Reference
UNESCO	United Nations Educational, Scientific and Cultural Organization

Note: The Evaluation uses the common acronym "**EC**" to refer to either the "Commission of the European Union" (post-Lisbon Treaty) or the "European Commission" (pre-Lisbon Treaty), as applicable.

1 Introduction

1.1 Mandate, scope and purpose of the evaluation

As spelt out in the Terms of Reference (ToR) the **general objectives** of this evaluation are:

- To provide the relevant external cooperation services of the EU and the wider public with an independent assessment of the support provided to research and innovation for development over the period 2007-2013;
- To identify key lessons and forward-looking recommendations.

The thematic scope of the evaluation encompasses the EU support to Research and Innovation (R&I) in four key sectors: (i) Food Security, Nutrition and Agriculture (FSNA), (ii) Health, (iii) Environment and Climate Change (EnvCC), and (iv) Science, Information Society and Space (SISS) (henceforth "thematic sectors").

The specific objectives of this evaluation are to provide an overall judgement on the extent to which the EU development co-operation policy has adopted a strategic approach to support R&I in the thematic sectors, and whether the approach was appropriate to enhance capacity to reach development objectives in these fields. Moreover, the ToR specify that the conclusions and lessons learned are expected to specifically address areas of particular interest, namely:

- The support provided to capacity building in partner countries;
- The level of the transfer of research results into social or economic processes likely to impact on poverty reduction in the longer term;
- The appropriateness of instruments and modalities made available; and
- The approaches, notably *country* versus *regional* support, or *direct* support to research versus *indirect* support through sectoral programmes that include research components.

The legal scope of the evaluation is delineated by the activities supported by the Directorate-General for International Cooperation and Development (DEVCO) through its cooperation instruments: the European Development Fund (EDF), the Development Cooperation Instrument (DCI) – both geographic and thematic budget lines – and the European Neighbourhood and Partnership Instrument (ENPI).

While the Directorate-General for Research & Innovation (RTD) implements activities supporting R&I in developing countries, its policies, strategies, programmes and activities are not included in the scope of the evaluation and hence not the object of in-depth analysis here. They are, however, considered from a contextual point of view, and analysed from a complementarity and synergy perspective, together with, for instance, the activities of EU member states, other donors or multilateral organisations.

The temporal scope of the evaluation is the period of 2007-2013 which corresponds to the last EU multi-annual budget period and to that of the 10th EDF. Equally this is the period of DG RTD's Seventh Framework Programme (FP7).

1.2 Purpose of the note

The ten Country Notes for this evaluation serve to provide a national level view of what DG DEVCO support to R&I entails on the ground. They validate and expand the documentary analysis using the evidence collected during the field mission and the individual responses of EU Delegations (EUDs) to the online survey.

The Country Note is structured as follows. The introduction in Section 1 explains the rationale for the choice of the country. Section 2 outlines the methods use. Section 3 spells out the country context for DEVCO support to R&I and Section 4 provides an overview of the key DEVCO interventions. Section 5 presents the field mission findings for each EQ. These findings are categorised for each sector, per JC and per geographic level (national, regional, global) as far as applicable. Section 6 draws out any overall conclusions about the EU's cooperation on R&I with the country concerned.

The dates of the mission to Ukraine were 12-16 October 2015. The mission was conducted by: Landis MacKellar (team leader) and Viktor Karamushka (national consultant). The team would like to thank those who took time to meet them and particularly Vira Rybak of the EU Delegation for suggesting meetings.

1.3 Reasons for selecting this country for the Field Phase

Ukraine was selected

- In order to ensure representation of the European Neighbourhood East;
- Because a DEVCO project (Joint Support Office for Enhancing Ukraine's Integration into the European Research Area, JSO-ERA) had been implemented there specifically to encourage participation of national scientists in FP7;
- Because EU support to R&I in Ukraine put great emphasis on promoting innovation.

There was, in addition, considerable participation in Erasmus-Mundus and Tempus. Ukraine was (and still is) a country with a considerable research infrastructure and one with significant capabilities in high-tech areas such as nuclear technology, materials science, and space. Ukraine was one of the top 15 R&I support recipients according to the inventory.

1.4 Gaps of evidence addressed in the country

The specific purposes of the Ukraine field mission were to identify:

- Specific instances in which EU supported R&I contributed to policy dialogue by informing Government positions;
- The extent to which DEVCO actions increased capacity of national institutions to participate in FP7 (and by implication, Horizon 2020);
- How effectively support to public and private sector institutions was combined;
- How complementary DEVCO and RTD support were, particularly DEVCO support to capacity building as it is related to RTD FP participation, and
- The extent of Ukrainian integration in the European Research Area (ERA).

More generally, it was designed to

- Assess how R&I support influenced EU development policy objectives in Ukraine;
- Hear local views and collect examples of impact;
- Judge how instruments and modalities affect support for R&I and hear local views of the rationale for choices made;
- Find examples and hear views related to the complementarity of DEVCO and RTD support,
- Find examples and hear views related to the transfer of R&I results into development processes; and
- Hear EUD and local views of EU capacities.

2 Data collection methods used (including limits and constraints)

The mission consisted of interviews with

- Commission staff in the EUD;
- Officials at the Ministry of Education;
- Members of the general research community (such as heads of National Academy of Sciences of Ukraine (NASU) Institutes, leaders of the NASU itself, and university administrators);
- NGO and private sector representatives; and
- Beneficiaries from DEVCO-financed capacity building and recipients of FP7 research grants.

No Member State (MS) interviews were undertaken, but the EUD reported that MSs had little interest in R&I cooperation in Ukraine. The private sector was represented by the Chamber of Commerce and, while no end-user of R&I results was interviewed, an interview was held with a representative of the Ukrainian Science and Technology Center (STCU) who had been instrumental in facilitating the translation of research results into commercial applications. No interviews were carried out at firms which had actually utilised commercialised innovations, but the reasonable success of many of these was suggested by material gathered from the STCU. Despite the importance of R&I in DEVCO support, the central goal was not so much concrete development results. It was, rather, encouraging scientists in a once-proud ex-Soviet research establishment, one with high-level institutions devoted to aerospace, nuclear, and materials science, to remain in Ukraine and integrate themselves into the European scientific realm.

A limitation is that no one at the EUD or at other institutions visited had much knowledge of DEVCO R&I support outside the EU-Ukraine bilateral cooperation framework.

Another possible limitation is that, after projects from the inventory that the EUD felt were not appropriately included, all of the projects examined fell under the SISS category of this evaluation.

3 Country context

3.1 Overall description of country political, legal, and development context in relation to Research and Innovation (context in which the EU intervenes)

3.1.1 R&I situation in the country

Ukraine inherited from the former Soviet Union a comprehensive research infrastructure and conducted research in the most areas of science and technology; however, key efforts were focused on the high technology sectors such as aerospace, materials, nuclear energy and some others. The system of research administration was inherited as well from the Soviet era. This system is based on providing financial support to research institutions, rather than financing research projects selected on the base of approved priorities.

The social-economic transformation in the country, which started in early 1990s, caused deep economic recession. As a result, the science sector, like many other budget-dependent sectors, suffered from a shortage of sustainable financial support and entered in a long-term period of slow decline. Fast-developing private-sector firms focused on near-term income and did not invest in long-term research programs. Newly established markets opened the door to foreign technology and thus hindered development of national research.

Lack of financial resources, in “hard” sciences such as physics and materials science with their need for equipment and low and often irregular salaries stimulated qualified researchers look for better jobs abroad and emigrate. Since 1990, thousands Ukrainian scientists have emigrated and integrated themselves in the research sector of leading countries.

The same factors prevented sufficient input of young scientists in research sector. At present, the average age of scientists in Ukrainian research centres is well over 40. Most directors of research institutes are at the same time scientific leaders and members of the National Academy of Sciences of Ukraine (NASU). They have strong influence on, and primary access to, the restricted funds provided for the institutes and participate in the distribution of the budget allocated by the government for the NASU.

Part of the budget of NASU has been used for stipends of actual Members of the NASU – on life-long basis. Researchers and educators possessing scientific degrees (Candidate or Doctor of Sciences) have higher salaries and may occupy better positions in research area and many others sectors of activity outside of research.

In the past, NASU contained the most qualified specialists in respective fields of research and was the leader in science and technology. NASU infrastructure includes numerous research institutes and the Presidium as a governing body. In spite of the fact that there are a number of sectoral Academies of Sciences (for example, Academy of Medical Sciences and Academy of Agricultural Sciences were inherited from the former Soviet Union), NASU remains leader in national science, technology and innovation.

At the same time, during last two decades new sectoral academies were established, mainly in social sciences. The National Academy of Pedagogical Sciences and National Academy of Legal Sciences have copied the organisation and administration scheme of NASU. They are self-governing institutions comprising number of sectoral research centres, relying on the state budget and keeping restricted membership with governmental stipends for actual members. In general, the quality of Ukrainian research in these areas is lower than in the hard sciences.

3.1.2 R&I national policies, legal framework

Ukraine was the first country among post-Soviet Union states to approve a legal framework for scientific-technological renovation of national economy (Law of Ukraine "On the basics of state policy in the sphere of science and technology activity," approved in 1991). Since that, the legal base has been extended (restricted list of key Laws regulating Science, Technology and Innovation (STI) Development in Ukraine has been presented in Box 1). As it follows from the list, some laws determined priorities of R&I development at different stages of the independence period. In reality, the legal declarations have created formal legal framework for R&I initiatives were not supported with necessary resources.

In order to comply with modern requirements, newly elaborated Law “On the Scientific and Scientific-Technical Activities” has been passed to the Parliament of Ukraine. It is expected that after approval, the Law will create new opportunities for the sector of R&I.

Leaders of the science sector and governmental decision-makers understand the importance of international cooperation in STI and, at least formally, supported and promoted efforts in this area. At one point, roughly 2010-11, there was extremely strong Government expression of interest in EU R&I support, but according to EUD officials, there was never any priority setting. In the latter years of the evaluation period, Government interest flagged. A new law on science priorities was passed in 2012 and is aligned with Horizon 2020. In 2015, the principal legal act of participation of Ukraine in the Horizon 2020 was approved (Law “On Ratification of the Agreement between Ukraine and EU on Participation of Ukraine in Framework EU Program of Scientific Research and Innovations Horizon 2020”, 15 July 2015).

Nonetheless, there remains distance between governmental decisions and realities in the R&I sector. A number of members of the research establishment interviewed did not perceive that there was any real government science policy with clear priorities.

In 2011-12, the NASU discussed with DEVCO the possibilities to make cooperation in Science, Technology and Innovation one of the three focal sectors of the new Country Strategy Paper (CSP) but instead it was relegated to a sub-priority.

Box 4 List of key Laws regulating Science, Technology and Innovation Development in Ukraine

- Law of Ukraine "On the basics of state policy in the sphere of science and technology activity", 13 December 1991, № 1977-XII // Bulletin of Supreme Council of Ukraine - 1992 - № 12. –, as amended on 6 January 2011;
- Law of Ukraine "About scientific and Technical Information" № 3322-XII dated 25 June 1993 (as amended on 6 January 2004);
- Law of Ukraine "About Scientific and Technical Expertise" № 51/95-BP dated 10 February 1995 (as amended on 3 March 2006);
- Law of Ukraine "On science work, science and technology activity", 1 December 1998. № 285 IV // Bulletin of the Supreme Council of Ukraine. – 1999. – № 23;
- Law of Ukraine "About Specific Regime of Technology Parks Innovative Activity" N 991-XIV dated 16 July 1999 (as amended on 1 January 2011);
- Law of Ukraine "On priorities of science and technology development", 11 July 2001 № 2623 – III //Bulletin of the Supreme Council of Ukraine. – 2001. – № 48. – as amended on 12 Oct 2012);
- Law of Ukraine "On innovation activity", 4 July 2002 № 40-IV , modified on 23 June 2010;
- Law of Ukraine "On priority areas of innovation activity". 16 January 2003. № 433 – XIV //, as amended on 14 July 2009 and modified 2011;
- Law of Ukraine “On National-level Comprehensive Program for Development of High-End Technologies” No 1676-IV of 9 April 2004;
- Law of Ukraine "About State Regulation of Activities in the Sphere of Technology Transfer" № 143-V dated 14.09.2006. (as amended on 1 January 2011);
- Law of Ukraine "About Scientific Park "Kyivska Polytechnika” № 523-V dated 22 December 2006;
- Law of Ukraine “On Scientific Parks” No 1563-VI of 25 June 2009;
- Law of Ukraine “On Amending the Law of Ukraine on Priorities in Science and Technology Development” (Law N2519-VI, issued on 9 September 2010);
- Law of Ukraine “On Priority Directions of Innovation Activity in Ukraine” (16 July 2003, modified 2011);
- Law of Ukraine “On State Regulation of Technology Transfer Activity” (2012).

3.1.3 R&I institutional framework (who does what)

Currently, the Ministry of Education and Science is in charge of research policy and a collection of scientific institutes running into the dozens is responsible for implementation. Within the Ministry, responsibility for EU programmes rests with the International Relations Department, modestly staffed with relatively young professionals.

The Association Agreement and its link with Horizon 2020 has greatly increased the workload: there are new instruments for research acceleration available to Ukraine. Ukrainian institutions can now lead research consortia (formerly they could lead only FP7 ERA-wide consortia, which were reserved for countries in the European Neighbourhood), there is now access to calls for small- and medium-sized enterprises (SME), and Ukraine can now participate in the 14 Horizon 2020 programme committees (without, however, a vote).

Innovation policy lies with the Ministry of Economy. Because of frequent institutional changes and senior official turnover, Institute scientists, often National Contact Points (NCPs) for FP7 and now NCPs

for Horizon 2020, have often been the effective institutional memory. EUD staff member characterised project implementation as often difficult.

As it was described in Section 3.1.1, the NASU is the largest scientific institution system in the country, responsible for both basic and applied research. It is divided into three sections – physics and math, chemistry and biology, and social sciences and humanities. It consists of 170 organisations, of which 120 are research institutes. It has 36,000 employees, of whom 20,000 are researchers. Engineering comes under the NASU umbrella, but there is a separate Academy of Medical, Agricultural, Pedagogical and Legal Sciences with similar status and administration. Apart of this there are a number of non-governmental organizations with declared scientific development in specific sectors which, however, do not have access to budget resources on permanent basis. The Academy of Higher Education, Academy of Economic Sciences, Ukrainian Academy of Ecological Sciences and some others consolidate researchers in focused areas and may contribute to policy and legal development in respective sectors.

The NASU is officially independent of Government and is governed by a Presidium consisting of Academicians. The Ministry can commission research from such academies, but there is no regulatory framework for reporting relationship. As a general rule, institutes directly attached to Ministries are very underfunded. The NASU receives approximately Hryvna 2.5 billion per year (EUR 100 million) from the Ministry.

Coordination between sectors can be difficult because the many sector research institutes under the National Academy (e.g., Academy of Agricultural Research) report to the Academy, not to the relevant sector ministry.

Traditionally, the national science sector is represented by three comprehensive components. The first one is the system of NASU. Having solid research infrastructure, institutes are losing leading position in the areas where they were successful, due to ageing personnel, restricted opportunities to update equipment and cooperate with partners abroad and permanent lack of funding. The second component is represented by sectoral academies and applied institutes (research centres) established by and subordinated to different ministries. For example, Ukrainian Scientific Centre of Marine Ecology is subordinated to the Ministry of Environment and Natural Resources of Ukraine. The situation in these centres is the same as in the NASU institutes.

The third component relates to the scientific research programs of universities. Some of these played the role of powerful research centres in the past and still conduct modern research. Kyiv National Shevchenko University, Kyiv Polytechnic Institute, Kharkiv National Karazin University and some other are leaders in university research. They are lacking research funding as well, however the unique situation of these institution is that they have highly qualified personnel and the opportunity to attract students to scientific activity. Universities have better formal indicators of success (participation in international programs and projects, international publications, etc.).

One of the signal successes, for which JSO-ERA may take some credit, was the association of Ukraine with Horizon 2020 in March 2014. The question, according to persons interviewed during the field mission, is now how Ukraine is going to make Horizon 2020 effective – which is being encouraged by Brussels – when the Ministry of Education and Science does not have a single entity to manage and coordinate the programme. Now that Ukraine is associated, it is important that it be represented by the highest-level scientists and R&I needs to become a Government priority.

The performance of NAS institutes is varied. Those that have established close ties with business, such as the Institute of Physics, the Institute of Agriculture, and the Institute of Metallurgy, are doing well; others are struggling. Universities have an advantage in science-to-business activities because, whereas institutes are by definition limited to one specialised sector, universities have diversified expertise. In addition, because they combine teaching and researchers, universities have better access to talented young researchers.

3.2 Description of EU strategic priorities for the country, especially in the areas of R&I and key thematic sectors

The CSP (2007-2013) had as overall objectives promoting transition, implementing the European Neighbourhood Policy (ENP) and EU-Ukraine National Action Plan (NAP – agreed 2005), address security challenges and development policy objectives. EU is the largest donor to Ukraine (nearly EUR 2.4 billion provided since 1991).

The previous CSP (2002-2006) included support to private sector as one of three focal sectors. Priorities for this CSP included inter-alia: information society (includes research and training) and people to people contacts (incl. Tempus, Erasmus Mundus), Science & Technology (S&T) co-operation, participation in FP7, Marie-Curie mobility schemes and training at Joint Research Centre (JRC) institutes.

A major strategic priority for international donors in Ukraine was and continues to be preventing brain drain of scientists with expertise in military, especially aerospace and nuclear technologies, to countries judged to pose a threat to international security. One of the major efforts in this direction is the Science and Technology Centre Ukraine (STCU) formed in the early 1990s with support from the U.S., Canada, and Sweden; the latter subsequently replaced by the EU. In addition to directly supporting non-proliferation, STCU promotes the commercialisation of Ukrainian research results in order to provide scientists with attractive professional opportunities. STCU is broadly respected, a fact that some interviewees attributed to a strong stakeholder network because of the defence/security links.

While shoring up a foundering post-Soviet research establishment and drawing it into the European research orbit has been the fundamental rationale for EU cooperation, supporting innovation has also been an important part of the EU programme in Ukraine. The main feature of this is the Innovative Economy Programme for Ukraine which started in 2009. This programme was subject to a specific evaluation for which the final report[135] was published in May 2014. The report provides an assessment of the achievements of four projects which compromise the programme. Two of these projects are the same as the ones selected for this current evaluation.

Under the 2006 Country draft Action Programme (AP2006), three priority sectors included one on "Support to the private sector" which has an action planned on "Innovative economy" (EUR 17 million; the INNO projects described below) involving three poles: education/R&I/industry and improving EU-Ukraine exchange including INTAS[136] in the EU R&I Framework Programme, and collaboration with STCU.

4 Overview of EU-funded key interventions

Table 12 Overview of EU-funded key interventions in Ukraine

#	Sector	Contract title	CRIS number	Contractor	Year	Total amount contracted (in EUR)
1	SISS	Joint Support Office for Enhancing Ukraine's Integration in EU Research Area (JSO-ERA)	c-170251	ECORYS NEDERLAND BV	2009	3,440,481
2	SISS	Support to knowledge based and innovative enterprises and technology transfer to business in Ukraine (INNO-Enterprise)	c-199466	EUROPEAN PROFILES ANONYMI ETAIREIAMELETON KAI SYMVOULON EPICHEIRISEON	2009	2,459,635
3	SISS	Development of financial schemes and infrastructure to support innovation in Ukraine (INNO-Finance)	c-200053	LOUIS BERGER SAS	2009	1,387,555
4	SISS	Enhance Innovation Strategies, Policies and Regulation in Ukraine (INNO-Policy)	c-204231	LOUIS BERGER SAS	2009	2,596,404
5	Higher Education	Erasmus Mundus Action 2				
6	Higher Education	Tempus IV				

[135] Hopkinson, L, Tchonkova D and Netter J-M, May 2014, Evaluation of the past and preparation of the future EU-funded Cooperation in the area of research and innovations, ADE & IBF for the European Commission. The evaluation assesses the programme against the OECD-DAC's five standard evaluation criteria and the EU's additional criteria for the 3Cs, EC value added and Visibility. The approach is therefore different from the current evaluation with the evaluation questions overlapping but not corresponding directly on a one-to-one basis.

136 INTAS is an international association to promote co-operation with scientists in the NIS, and complements the activities of Copernicus-2. Set up in June 1993 as an independent organisation under Belgian law. Members comprise the EU, EU Member States, and European Economic Area countries. As a non-profit, charitable association it is funded primarily by FP5 and carries out a large part of EU research activities with the New Independent States (NIS).

SISS sector

Project #1: Joint Support Office for Enhancing Ukraine's Integration into the European Research Area (JSO-ERA)

Description:

This project, implemented by Ecorys (contract for EUR 3.4 million – 29 months) operated from July 2009 to December 2011. Objectives were:

- To raise public awareness on EU R&D work and FP7;
- To increase opportunities and participation of Ukrainian research and business communities in EU networks on innovation and commercialisation of R&D output;
- To ensure capacity building and institutional strengthening of the Ministry of Education and Science (MinE&S), and the National Information Centre for Ukraine-EU S&T Co-operation (NIP-Ukraine);
- To encourage the participation of Ukrainian R&I institutions and SMEs in EU programmes in innovation and technology transfer & support, the MinE&S prepares ground for future accession of Ukraine to the Competitiveness and Innovation Framework Programme.

The project worked with MinE&S, NIP-Ukraine, the National Academy of Science, SMEs, R&I organisations, State authorities, and NGOs. JSO staff included FP7 thematic experts.

Project activities:

A first proposal writing workshop was held on 18 Dec 2009 in Kyiv in response to an FP7 ERA-wide Call for Proposal, FP7-INCO-2010-6 "*Integrating Europe's neighbours into the European Research Area*". During two years life of project ten FP7 info days were held in Kyiv and regional centres. A system of National Contact Points for FP7 (27 by the end of project) was established by the Government of Ukraine. Significantly, these have been carried over as NCPs for Horizon 2020. A helpdesk for FP7 was established to give advice to applicants. Three study tours to the Netherlands and Belgium, Austria and Hungary and Greece were organised. 21 seminars and training workshops on aspects of EU support to R&I were held (approx. 15 in 2010). Different sectors covered including Environment and Health in workshops. Ukrainian researchers attended other FP7 conferences around EU. The following three conferences were organised in Kyiv, with 435 people taking part in total:

- "S&T Co-operation between Ukraine and EU countries: benefits and barriers", 24 February 2010;
- "Boosting Ukraine's participation in the EU FP7 on research: achievements and perspectives", 6 April 2011 - attended by 160 participants;
- "Advancing EU-Ukraine co-operation in research: JSO-ERA project results and achievements", 10 November 2011.

A feedback survey was conducted in 2011 with 227 respondents.

Tracking of FP7 applications showed that, by the end of project, there were 941 Ukrainian applicants among 381,769 total applicants in 77,873 eligible proposals, submitted in response to 294 calls. The last call closed on 30 April 2011.

Rationale. The project was designed to draw Ukraine more closely into the European Research Area by strengthening its participation in FP7.

Findings:

The 2014 evaluation of EU cooperation in Ukraine in R&I found evidence that JSO-ERA, through its effective outreach and capacity building, had raised the success rate of Ukrainian researchers seeking to participate in FP7 projects. It gave high marks to the project's impact, which it largely ascribed to the successful putting in place and training of National Contact Points (NCPs) throughout the research system. The field mission found sustainability to be high, because the FP7 NCPs have evolved into Horizon 2020 NCPs.

On the innovation front, JSO-ERA paved the way for Ukraine's integration into the European Enterprise Network and the COSME initiative[137] of DG GROW (Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs), designed to promote transfer of technology between SMEs. A wide range of stakeholders interviewed during the field mission confirmed that participation in JSO-ERA was broad and that the transition from FP7 to Horizon 2020 had been successfully bridged by the

[137] Programme for the Competitiveness of Enterprises and Small and Medium-sized Enterprises

continued operation of NCPs that had been put in place by JSO-ERA. Stakeholders reported that JSO-ERA successfully assisted Ukrainian institutions to draft proposals.

There were differing views, however, on the breadth and inclusiveness of the project's trainings. One interviewee stated that JSO-ERA failed to reach out sufficiently to universities, regarded more as teaching than research institutions, compared to NASU institutes. Another felt that the private sector was not sufficiently implicated. Institutional instability was a constraint; for example, because of this, even though the Ministry of Environment has applied research centres throughout Ukraine, their knowledge of FP7 was poor. The EU supported a number of projects in EnvCC, but because of the lack of coordination between state agencies and institutional memory, knowledge of them is scattered.

Project #2: INNO-Enterprise

Description:

The project ran from July 2009 to September 2011 (implemented by European Profiles SA, contract for EUR 2.5 million – 28 months) with the objective to "stimulate the innovative activity of Ukrainian firms" through infrastructure, technology transfer, service centres, technoparks and training programme". The beneficiary was the State Committee of Ukraine for Regulatory Policy and Entrepreneurship (SCURPE), but in December 2010 the Government made the decision to close this entity. The last SCURPE statement on the Government web portal dates from February 2011. However, the project was still operating at time of the 4th Progress Report (June 2011).

Rationale:

As broadly confirmed by all stakeholders interviewed, the weakest point in the research-innovation cycle in Ukraine is that scientists do not effectively commercialise their results. This is due to multiple factors: poor communication skills, a preference to concentrate on what they take to be fundamental research (even though any outside observer would judge Ukrainian research to be quite application-oriented), lack of a highly developed intellectual property rights system, lack of venture capitalists, etc. On the business side, persons interviewed were of differing opinions, some saying that Ukrainian businesses preferred to listen to national researchers and others stating that they preferred to listen to European ones.

Findings:

The main outcome of INNO-Enterprise was formation of an eight-member Ukrainian consortium of public and private institutions – Ministry of Economy, Chamber of Commerce, EUD, University, NASU and selected institutes, NGOs, and private firms – to promote relations between Ukrainian and European SMEs via the Enterprise Europe Network (EEN). JSO-ERA also contributed to this outcome. Any member of the national consortium can apply for funding to the EEN. The Consortium will work with business and SMEs to do feasibility studies, branding studies, etc.

Stakeholders interviewed were somewhat pessimistic on the potential for sustainability. One stakeholder stated that the four INNO component projects met from time to time but never really coordinated and that, at project end, there was little interest in continuing. The Innovative Economy Evaluation (2014) mentioned above concluded that INNO-Enterprise was highly relevant and that its greatest outcome was awareness raising and bringing the need for an innovation policy higher up the government agenda.

However, it was also hampered by insufficient stakeholder analysis at an early stage and poor selection of beneficiary organisations that failed to ensure ownership. Like stakeholders interviewed, the evaluators were of the view that prospects for sustainability were poor and noted that no government innovation policy was actually instituted. There was little evidence of coordination and complementarity with other donor activities; one reason for which, according to an EUD official interviewed during the field mission, is that there is very little Member State interest in R&I in Ukraine.

Project #3: INNO-Finance

Description:

The project ran for 26 months with a budget of EUR 2.3 million and implemented by a consortium led by Louis Berger International. The beneficiary was the State Agency for Investments and Innovations. Its objectives were to support the State Agency, to assist with the establishment of venture capital funds, and to support the development of loan guarantee funds.

Rationale:

Businesses cited the poor financial environment as the greatest barrier to R&I in Ukraine.

Findings:

INNO-Finance is broadly considered to have been a complete failure, a 2014 evaluation conclusion confirmed by the EUD and stakeholders interviewed. There was insufficient assessment of legal and technical constraints to development of the financial institutions envisaged. No steps were taken to promote the inflow of foreign capital to finance business innovation. There were, in addition, major organisational changes affecting the beneficiary institution during the project.

Project #4: INNO-Policy

Description:

The project had specific objectives to contribute to identifying a government policy on R&I based on best EU practice but compatible with national context, to improve the adaptation and coordination of regional innovation policies, and to improve the regulatory and legislative environment for innovation in Ukraine.

Rationale:

Lack of an overall innovation policy in Ukraine.

Findings:

An EUD staffer interviewed was of the view that, while INNO-Policy produced many recommendations, it produced no overall policy. This was in part because of institutional changes in Government, which prevented it from taking the pieces and putting together an innovation policy. The project evaluation came to the same conclusion.

Higher Education

Programme #5: Erasmus Mundus Action 2

Description:

For the 2007-2012 period Ukraine has had 503 persons benefitting from Erasmus Mundus Action 2 scholarships. A bit less than half of these were for doctoral students and about a quarter each for post-doc and staff scholarships. In total these were worth EUR 10 million.

Findings:

Persons interviewed felt that Erasmus Mundus (EM) was very successful at the individual level but that there was no guarantee of a contribution to institutional development because many EM graduates are unable to find attractive employment in Ukraine. Mobility is attractive at senior levels because it is typically only for a month or two, but it is hard to get PhD students, who are mostly already in employment, to commit to several years abroad. There is no real post-doctoral equivalent. Whether EM contributed to R&I was a case-by-case question, and tended to do so mostly where there was a pre-existing relationship between universities. While it is relevant to this evaluation for its synergies with R&I, EM was designed as an education and mobility programme, not as one specifically designed to produce R&I results.

Programme #6: Tempus IV

Description:

There have also been an extensive series of 22 Tempus IV grants for a wide variety of institutional development projects. Many of these are about curriculum and programme development often at a postgraduate level. They are spread over a good range of Ukrainian universities and colleges, with a similarly wide range of EU universities and colleges supporting them. They involve grants in the range of EUR 0.6 to 1.2 million. Many of these are still on-going. In total, therefore, they are likely to involve a total of EUR 20 million in disbursements.

Findings:

Like EM, the main goal of Tempus was not producing R&I results but rather capacity building in Higher Education outside the EU – developing education programmes or improved structures, communication with stakeholders like business, etc. It is the synergies of Tempus with R&I that make it relevant to this evaluation. All stakeholders interviewed were of the view that the more than 90 projects, mostly for universities, that were implemented under Tempus made a real contribution to re-tooling education in Ukraine. Among the more important of these was reforming the PhD degree and curriculum development. University officials interviewed stated that Higher Education in Ukraine was undergoing a fundamental shift from a Soviet to European “mind set.” Sometimes, as in the reform of doctoral education, Tempus projects made a significant indirect contribution to R&I.

5 Field mission findings, by relevant EQ

5.1 EQ 1: Development policy objectives

SISS sector

EQ 1 To what extent has EU support to R&I through DEVCO been successful in promoting the overall development policy objectives of the EU?	
JC 11 Link between R&I activities and EU development objectives (as per European Consensus and Agenda for Change – MDGs, etc.)	National level: - The 2014 evaluation of innovation found that EU support was fully aligned with EU priorities. Regional level: - The only regional-level programme examined was STCU. This programme was consistent with the EU goal of ensuring remunerative employment and professionally rewarding employment for scientists with security-sensitive expertise, as well as encouraging commercialisation of Ukrainian research result.,
JC 12 Extent to which R&I has informed sector policy dialogue and sector support at national and regional levels	National level: - According to EUD staff, research policy dialogue is complicated by the fact that, while the Ministry of Education and Science is responsible for overall policy, sector ministries are responsible for sector policies. Capacity and commitment at the level of the Ministry is felt to be low by members of the research community. Some researchers interviewed felt that the International Cooperation Department at the Ministry lacked the depth and experience to implement the Roadmap for Horizon 2020. - Institutions supported through FP7 have been active in policy dialogue with Government and thereby contributed to Government-EU policy discussions. For example, MAMA-86, an environmental NGO born as a result of the Chernobyl catastrophe, has been in constant dialogue on environmental policy with Government and made a public assessment report on the National Environmental Policy.

5.2 EQ 2: Impact on partner country research communities

SISS sector

EQ 2 To what extent has DEVCO funding of R&I enabled research communities in partner countries to build up and develop their own R&I capacity, including the ability to actively engage in research networks (regional and international)?	
JC 22 Increased focus of EU support on 'capacity building' and enhancing institutional sustainability	National level: - At the overall country strategy level there is no doubt of alignment with Government priorities. As stated above, whereas there was strong Government interest in R&I at the beginning of the evaluation period, there was never a set of national priorities adopted and interest weakened over time. Stakeholders interviewed stated that stronger Government action will be needed in the context of Horizon 2020.
JC 23 Improved access of developing countries' research communities to EU FP7 funding through RTD Summary assessments by sector	National level: - All evidence is that JSO-ERA improved capacity to participate in FP7 and that the result can be seen in statistical terms. In 2011 the system of FP7 National Contact Points was established with experts trained under JSO. They are still active as NCPs under Horizon 2020. - Ukrainian researchers estimate that Institute scientists were active in 97 FP7 projects, most successfully in physics and materials science. - Nonetheless, interviews with stakeholders give some cause for concern. Generally speaking, NAS institute participation was much higher than Ministry institute participation. The overall order was NAS institutes, universities, and then the private sector. Under Horizon 2020, universities, NGOs, and the private sector are more active. A number of interviewees stated that, while participation as an independent expert hired by a European institution was highly attractive, participation at the Institute level was not. Procedures are too difficult, administrative and management capacity is lacking, a large support staff is needed and the risks of applying as a lead institute (allowed since association in 2014) are too high. An institute director characterised Ukrainian institutions as unprepared to be strong EU project partners and called for capacity building to provide all scientists with basic project management skills. Institutes themselves

	do not have the funds for this. One scientist reported that, having successfully led a consortium under a FP7 Special Programme (limited to institutes from the Neighbourhood East) she applied for seven FP7 unrestricted grants as manager and won only one acceptance. Managers complained that the FP7 website was repeatedly down. - However, one FP7 ERA-wide project coordinator (unusually, with a background in both science and business) reported that the real problem was not so much EU rules and procedures as Ukrainian rules and procedures. - There is, nonetheless, considerable indirect gain to Institutes from the participation of their scientists as individuals in European-led FP7 projects. - Prior to JSO-ERA, awareness of FP7 opportunities among researchers was extremely limited, in addition to which, Ukraine was only an associate member not qualified to serve as a consortium leader save under a special call. Low awareness was also cited by the representative of the Chamber of Commerce interviewed. Information was restricted and the Ministry of Education and Science website was uninformative. - Members of the research community interviewed commented that trainings through JSO (and BILAT-UKR, an FP7 project) placed much more emphasis on application for funding than on implementation of projects. - Under FP7, there were restricted "ERA-wide" calls where Ukrainian institutes could serve as coordinator. These occurred in two waves. Seven such projects were implemented, in fields including aviation, biomedicine, materials science, and transport. For example, in one project on nanotechnology run by the Institute of Physics, there were three summer schools, four conferences, and three Springer volumes. Another ERA-wide FP7 project at the Institute for Molecular Biology financed not research, but capacity building of institutes for cooperation through trainings, study visits, and support for drafting of an Institute strategy. 40 students were trained in intellectual property rights, scientific communication, grant writing, and how to translate fundamental results into clinical practice. The Institute got the idea for the project after a JSO-ERA training.
JC 24 Enhanced networking of developing countries' researchers at regional and inter-national level	National level: - JSO-ERA supported networking activities. It also laid the groundwork for Ukrainian participation in the Enterprise Europe Network of SMEs under the new COSME programme.

5.3 EQ 3: Instruments and modalities

SISS sector

EQ 3 To what extent has DG DEVCO in its support to R&I used its available instruments in a way that maximizes their value?	
JC 31 Appropriateness of the financing modalities and types of funding under different EU instruments and the way they have been applied for enhancing R&I	National level: - The interventions covered here give scant justice to the full range of EU programmes with options for RTD cooperation. As identified by BILAT-UKR*AINA, there are: o FP7 / Horizon 2020 o Erasmus Mundus o Tempus o Jean Monnet Programme o Instrument for Nuclear Safety Cooperation funded through ENPI (2007-2013) o ENPI Cross-border Cooperation Poland-Belarus-Ukraine Programme o Hungary-Slovakia-Romania-Ukraine ENPI Cross-Border Cooperation Programme 2007-13 o Joint Operational Programme Romania-Ukraine-Republic of Moldova 2007-13 o Black Sea Basin Joint Operational Programme 2007-13 o INOGATE Interstate Oil and Gas Transport to Europe funded through ENPI o South East Europe Programme o Central Europe Programme o Each has different purposes and priorities, different funding schemes and instruments, different rules for application and rules - During part of the evaluation period, there were transaction difficulties. One, since solved, was that institutes receiving EU funding were required to exchange

	it into local currency, complicating any further transactions with Europe – transfer of funds to collaborating institutions, purchase of equipment, etc. Still causing difficulty, however, is the fact that Institutes receiving funds are still required to employ researchers according to Government regulations; making it difficult to pay them enhanced salaries made possible by the grant. Various grey-area schemes have been devised to get around this. • Institute management systems are completely Ukraine-oriented, making it difficult to achieve compatibility with EU requirements, reporting, etc. Once money enters an Institute account, it must be managed according to Government rules. For example, any travel abroad requires permission of the Council of Ministers. If an EU student or researcher comes on a visiting basis, there is no legal basis to pay him.
JC 32 Strategic approach adopted to choosing different possible actors / channels with whom the EU can work to support R&I and how best to support them with the instruments and modalities available	National level: • Under INNO-Enterprise, for the first time NGOs, not just universities and research institutes, were able to serve as sub-contractors to European institutions. MAMA-86 , an environmental NGO, was able to sub-contract for Wuppertal Institute to create awareness of greener lifestyles essential for innovation to occur. • JSO aimed to involve a broad range of research stakeholders including both state and non-state actors.
JC 33 Level of efforts taken to choose between and to combine different modalities and channels	National level: • All support reviewed was using the project modality.

5.4 EQ 4: DEVCO-RTD complementarity and coherence

SISS sector

EQ 4 To what extent has EU support to R&I by DG DEVCO and by DG RTD been complementary and their collaboration promoted PCD?	
JC 41 Extent to which DGs DEVCO and RTD have formulated clear strategies on how they should cooperate in a complementary way and how the work of other relevant EU institutions (such as the EIB) is also complementary with their own	National level: • While JSO-ERA was specifically aimed at promoting RTD FP7 participation, there is no evidence that, at country level, DEVCO and RTD coordinate in any way. The EU is effectively waiting for Government to step up its coordination efforts in the context of Horizon 2020.
JC 42 Degree to which DEVCO support addresses issues that could/would not have been better, or equally well, addressed through RTD and vice versa	National level: • The DG DEVCO-financed JSO-ERA implemented some common activities with the BILAT-UKR*AINA ("Enhancing the bilateral S&T partnership with Ukraine * Advanced innovative Approach) project financed (at a much lower level of funding) by FP7. The FP7 project ran 2012-15 and built on the previous BILAT-UKR (2008-12) project. The general goal was to provide a framework to encourage cooperation in research, development, and innovation. It did this by providing training for FP7 NCPs and support for them to participate in events abroad. There were joint JSO-BILAT trainings of financial and legal issues in project management. • STCU is very highly regarded as an international organisation with EU participation. While it has a focus on security and reduction of threats (the responsible DEVCO sections are D5 and D6 on nuclear security and reduction of threats) many of the projects it supports are really non-security related. STCU is especially respected for its experience in project management and as being good facilitators to simplify.
JC 43 Level at which DEVCO support has benefited from complementary action financed through	National level: • JSO-ERA ended in September 2011. Thus it overlapped temporally with the FP7 programme BILAT-UKR (2008-12), which was succeeded by BILAT-UKR*AINA ("Enhancing the Bilateral S&T Partnership with Ukraine" * Advanced Innovative Approach (September 2012-June 2015). This

RTD and vice versa	project was to support institutional dialogue, provide analytical input to the Joint Science and Technology Cooperation Committee and generally contribute to implementation of the EU-Ukraine STI Roadmap. • There were some FP7-financed projects that aimed at capacity building activities.

5.5 EQ 5: Transfer of R&I results into development processes

SISS sector

EQ 5 To what extent has DEVCO support led to the transfer of R&I results into processes likely to impact on the achievement of EU development objectives?	
JC 51 Clear and logical thinking at sector level on how DEVCO support could ultimately lead through to research results being used in development processes	National level: • At the level of the ENP Action Plan, there was no lack of alignment between R&I goals and Ukrainian integration into the ERA. • R&I activities have been reasonably aligned with SME innovation, but many of the barriers lie outside R&I strictly speaking. SMEs are suffering from restricted markets, even in the EU due to lack of experience, problems with standards, etc. They face high taxes and energy costs. The legal framework is in a state of constant flux, and it is difficult to adapt. Better access to finance is needed. The winners from access to EU markets will be large enterprises and enterprises that already have ties with the EU market such as agriculture. • Ukrainian businesses are still not very interested in the results of national R&D. • In general, Ukrainian scientists are poor at the communications and business skills needed to commercialise their research results. At one point, institutes were forbidden to start companies. Intellectual Property expertise is very scarce and the domestic patent system is very unsuited to international licensing. Scientists had no communication skills to sell their ideas to business. The Science and Technology Centre Ukraine (funded in part by DEVCO) advised scientists on how to commercialise their products and claims over two dozen successful start-up companies were formed with their help. One representative of the Ukrainian consortium of the EEN stated that the most difficult problem for scientists was explaining their results to a potential customer. Next, they need experience on how to work with constructive feedback. • More than one stakeholder interviewed stated that Ukraine needs a way of evaluating scientific activities in order to demonstrate to Government the value that is added. An institute head stated that the most important EU contribution had not been through direct financing of research, but through its influence on the way scientific research is organised. This was because people who have participated in EU-financed research projects have learned how to translate research into applications and manage the process at State level.
JC 53 Extent of external lessons learning, sharing and uptake within the sectors supported in partner countries, and at international level	National level: • The JSO project has attempted to bring home to Ukrainian scientists' lessons learned in European countries, as had Inno-Enterprise. Many researchers interviewed expressed the view that Ukrainian science is experiencing a sweeping change of mind-set in order to integrate with Europe. University officials expressed the same view regarding higher education in Ukraine.
JC 54 Development processes and outcomes have been built on or used the results of research funded by DEVCO or shared through DEVCO supported research networks	National level: • The most concrete outcome of DEVCO support has been the successful commercialisation of an estimated 24 technologies under the STCU programme. These have covered areas as diverse as holography, nanotechnology, non-invasive testing, solar energy, and environmental pollution (see "success stories" in the 2014 annual report, http://www.stcu.int/documents/stcu_inf/reports/annual/2014/Annual_Report_2014.pdf • Research institutes visited eagerly shared stories of practical applications of technologies that they had developed in a broad range of fields, but these were developed in the context of FP7, not RTD support.

5.6 EQ 6: EU capacities

SISS sector

EQ 6 To what extent have the EU external relations services ensured adequate capacities to conduct policy dialogue related to R&I and to support research and innovation in partner countries?	
JC 61 Extent to which EU internal capacity to manage R&I support and conduct policy dialogue is in place at the levels required	National level: - There were at one point two programme officers, one for research and one for innovation, but now both sectors come under one staffer. - EUDs find it very difficult to deal with cross-cutting issues in policy dialogue. Regional level: - The EUD noted that it is often unaware of the activities of regional projects managed from Brussels, as is Government.
JC 62 Extent to which R&I policy dialogue is operational at all levels	National level: - All policy dialogue should be governed by two documents: the Science and Technology Agreement signed in 2002 and the association agreement with Horizon 2020. There are limitations to both. The Ukraine-EU Committee related to the S&T Agreement has only met a handful of times. The EU mandate in this area is very limited. FP7 / Horizon 2020 NCPs pointed out that there is a lack of information forthcoming from Brussels and a lack of funds to fully participate in Brussels governance processes.

6 Conclusions

DG DEVCO support for R&I in Ukraine contributed significantly to the improved performance on FP7 participation and reaching association with Horizon 2020. Judged against the underlying goal of encouraging members of a high-standing but beleaguered S&T establishment to remain in Ukraine and work with European partners, this counts as a success. Among the most concrete achievements was the putting in place of a functioning, sustainable network of National Contact Points for FP7 that have now been taken over into the Horizon 2020 context. Mobility programmes have worked reasonably well with some exceptions, such as funding PhD students to participate in Erasmus. Tempus-IV projects for the reform of higher education have been successful in promoting significant reform in Ukrainian Higher Education, especially at the PhD level. DEVCO support has addressed the gap between research and innovation through projects to help scientists commercialise their results (STCU) and through projects designed to promote SMEs and integrate them into European networks (INNO-Enterprise and now COSME). There remain a number of challenges though. While the mind-set of Ukrainian science is changing, there is still a lack of communication and business skills standing in the way of innovation. Government capacity to coordinate and manage Horizon 2020 is very limited. Frequent institutional changes have meant that NCPs and research Institute heads have in many cases become the only institutional memory.

Researchers interviewed had a surprisingly pessimistic view of the European Research Area, going so far as to suggest that this was more a slogan than a reality. They still see themselves as junior partners in cooperation with Europe, although the possibilities for such cooperation have increased greatly over the evaluation period. Two problems constrain DEVCO's strategy to build capacity and forge closer ties with European institutions. First, the starting level of Ukrainian capacity is low relative to Europe. This means that a combination of a high level of DEVCO support and a high level of Government commitment will be needed. More important, however, many institutes do not see much advantage in taking the lead role in joint research projects. It is more attractive to participate at the level of individual experts rather than institutes. This may be changing, as some researchers interviewed were comfortable with the lead role, but even here, the relatively low level of success in the applications process, the heavy administrative and financial demands, etc., are discouraging factors.

In the area of innovation, DEVCO-financed activities have seen some successes but the broad context – high taxes, poor marketing skills, lack of finance, insufficiently developed system of intellectual property rights – need to be kept in mind.

7 Annex: List of people interviewed

EU Delegation

Name	Position	Institution
Cabello, Juana Mera	Head of Section - Economic Cooperation, Social and Regional Development	Delegation of the European Union to Ukraine
Rybak, Vira	Sector Manager - Education, Science, Information Society	Delegation of the European Union to Ukraine

Government

Name	Position	Institution
Novosad, Hanna	Director – Dpt. of International Relations and European Integration	Ministry of Education and Science of Ukraine
Shapoval, Stella	Head - Unit for International Scientific Cooperation	Ministry of Education and Science of Ukraine

Universities

Name	Position	Institution
Bediukh (Dr.), Alexander	Senior Researcher - European Enterprise Network Contact Person	T. Shevchenko National University of Kyiv - Faculty of Radiophysics
Chovnuk, Larysa	Director - International Relations Department	National University of Kyiv-Mohyla Academy
Duda (Dr.), Bogdan	Assistant of the Rector	National Technical University “KPI-Kyiv Polytechnic Institute”
Shukayev (Prof. Dr.) Sergiy	Deputy Head International Collaboration Department Administration of the EU Projects	National Technical University “KPI-Kyiv Polytechnic Institute”
Sidorenko (Prof. Dr.), Sergiy M.	Vice-Rector Corresponding Member of NASU Coordinator of UNESCO Chair	National Technical University "Kiev Polytechnic Institute"

Research organisations

Name	Position	Institution
Basok (Prof. Dr.), Boris	Deputy Director, Corresponding Member of NASU	Institute of Technical Termophysics National Academy of Sciences of Ukraine
Dubynsky (Mr.), Yegor	Adviser to the Vice-President	National Academy of Sciences of Ukraine
Fesenko (Dr.), Olena	Head Department of Technology Transfer, Innovations and Intellectual Property; European Enterprise Network Coordinator – Ukrainian Consortium	Institute of Physics of the National Academy of Sciences of Ukraine
Geletukha (Dr.), Georgiy	Director Department of Thermophysical Problems of Bioenergetics	Institute of Technical Termophysics National Academy of Sciences of Ukraine
Gorokhovska (Dr.), Marina	Scientific Manager Department of Scientific Management	Presidium of the National Academy of Sciences of Ukraine
Korsun, Victor	Deputy Executive Director	STCU – Science and Technology Center in Ukraine
Kostyuchenko (Dr.), Yuriy	Chief Researcher IIASA Council Member	Centre for Aerospace Research of the Earth National Academy of Sciences of Ukraine
Kot (Dr.), Olga	HORIZON 2020 NCP Inclusive, Innovative and Reflective Societies	Dobrov Centre for S&T Potential and Science History Studies
Mishchuk (Dr.), Yanina	Scientific Secretary Manager of COMBIOM – FP7 Project	Institute of Molecular Biology and Genetics

		National Academy of Sciences of Ukraine
Zagorodny (Prof. Dr.), Anatoly	Academician Vice-President	National Academy of Sciences of Ukraine

Private sector

Name	Position	Institution
Marushevska, Olga	Director Department of Green Modernization of Economic	Ukrainian Chamber of Commerce

Civil society and NGOs

Name	Position	Institution
Golubovska-Onisimova, Anna	NGO President National Coordinator FP7 Project CSOCONTRIBUTION2SCP	All-Ukrainian NGO MAMA-86

Country Note – Vietnam

By Bjørn Bauer, David Watson, Phung Thanh Xuan and Marian Meller on field mission from 19-23 October 2015.

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List of Acronyms

CCP	Community Carbon Pools
CSP	Country Strategy Paper
DCI	Development Co-operation Instrument
DEVCO	Directorate-General for International Cooperation and Development
DG	Directorate-General
EDF	European Development Fund
EnvCC	Environment and Climate Change
EQ	Evaluation Question
EU	European Union
EUD	European Union Delegation
EUR	Euro
FP	Framework Programme
FSNA	Food Security, Nutrition and Agriculture
FFI	Flora and Fauna International
HEI	Higher Education Institute
ITDR	Institute for Tourism Development Research
JC	Judgment Criterion
MDG	Millennium Development Goal
MCST	Ministry of Culture, Sport and Tourism
MOIA	Ministry of Internal Affairs
MOST	Ministry of Science and Technology
MOF	Ministry of Finance
MPI	Ministry of Planning and Investments
NAFOSTED	National Foundation for Science and Technology Development
NAFOSTI	National Foundation for S&I Innovation
NGO	Non-governmental organisation
NIP	National Indicative Programme
PCD	Policy Coherence for Development
PhD	Doctor of Philosophy
RCEE	Research Centre for Energy and Environment
REDD	Reduced Emissions from Deforestation and Degradation
R&I	Research and Innovation
RTD	Directorate-General for Research and Innovation
SDF	Strategic Dialogue Facility
SEA-EU-NET	South East Asia and European Union Network Facilitator
SISS	Science, Information Society and Space
SME	Small and medium-sized enterprises
TITC	Tourism Information and Technology Centre
ToR	Terms of Reference
VNAT	Vietnam National Administration of Tourism
VNCPC	Vietnam Cleaner Production Centre
VTOS	*Vietnam* Tourism Occupational *Standards*

Note: The Evaluation uses the common acronym "**EC**" to refer to either the "Commission of the European Union" (post-Lisbon Treaty) or the "European Commission" (pre-Lisbon Treaty), as applicable.

1 Introduction

1.1 Mandate, scope and purpose of the evaluation

As spelt out in the Terms of Reference (ToR) the general objectives of this evaluation are:

- To provide the relevant external cooperation services of the EU and the wider public with an independent assessment of the support provided to research and innovation for development over the period 2007-2013;
- To identify key lessons and forward-looking recommendations.

The thematic scope of the evaluation encompasses the EU support to Research and Innovation (R&I) in four key sectors: (i) Food Security, Nutrition and Agriculture (FSNA), (ii) Health, (iii) Environment and Climate Change (EnvCC), and (iv) Science, Information Society and Space (SISS) (henceforth "thematic sectors").

The specific objectives of this evaluation are to provide an overall judgement on the extent to which the EU development co-operation policy has adopted a strategic approach to support R&I in the thematic sectors, and whether the approach was appropriate to enhance capacity to reach development objectives in these fields. Moreover, the ToR specify that the conclusions and lessons learned are expected to specifically address areas of particular interest, namely:

- The support provided to capacity building in partner countries;
- The level of the transfer of research results into social or economic processes likely to impact on poverty reduction in the longer term;
- The appropriateness of instruments and modalities made available; and
- The approaches, notably *country* versus *regional* support, or *direct* support to research versus *indirect* support through sectoral programmes that include research components.

The legal scope of the evaluation is delineated by the activities supported by the Directorate-General for International Cooperation and Development (DEVCO) through its cooperation instruments: the European Development Fund (EDF), the Development Cooperation Instrument (DCI) – both geographic and thematic budget lines – and the European Neighbourhood and Partnership Instrument (ENPI).

While the Directorate-General for Research & Innovation (RTD) implements activities supporting R&I in developing countries, its policies, strategies, programmes and activities are not included in the scope of the evaluation and hence not the object of in-depth analysis here. They are, however, considered from a contextual point of view, and analysed from a complementarity and synergy perspective, together with, for instance, the activities of EU member states, other donors or multilateral organisations.

The temporal scope of the evaluation is the period of 2007-2013 which corresponds to the last EU multi-annual budget period and to that of the 10th EDF. Equally this is the period of RTD's Seventh Framework Programme (FP7).

1.2 Purpose of the note

The ten Country Notes for this evaluation serve to provide a national level view of what DG DEVCO support to R&I entails on the ground. They validate and expand the documentary analysis using the evidence collected during the field mission and the individual responses of EU Delegations (EUDs) to the online survey.

The Country Note is structured as follows. The introduction in Section 1 explains the rationale for the choice of the country. Section 2 outlines the methods use. Section 3 spells out the country context for DEVCO support to R&I and Section 4 provides an overview of the key DEVCO interventions. Section 5 presents the field mission findings for each EQ. These findings are categorised for each sector, per JC and per geographic level (national, regional, global) as far as applicable. Section 6 draws out any overall conclusions about the EU's cooperation on R&I with the country concerned.

The dates of the mission to Vietnam were 19-23 October 2015. The mission was conducted by: Bjørn Bauer (team leader), David Watson, Phung Thanh Xuan (national consultant) and Marian Meller. The team would like to thank those who took time to meet them.

1.3 Reasons for selecting this country for the Field Phase

Vietnam has been selected for the Field Phase for several reasons. It is one of the few countries in which the bulk of DEVCO support to R&I went to the EnvCC sector and thus provides a good opportunity to cover this sector in the evaluation. The major programme studied in the field mission,

SWITCH-Asia, also includes a strong component of technology transfer to the business sector, mainly at the level of small- and medium sized enterprises (SMEs). This makes it interesting for studying whether research results have led to innovation and whether they have been transferred to processes that affect development outcomes (here: sustainability and green growth),

Selecting Vietnam - as a country from Southeast Asia - is also thought to improve the regional balance of the country portfolio of the Field Phase. Furthermore, Vietnam graduated to Middle-Income Country status in 2009 and thus represents an interesting study case.

Participation of Vietnamese researchers in FP7 was relatively strong. The potential links between DEVCO support (especially the thematic SWITCH-Asia programme) and research grants under the generic FP7 programme were also considered in the field mission. This is potentially relevant to assess complementarity between DEVCO and RTD support, as well as potential synergies of aid instruments used.

1.4 Gaps of evidence addressed in the country

The general aims of the Vietnam mission were to:

- Assess how R&I support influenced EU development policy objectives in Vietnam;
- Hear local views and collect examples of impact;
- Judge how instruments and modalities affect support for R&I and hear local views of the rationale for choices made;
- Find examples and hear views related to the complementarity of DEVCO and RTD support;
- Find examples and hear views related to the transfer of R&I results into development processes;
- Hear EUD and local views of EU capacities.

The specific purposes of the Vietnam field mission were to identify:

- Specific instances in which EU supported R&I contributed to policy dialogue by informing Government positions;
- The extent to which DEVCO actions increased capacity of national institutions to participate in FP7 (and by implication, Horizon 2020);
- How effectively support to public and private sector institutions was combined;
- How complementary DEVCO and RTD support were, particularly DEVCO support to capacity building as it is related to RTD FP7 participation.

2 Data collection methods used (including limits and constraints)

In Vietnam, DEVCO supported R&I mainly in the Env/CC sector, and the field mission was focused accordingly.

The mission consisted of interviews with

- Commission staff in the EUD;
- Officials at the Ministry of Science and Technology and the National Agency for Science and Technology Information
- Officials at the Ministry of Culture, Sport and Tourism and the Institute for Tourism Development Research
- Beneficiaries (incl. project managers) from DEVCO-financed capacity building including research institutions, NGOs and private sector representatives

The team has also used the findings from the EUD online survey in producing this country report.

One limitation experienced by the team was that the responsible person at the EUD had only been there since mid 2013 and did not have much knowledge on what had happened with respect to development of priorities prior to that.

Final beneficiaries/end users of R&I development and transfer were not interviewed directly. This for example, would have been SMEs assisted under SWITCH-Asia projects in resource efficiency improvements (see under Chapter 4). It was felt, however, that the project managers would have a good overview of the overall success of the project in transferring and assisting R&I.

A further limitation was that it did not prove possible to conduct interviews related to Erasmus Mundus Action 2 Programme since most of the former coordinators at partner universities in Hanoi have retired and could hence not be interviewed.

3 Country context

3.1 Overall description of country political, legal, and development context in relation to Research and Innovation (context in which the EU intervenes)

3.1.1 R&I situation in the country

Vietnam is an emerging economy enjoying a period of unbroken peace since 1979. The country has a single political party, which has held power since this time. Up until the 'Doi Moi' reformation in 1986, Vietnam had been a command and control economy where the government dictated all economic activities, including R&I activities. The 'Doi moi' marked the beginning of a series of reforms, which also impinged on R&I policy in Vietnam, beginning with the removal of the State's monopoly on science and technology (S&T) activities.

However, after nearly three decades of reforms, the end result has not been overly impressive. Vietnam appears to be a nation brimming with scientists and researchers: the country has 24,300[138] Doctorates and more than 1,600[139] Science and Technology research institutes and centres across the country. However these numbers have yet to lead to impressive research results. One method to assess the quality of a nation's R&I is based on the number of scientific publications and their quality (e.g. number of citations). Vietnam's performance here has been somewhat unspectacular.

The number of published research by Vietnamese's scientist is low, even by regional standard: In the period of 2001-2010, Vietnam had published 8220 scientific papers, well below those of neighbours with lower populations: Malaysia (21,203), Thailand (28,148), and Singapore (56,101).

The qualities of the said publications are more encouraging, where the average number of citations of Vietnam scientific publications is more in line with other more advanced nations in the region. This can be partially explained by the fact that often the papers that got into peer reviewed journals were a result of collaborations with foreign scientists, who were more familiar with international standards and practices. The majority of research papers in Vietnam are often not up to international standards, potentially due to the Vietnamese authorities' use of an "inspection and approval" approach similar to that used in engineering projects.

The state budget for Research and Development in Vietnam is about 2% of total state budget. OECD (2013) revealed that the investment in Science and Technology from Vietnam in 2012 accounted for 0.27% of its GDP, a relatively low number when compared to neighbours such as Malaysia (0.5%) and Singapore (2.2%). In addition, bureaucratically fragmented and cumbersome mechanisms used to allocate these funds further reduce the share of funding that actually finds its way to supporting R&I (see under 3.1.3 below).

However, some promising signs have appeared since the foundation in 2003 of the National Foundation for Science and Technology Development (NAFOSTED), which main functions involve granting funding for research projects based on requirements and assessment procedures that meet international standards.

3.1.2 R&I national policies, legal frameworks

Since the Communist Party Congress VI (1986) until now, the Government has repeatedly affirmed the increasing importance of Science and Technology in the country's socio-economic development. Most recent is *Resolution No.20-NQ/TW,* dated November 1, 2012, "On the development of science and technology to serve industrialisation and modernisation of the country under conditions of socialist orientated market economy and international integration".

There have been various laws on issues regarding Science and Technology development in Vietnam, the most important one was the 2001 Law of Science and Technology, which laid the foundation for the development of R&I activities in Vietnam. The law was updated in 2013 to increase its effectiveness in supporting R&I.

[138] Statistics from National Agency for Science and Technology Information
[139] All others figures in this sub-section are taken from OECD (2013): Effectiveness of research and innovation management at policy and institutional levels, Cambodia, Malaysia, Thailand and Vietnam.

Box 5 List of key laws on Science, Technology and Innovation development in Vietnam

- Law No. 50/2005/QH11 dated 29 November 2005, on intellectual property (promulgated by the Order No. 28/2005/L-CTN of December 12, 2005, of the President of the Socialist Republic of Vietnam);
- Law No. 80/2006/QH11 dated 12 December 2006 of the National Assembly on Technology Transfer;
- Law No. 18/2008/QH12 dated 3 June 2008, of the National Assembly on Atomic Energy
- Law No. 21/2008/QH12 dated 28 November 2008 of the National Assembly on High Technologies;
- Law No. 36/2009/QH12 dated 29 June 2009 of the National Assembly, amending and supplementing a number of articles of the Law on Intellectual Property;
- Resolution No. 20-NQ/TW, dated 12 November 2012 of the Party's Central Committee on the development of Science and Technology for serving the industrialization, modernization and global integration;
- Law No. 08/2012/QH13 dated 18 June 2012 of the Government on Higher Education;
- Law No. 29/2013/QH13 dated 18 June 2013 of the National Assembly on Science and Technology.

In recent years, the Government has issued a number of mechanisms and policies related to market development of science and technology, in particular (see East West 2015):

- The National Products Programme (according to Decision number 2441/2010/QD-TTg);
- The programme 'Development and Support of Intellectual Property' (Decision 2204/2010/QD-TTg);
- The National Programme to Improve Productivity and Product Quality in Vietnam (Decision 712/2010/QD-TTg);
- The National Programme for Development of High Technology (Decision 2457/2010/QD-TTg);
- The Technology Renewal Programme (Decision 677/2011/QD-TTg);
- The programme 'Support the Application and Transfer of Science and Technology for Economic Development' (Decision 1831/2010/QDTTg).

3.1.3 R&I institutional frameworks

Although the draft Law of Science and Technology of 2012 appears as an improvement to its 2000 version in terms of reducing bureaucracy, four ministries will continue to be responsible for Science and Technology (see Figure 1).

The Ministry of Science and Technology (MOST) is responsible for the overall national management of the sector including the development and performance of S&T activities; definition of intellectual property and quality measurement standards; nuclear safety and nuclear radiation policy; and management of public services in S&T domains.

The Ministry of Planning and Investment (MPI) is in charge of planning and submitting financial expenditure. When MOST has approved and recommended a research project, it is passed on to MPI who will then create a detail planning on financial expenditure for the project. MPI also takes part in the process of approving investments in science and technology infrastructure.

The Ministry of Finance (MOF) is in charge of proposing and submitting financial expenditures for science and technology on the basis of recommendations from MOST on the structure and ratios of the state budget for science and technology.

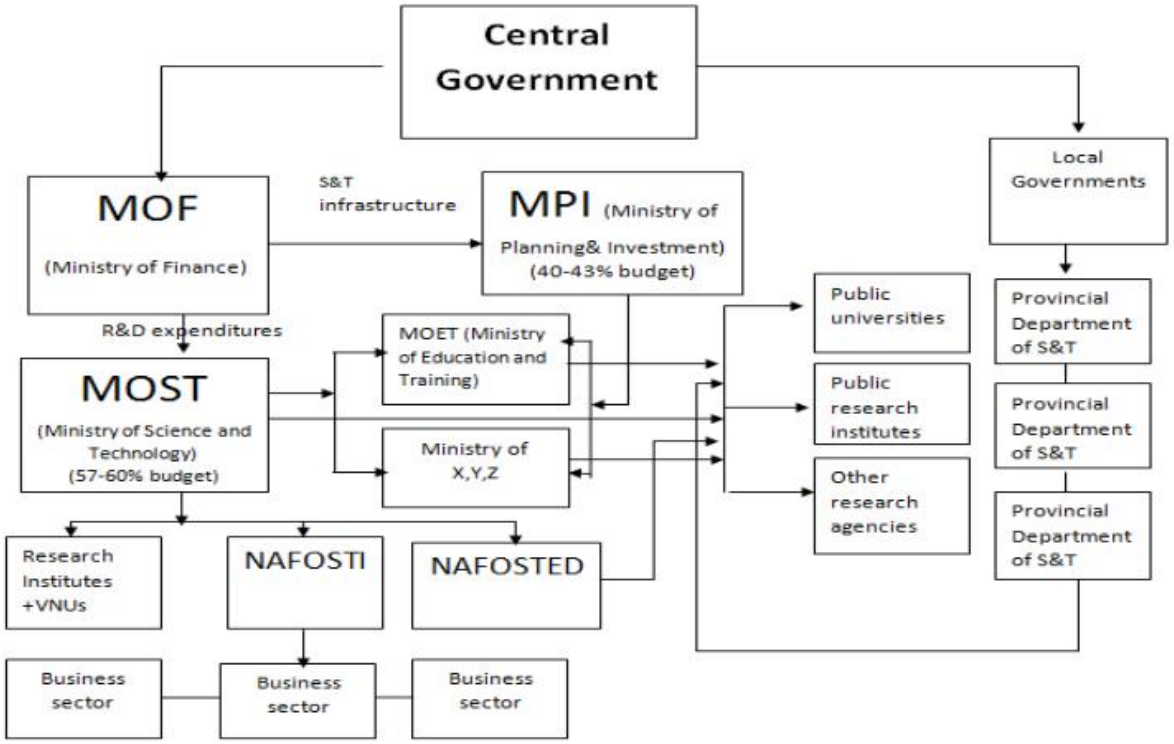
The Ministry of Internal Affairs (MOIA) is in charge of human resources. Its functions involve developing personnel plans for science and technology in co-ordination with MOST.

Other ministries and all provincial and municipal governments, if they have their own research plans, must also co-ordinate with MOST in developing and implementing their research project.

Additionally, the National Foundation for Science and Technology Development (NAFOSTED) was established with a goal of bringing Vietnamese standards closer to international standards for the funding and evaluation of research, along with streamlining compliance procedures and strengthening assessment criteria.

As stated earlier, 2% of the state budget is allocated to Science and Technology – about USD 650 million. MOST manages 57% to 60% of this budget. The remainder is independently managed by MPI, which allocates funds directly for infrastructure investment. MOST's share of the budget is heavily committed: by agreement with MOF, it must allocate funds to other ministries for expenditure on salaries for research staff members as well as for the support of ministry-supported research institutes and centres. The Ministry of Education and Training, for example, which has responsibility for 54 universities and colleges, receives its research budget in this way. It then allocates a research budget to the universities and colleges for which it is responsible. The details are summarized in the figure below.

Figure 2 Research funding in Vietnam



Source: OECD (2013)

3.2 Description of EU strategic priorities for the country, especially in the areas of R&I and key thematic sectors

The EU predominantly supports R&I in Vietnam via regional (i.e. SWITCH-Asia and AsiaLink) and global (Erasmus Mundus and the FWP) programmes. While some support for R&I was funded by generic research and HEI programmes, much of the interventions, particularly in support of innovation, took place in the context of thematic programmes, such as SWITCH-Asia, that pursued specific policy objectives not directly related to R&I.

The CSP 2007-2013 and NIP 2011-2013 identify two focal sectors and several areas of additional action. The first focal sector concentrates on "human and social development" by supporting the socio-economic development and poverty reduction plans of Government of Vietnam (GoV). The second focus consists of support for the health sector. However, both sectors received relatively little support specific to R&I. Additional actions include trade related assistance as well as support to "governance" and the EU-Vietnam "Strategic Dialogue".

Environment and Climate Change

While not an explicit focal sector, the CSP 2007-2013 designated Environment (along with gender as well as democracy, good governance and human rights) as a cross-cutting issue to be "mainstreamed" into policy interventions. Given the EU's involvement and experience in environmental policy issues at regional (specifically ASEAN) level, the CSP 2007-2011 envisages a role for the EU in supporting the co-ordination of Global Climate Change (GCC) policies in Vietnam (CSP Vietnam 2007-2013). As a result, more than half of the EU-interventions currently underway in Vietnam address environmental issues. Moreover, this is the sector where interventions have clear relevance for R&I.

Key in this R&I relevance is the *SWITCH-Asia Programme* which funded eight projects in Vietnam during the reporting period. Projects funded by the SWITCH-Asia programme aimed to generate, foster and disseminate sustainable consumption and production practices in Vietnam. As shown further below, the projects target SMEs in different sectors and aim to promote more sustainable production practices by providing access to clean technologies, by introducing environmental standards and certification processes, as well as by building institutional and organisational networks.

Food Security, Nutrition and Agriculture

The documentation suggests that this sector did not receive direct support. Rather, it would seem that the EU addressed rural concerns as a horizontal issue that impinges on support for the primary focal sectors, human development and health care (CSP Vietnam 2007-2013). Based on bilateral programmes and projects, these aimed to support on-going government reform efforts at all levels of governance. Little R&I relevance was therefore identified in the interventions within this sector.

Health

Health is one of the two focal sectors of the EU's country strategy for Vietnam, but most DEVCO support was at best indirectly related to R&I and has hence not been studied in further detail during the field phase. The overall objective here is to improve the health status of the population especially the poor. The EU plans to achieve these goals by supporting health care sector reform efforts implemented by the GoV. Focused as they are at administrative and financial mechanisms, the R&I implications of these interventions are weak and at best indirect.

4 Overview of EU-funded key interventions

Table 13 Overview of relevant EU-funded interventions in Vietnam

#	Sector	Contract title	CRIS number	Lead Contractor	Year	Total amount contracted (in EUR)
1	EnvCC	Environmentally and Socially Responsible Tourism Capacity Development Programme – ESRT	D-21662	GOPA Consultants (and others)	2011- 2014	11.000.000
2	EnvCC	Developing community carbon pools for Reduced Emissions from Deforestation and Degradation (REDD) projects in selected ASEAN countries	c-222908	Flora and Flora International	2011-2014 (2012 start in Vietnam)	2.328.580
3	EnvCC	Participation of grassroots conservation organisations in special use forest protection and management	c-203579	Flora and Flora International	2009 - 2013	425.112
4	EnvCC	SWITCH-Asia: Eight projects involving Vietnam		Various (see below)	Projects started 2009 -2013	13.734.676 (total of the 8 projects below)
4a	EnvCC	*Wood Processing and Trade:* Sustainable and Responsible Trade Promoted to Wood Processing SMEs through Forest and Trade Networks in China, India and Vietnam	c-152961	WWF UK	2009-2011	1.657.631
4b	EnvCC	*Sustainable Rattan:* Sustainable and Responsible Trade Promoted to Wood Processing SMEs through Forest and Trade Networks in China, India and Vietnam ("Sustainable Rattan")	c-153196	WWF Austria	2009-2012	1.885.512
4c	EnvCC	*CSR Vietnam:* Helping Vietnamese SMEs Adapt & Adopt CSR for Improved Linkages with Global Supply Chains in Sustainable Production	c-171192	UNIDO	2009-2013	1.611.467
4d	EnvCC	*MEET-BIS Vietnam:* Mainstreaming Energy Efficiency Through Business Innovation Support Vietnam	c-171201	**ETC Foundation**	2009-2013	1.554.735
4e	EnvCC	*SPIN-VCL:* Sustainable Product Innovation in Vietnam.Cambodia and Lao	c-202550	**Delft University of Technology**	2010-2014	2.283.825
4f	EnvCC	*GetGreen (VN)*	c-263120	**Delft University of Technology**	2012-2015	1.094.455
4g	EnvCC	*Efficient Air Conditioners:* Promotion and deployment of energy efficient air conditioners in ASEAN	c-291458	**European Copper Institute (ECI)**	2013-2016	1.749.100
4h	EnvCC and Health	*SUPA:* Establishing a Sustainable Pangasius Supply Chain in Vietnam	c-291459	**Vietnam Cleaner Production Centre (VNCPC)**	2013-2017	1.897.949
5	Higher Education	Erasmus Mundus Action 2				

Note: Contracted amounts for the listed projects represent the EU share in total project funding (e.g. 80% in SWITCH-Asia projects).

EnvCC Sector

Programme #1: Environmentally & Socially Responsible Tourism Capacity Development Programme (ESRT)

Description:

This project, with the Ministry of Culture, Sport and Tourism (MCST) as the contracting authority and with Gopa Consultants as the main contractor (contracted amount through EU of EUR 11 million) operated from March 2011 to November 2015. Objectives are to mainstream responsible tourism principles into Vietnam's tourism sector to enhance competitiveness and contributing to achieving the Socio-Economic Development Plan. The specific goal is to promote the delivery of environmentally and socially responsible tourism services as part of Vietnam's tourism sector strategy.

The project followed on from the successful implementation of the Human Resources Development in Tourism project. The aim of the new project was to consolidate the HRD project and focus more on alleviating institutional impediments to tourism development and capacity development for the entire sector in line with Vietnam National Administration of Tourism's (VNAT) Human Resources Development Programme, 2015.

The Financing Agreement was signed between the EU and the Government of Vietnam on 10 November 2010. The project is administrated by MCST and carried out by GOPA Consultants in a consortium with GRM, ATC and Vision.

Project activities:

The ESRT comprises three inter-linked components:

- Policy Support and Institutional Strengthening: build the capacity of the staff of MCST, VNAT and provincial tourism administrations to be qualified in socially and environmentally responsible tourism policy making, planning and management.
- Product Competitiveness and Public-Private Dialogue: strengthen the capacity of tourism associations, local tourism stakeholders and the private sector operators for effective public-private-partnerships in the management of responsible tourism
- Vocational Education and Training: ensure that vocational training system in tourism, including the *Vietnam* Tourism Occupational *Standards*, is sustainable and covers the entire tourism sector including both the traditional vocational level as well as the management level for longer-term sustainability, and are accessible for ethnic minorities.

In addition to the three technical components, a series of cross-cutting activities have to be undertaken. These will focus primarily on:

- Ensuring gender equality by mainstreaming gender issues throughout the programme
- Ensuring the inclusion of ethnic minorities in the programme
- Adhering to pro-poor actions in tourism.

Rationale:

Tourism is one of Vietnam's most important economic sectors but is currently not carried out in a sustainable way.

Findings:

With respect to R&I the most relevant activities were capacity building of the Institute for Tourism Development Research (ITDR) and the Tourism Information and Technology Centre (TITC).

The ITDR is the main advisor to the MCST and the ERST project has aimed to build ITDR capacity in developing Tourism Master Plans at national and regional level via exchanges of best practice with European partners/experts, and via training of staff in leading European University departments in sustainable tourism planning.

The training positions at European universities have not only introduced the two staff involved to state-of-the-art concepts and methodologies in sustainable tourism planning, but they also allowed them to build up string alumni networks which they can make use of in finding new sources of European funding and develop new partnerships, e.g. under RTD programmes.

Transfer of R&I has also occurred via a European expert in sustainable tourism planning who was assigned to the project. Although not specifically his job to train staff at ITDR, this occurred as a useful 'side-effect' to his tasks. This was allowed by his long-term connection to the project and the need for him to work within ITDR for reasonable periods of some days/weeks at a time.

Capacity building through ESRT has introduced innovative concepts to ITDR such as sustainable destinations, and also sustainable rural tourism in mountainous areas peopled by indigenous populations.

ITDR staff also feel that they are more able to provide stronger policy advice to MCST in developing long-term strategies.

In addition, part of the ESRT programme was to assist ITDR in developing a business strategy to allow the institution to become at least partially independent from state funding. Possibilities include working for the regions and for individual tourist boards. European funding could be a possible source of income but ITDR staff do not yet feel able to themselves apply for European funding from RTD or others.

Overall, according to the ITDR, their capacity had been significantly strengthened via the project. Some of this capacity has been lost via staff movements to competing institutions and companies, but this is only a loss to ITDR not to the country as a whole.

The TITC is responsible for generating and analysing tourism statistics. ERST assisted them in developing new statistical methods for identifying the direct and indirect contribution of tourism to the Vietnamese economy. TITC was not interviewed.

Programme #2: Developing community carbon pools for Reduced Emissions from Deforestation and Degradation (REDD+) projects in selected ASEAN countries

Description:

This project, with Flora and Fauna International (FFI) as the main contractor (EU share 2.33 million) operated from January 2011 to July 2014. The project is regional, operating in four South East Asia projects. The project aims to reduce deforestation and forest degradation through improved forest governance and the development of incentives for protection. The finance/incentive mechanisms aim to provide benefits to forest-dependent local and indigenous people based on evaluation and payment for protecting ecosystem services. Governance is strengthened by enabling and encouraging active participation of local governments and local communities in REDD+ projects in Cambodia, Indonesia, the Philippines and Vietnam.

In Southeast Asia, FFI's Asia-Pacific Community Carbon Pools and REDD+ Programme worked to strengthen laws and policies to facilitate the adoption of REDD+ through pilot projects. Partnering with the Non-Timber Forest Products Exchange Programme and People and Nature Reconciliation (PanNature), the three-year Programme was chiefly funded by the EU, with support from the Asia-Pacific Network for Global Change Research and other donors. The programme was active in Cambodia, Indonesia, the Philippines and Vietnam.

Community Carbon Pools (CCPs) are groups of neighbouring community forest areas undertaking REDD+ in a common management and benefit-sharing system. Combining a number of CF areas into one REDD+ project has far greater benefits for all. For REDD+ to work effectively, the rights of forest-dependent communities to land tenure and the carbon within forests must to be clearly defined. Managing the forest through CCPs empowers communities to become the custodians of their REDD+ projects, by recognising both rights and responsibilities. The Programme has sought to have active community participation throughout the REDD+ process, from planning to conducting forest inventories and monitoring the Programme's progress.

Rationale:

Opening community access to finance (raised by recognising the ecosystem benefits of the forestry which they administer and protect) has the potential to provide an alternative to the short term economic gain that the same communities might achieve from felling the forestry for timber and freeing up agricultural land.

Findings:

REDD+ is a highly innovative project, pilot-testing a new approach to conservation which it is hoped can take over from more traditional fencing off of highly valued areas. This approach works within existing land use and gives a role and income to local populations rather than excluding them. As such it is a green economy approach protecting via establishing economic incentives to not deforest.

According to interviewees the project builds on international studies on the value of ecosystem services, and how this value can be released for those conserving or benefitting from those services. Other pilot projects have used similar approaches successfully in South East Asia i.e. within watershed management. There has been some knowledge and experience transfer from those projects. However, REDD+ is one of the first international projects to apply this innovative approach to forestry.

As well as assisting in testing and development of this innovation, DEVCO is also assisting in technology development: forest models, and new types of forest cover change assessment work using remote sending and ground-trothing. Deforestation is easy to see from remote sensing data but degradation is much harder to evaluate.

Flora and Fauna International (FFI) describe themselves as opportunistic and are always looking for funding opportunities from Europe or elsewhere. Most of their funding to date has been from national development funds rather than EU. Finding partners in South East Asia to take part in such projects varies but has been worst in Cambodia and better in Vietnam where there are some reasonable forest research institutes. Nevertheless, FFI have found it necessary to carry out significant training of staff recruited from these university departments. The blame can perhaps be placed on the hierarchical system in HEIs which does not reward innovation or ambition. Those staff at HEIs who prove their worth are quickly headhunted by corporations.

The one weakness of REDD+ is that insufficient time has been given to really establish functioning and self-sufficient systems. Only one of the four pilot projects looks like it will be continued and this via Dutch funding. Interestingly, FFI have not approached the EUD to propose continuation of REDD+. FFI have had little contact with EUD.

Programme #4: SWITCH Asia

The SWITCH-Asia programme aims to introduce and establish sustainable production and consumption practices in Asian economies. The underlying rationale for the programme is to serve development and poverty-reduction policy objectives while ensuring that the socio-economic development in Asia is environmentally and socially sustainable. SWITCH Asia has three components. The first and by far the largest, in terms of budget, comprises grant support to specific projects aimed at enabling a transition within SMEs to offering more sustainable products and services. Apart from the targeted SMEs, projects involve trade and consumer associations, policy-makers and regulators predominantly at regional level. Since 2007, the programme has made available about EUR 50 million in calls for proposals for these kinds of projects.

Eight SWITCH projects have been carried out in Vietnam, most of them with some direct or indirect R&I relevance.

Table 14 Key findings for SWITCH-Asia projects

Name	***Description***	***Partners involved in Vietnam elements (lead at top)***	***R&I related key findings based on interviews***
4a) Wood Processing and Trade (China, India and Vietnam)	The project targets at least 600 SMEs in the wood processing sectors of China, India and Vietnam with the aim that they apply sustainable production techniques and provide certified sustainable forest products to national and international markets.	**WWF UK** WWF Vietnam	) The project has no research related activities and no Vietnamese research institution was involved.) Interviewees(s) did not know whether EU-funded research had influenced the project design; started working after project began.
4b) Sustaina-ble Rattan (China, India and Vietnam)	The project seeks to address the "Sustainable Rattan Industries" and aims to boost the export of sustainable rattan products from Cambodia, Laos and Vietnam. By 2015, the project envisaged that at least 50% of rattan processing in the region is sustainable, leading to environmental improvements, strengthened competitiveness, poverty alleviation and national economic benefits. The project trains villagers in harvesting sustainable rattan and producing sustainable furniture. Linking local producers with global value chains creates new local income opportunities and employment.	**WWF Austria** Vietnam Cleaner Production Center (VNCPC)	) Previous projects on sustainable product chains for wood and natural fibre products, some with EU funding, influenced the design of the project.) The EUD was not involved in the design of the project.) The Vietnam Cleaner Production Centre has been an essential partner particularly in improving production processes. VNCPC's already strong capacity was further reinforced by this project.) The real innovation was bringing IKEA designers together with Vietnamese producers, to ensure understanding and agreement on more sustainable supply.) The project has influenced policy with regards to management of rattan resources and support to small holders/community rattan producers. Influence was applied via study tour, workshops and personal interactions.

Name	Description	Partners involved in Vietnam elements (lead at top)	R&I related key findings based on interviews
4c) CSR Vietnam	Buyers of Vietnamese products are tightening their procurement guidelines to comply with Corporate Social Responsibility (CSR) requirements. Overall objectives of the SWITCH-Asia project are to improve the environmental and social performance of Vietnamese SMEs, enhancing the integration of Vietnamese SMEs into global supply chains through an increased awareness, understanding and adoption of triple-bottom-line (TBL) corporate social responsibility (CSR), thus strengthening cooperation between Europe and Asia.	**UNIDO** Vietnamese Chamber of Commerce and Industry Vietnamese Electronic Industries Association Vietnam Textile and Apparel Association Vietnam Leather and Footwear Association European Chamber of Commerce in Vietnam Institute of Labour Science and Social Affairs	) It was not possible or acceptable to simply take a CSR concept from Europe and plant it on Vietnamese companies.) The project took an innovative approach by challenging the companies themselves to identify a need for CSR, The project took more of a coaching rather than a knowledge transfer approach.) The concept has proved successful and has given momentum to CSR coaches who are continuing to carry the concept forward following the end of funding.) The concept is one of the few examples of one that has subsequently been disseminated back to the EU to assist in CSR development there.
4d) MEET-BIS Vietnam	The project sought to promote sustainable production of urban-based SMEs in Vietnam by supporting development of sustainable markets for affordable water & energy efficiency technologies. The project worked with private sector suppliers to develop commercially attractive business innovation packages targeting SMEs. These business innovation packages consisted of a technical and financial solution.	**ETC Foundation** Research Centre for Energy & Environment, Vietnam Business Consultant, Inc. AdaPPPt Foundation AidEnvironment	) MEET-BIS has assisted in training of energy efficiency. It has also assisted other companies develop a business model based on assisting other companies with energy efficiency so that the project will have long term effects. This includes SMEs working in energy services and water services.) The project has had significant concrete results in terms of energy savings in companies. These are expected to continue long after the project is complete.) The key in long term success is to ensure that the assisted companies achieve economic savings.) Contact with EUD has been fairly limited. They had little impact on project design but have been present at workshops.) Interviewees find SWITCH Asia to provide good opportunities for network forming and dissemination of good practice via the Network Facility's online forum. This gives opportunities for new projects both with local and European funding.
4e) SPIN-VCL	The project aims to contribute to improved innovative power of industry and improved environmental and societal quality of products. This will be realised by implementing Sustainable Product Innovation (SPI) on a significant scale in Vietnam, Laos and Cambodia. The project aimed to reach	**Delft University of Technology** Vietnam Cleaner Production Center (VNCPC)	) The project has been really innovative in the South East Asian context providing online assistance to development of greener business models.) The project assisted 500 companies in developing over 1,000 business and product concepts. 11% of these have been successful. These are the ones that

Name	Description	Partners involved in Vietnam elements (lead at top)	R&I related key findings based on interviews
	out to at least 500 companies in the most relevant sectors such as food processing and food packaging, textiles, footwear, handicraft and furniture. Activities include capacity building on project branding and marketing skill trainings, promoting sustainable public procurement with 30 government organizations.	Centre for Creativity and Sustainability Asian Institute of Technology in Vietnam United Nations Environment Programme	really understood the concept and tried to undergo fundamental changes. This is much more possible in a small company than a large one. • The concept borrowed significantly from European models. • This has been one of the most successful projects in assisting companies in developing green concepts into money making exercises but would have benefitted significantly from a longer commitment to get more start-ups off the ground. • Spin-offs from the project have potentially been just as useful. CCS is itself a spin-off from VNCPC and has used the SPIN-VCL method to develop its own business concept and is inspiring many other companies not originally involved in the project to do the same. • One inhibition is the lack of entrepreneurial spirit in Vietnam.
4f) Get-Green	The project aimed to contribute to increasing sustainable consumption in Vietnam. This was to be carried out by: • Identifying and implementing opportunities of sustainable consumption choices; • Replicating the tested approaches for transition towards more sustainable consumption to a large group of household consumers and office workers; • Linking suppliers of greener products to emerging sustainable consumption patterns; • Involving consumer organisations and other relevant organisations directly in the action to improve their capacity.	**Delft University of Technology** Vietnam Cleaner Production Center (VNCPC) Asian Institute of Technology in Vietnam	• The project concept has been successful in encouraging individuals and organisations in taking on behavioural changes. The innovative connection between workplace and home has been particularly effective. • The 500 Change Agents have acted as role models within their workplace and home environments and represent 26 consumer groups in four cities. • There is no certainty that behavioural change will be long term, but it is far more likely via training of change agents than if one just uses information campaigns. A momentum has been achieved that will hopefully continue.
4h) SUPA	The Vietnamese aquaculture sector supplies over 90% of the world pangasius export and hundreds of thousands of Vietnamese jobs depend on it. The project had the goal that at least 70% of producing and processing SMEs, 30% of the feed producers, hatcheries and small independent production SMEs are actively engaged in resource-efficient cleaner production; and at least 50% of targeted processing SMEs are providing sustainable products with ASC standard to EU and other markets	**Vietnam Cleaner Production Center** (VNCPC) WWF Austria WWF Vietnam Vietnam Association of Seafood Exporters & Producers, Vietnam	• The project began in April 2013, so had not progressed far by the end of the evaluation period. VNCPC had conducted screening assessments of 30 SMEs and identified potential for improvements in production. 14 were selected for training in cleaner operations via VNCPC staff. • Dissemination to SMEs in other South East Asian countries was performed via the Network Facility and also importantly the project was presented in a European seafood concept in Brussels as proof of concept. This provided excellent potential for networking and presenting pangasius as a more sustainably farmed fish.

Higher Education Sector

Programme #5: Erasmus Mundus Action 2

Description.

The Erasmus Mundus Programme offers academic mobility to students, faculty and staff from all over the globe to European HEIs (and, to a far lesser extent, vice versa). Between 2007 and 2013, Erasmus Mundus Action 2 scholarships to (post-)doctoral and researchers and academic staff amounted to EUR 4.17 million.

Findings.

Unfortunately it did not prove possible to interview any PhD students or post docs who had benefitted from the Erasmus Mundus Programme (also see Section 2).

5 Field mission findings, by relevant EQ

5.1 EQ 1: Development policy objectives

EnvCC sector

EQ 1 To what extent has EU support to R&I through DEVCO been successful in promoting the overall development policy objectives of the EU?	
JC 11 Link between R&I activities and EU development objectives (as per European Consensus and Agenda for Change – MDGs, etc.)	National level: - It was commented that in the context of Vietnam R&I should address poverty issue: 70% of rural children have quit school due to lack of resources – research in sustainable livelihoods is necessary. - It was also suggested that the EU needs to define good practice with respect to how development projects should support R&I. - The EU-Viet Nam Strategic Dialogue Facility (SDF) has an important role in ensuring a stronger relationship between Viet Nam and the EU as established by the Cooperation Agreement and also engages in R&I. The focus to date has mainly been within science and space technology. Under the SDF two experts from EU and two from Vietnam are currently identifying science priority areas from now until 2020. The SDF opened in June 2013 and therefore has not been active during most of the evaluation period.
JC 12 Extent to which R&I has informed sector policy dialogue and sector support at national and regional levels	National level: - All DEVCO projects included dissemination phases where the project results were presented at seminars. Policy makers, EUD and relevant businesses were invited to attend these seminars. It is, however, not known to what extent relevant policy makers did attend or were influenced by the project findings. Certainly not all projects included production of targeted policy briefs. One positive example is the REDD+ project, which included production of no less than four policy briefs. For other SWITCH projects brochures were typically produced but it is hard to find policy messages within these. - SEA-EU-NET has also provided useful dissemination opportunities for RTD projects which can also potentially have an impact. Science Technology and Innovation days provide regional dissemination opportunities. These mostly provide brokerage between private companies and research institutes in the region but government is also going to these events. - When asked whether organisations felt that they had influenced national policy development answers were mixed. A general feeling was that due to the single party system and high levels of bureaucracy in Vietnam it is difficult to have influence on this. Perhaps the project design of DEVCO projects needs to take better account of the government institutional set-up in Vietnam and better identify points and pathways of influence. - Most positive answers came from organisations whose official role is to advise government policy, in this case the ITDR advises the Ministry of Culture, Sport and Tourism on developing Tourism strategies and Master Plans. ITDR felt that in part via DEVCO funding they had moved sustainability from being an add-on to tourism planning to being a central element of it at both national and provincial level.

5.2 EQ 2: Impact on partner country research communities

EnvCC sector

EQ 2 To what extent has DEVCO funding of R&I enabled research communities in partner countries to build up and develop their own R&I capacity, including the ability to actively engage in research networks (regional and international)?	
JC 22 Increased focus of EU support on 'capacity building' and enhancing institutional sustainability	National level: - Several DEVCO EnvCC projects have led to an increased R&I capacity of participating organisations. Almost all projects carried out under the assessed interventions included a Vietnamese R&I organisation as partner. For the eight SWITCH Asia projects this was, however, limited to two main research centres. - For some projects it has also been necessary to source R&I experience from elsewhere i.e. via buying in European/global expertise. However, where these experts have had a long-term connection to the project, transfer of R&I capacity to local partners has occurred. An example is a European export on sustainable tourism strategies and plans who was connected as a freelancer to the ESRT programme. He has been regularly engaged in the programme and spent time in at the ITDR research centre where he has taken an interest in assisting with local capacity via informal training as he develops his inputs. This process ought to be formally included more formally in project design. - Examples were identified of where increased capacity in local project partners has been lost via staff with strengthened CVs moving on to competing organisations or starting new companies within Vietnam. This had occurred in the ITDR and also the two research centres engaged in SWITCH Projects: the Research Centre for Energy and Environment (RCEE) and the Cleaner Production Centre (CPC). While this may reduce the capacity of the given centre it is also a sign of a healthy research community and can lead to capacity increases in Vietnam in general. - One identified problem with respect to building up of institutional capacity was mentioned in connection with two different projects where local academics have been engaged as freelancers, rather than via their research institutes. The reasons are simpler contractual arrangements for the project leader and better financial conditions for the freelancer. This can limit organisational capacity building, especially in the case where the freelancer is close to or already in retirement as occurred in these cases.
JC 23 Improved access of developing countries' research communities to EU FP7 funding through RTD Summary assessments by sector	National level: - Vietnamese organisations have also been strongly involved in RTD programmes. 48 different Vietnamese organisations have been partners in 41 different FP7 projects FP7. Partners are typically German, French and Belgian Universities. The lead partner is almost always in Europe in part due to difficulty in writing the application. EU partner is almost always writing the proposal. SEA-EU-NET has held workshops in writing of proposals for FP7 and capabilities are improving. - The overlap between universities and organisations involved in FP7 and those engaged in DEVCO financed projects seems to be fairly limited. Only one organisation was identified who is engaged in both: RCEE. - Potential Vietnamese involvement in Horizon 2020 is predicted as much lower than for FP7, however, due to strong competition from OECD countries who can now apply for all projects: Horizon does not include a programme restricted to South East Asian projects and partners as FP7 did. Only two Vietnamese universities are considered high ranking enough to compete internationally: Hanoi University of Science and Technology and Nha-Tjang University. Regional level - SEA-EU-NET was identified as a key forum for providing brokerage between European and South East Asian research institutions and has been a key entry point to FP7 funding opportunities and potential partners. Science, Technology and Innovation days run by SEA-EU-NET have also been identified as very useful for brokerage between private business and research institutions with respect to disseminating research so that it can be used within businesses. Financial support can be available for organisations involved in FP7 projects to disseminate their findings at these Science, Technology and Innovation days.
JC 24 Enhanced networking of developing countries' researchers at regional and international level	National level: - DEVCO programmes have proved highly valuable in helping Vietnamese organisations to develop connections to European R&I organisations. These have led to further cooperation between the partners. An example is cooperation between Delft Technical University in the Netherlands and the RCEE which has continued for many years and began under a DEVCO project but since then has

	been followed through into FP7 applications and projects. - Network building has been strongest where staff from a Vietnamese organisation have been funded under DEVCO projects to study in a European University. The international alumni from these courses keep close contact which has led to R&I cooperation in subsequent years. Staff from ITDR, for example, were sponsored under ERST to study in international courses at European universities which led to string subsequent alumni networks. - A Vietnamese alumni network of post doc/PhD with education in Europe has been running since 2011. These also connect to alumni in European countries. This has assisted Vietnamese post-docs become engaged as experts in CORDIS for example. Regional level: - There were mixed feelings concerning the usefulness of forums set up by the SWITCH Asia Network Facility to spread knowledge between SWITCH Asia projects. Some found Network Facility regional workshops useful events for spreading knowledge about their own projects and learning about others, and moreover for building networks that can be used in future projects. Others found them less useful, citing language issues as hindrances. Similarly the NFs online forum was found by some to be useful but others knew about it but did not prioritise it in their use of time.

5.3 EQ 3: Instruments and modalities

EnvCC sector

EQ 3 To what extent has DG DEVCO in its support to R&I used its available instruments in a way that maximizes their value?	
JC 31 Appropriateness of the financing modalities and types of funding under different EU instruments and the way they have been applied for enhancing R&I	National level: - Since universities remain strongly supported by government budgets the need for own financing in FP7 projects and also in some DEVCO projects is not a significant obstacle for HEIs in Vietnam. However, the model does not fit SMEs who cannot find own financing and also find the paperwork involved, especially with respect to RTD projects, too burdensome. - The SMEs who are engaged in RTD projects with need for matched funding lose money on these but engage in them because of the strengthened capacity it gives them, and ability to carry out similar nationally financed projects with better financial conditions.
JC 32 Strategic approach adopted to choosing different possible actors / channels with whom the EU can work to support R&I and how best to support them with the instruments and modalities available	National level: - Many different kinds of organisations can be included in SWITCH Asia projects which can focus on entire value chains from production to consumption of products. This includes opportunities for R&I institutions including both public and privately owned. However, some commentated that contractually it is easier to engage freelance experts instead of research institutions

5.4 EQ 4: DEVCO-RTD complementarity and coherence

EnvCC sector

EQ 4 To what extent has EU support to R&I by DG DEVCO and by DG RTD been complementary and their collaboration promoted PCD?	
JC 42 Degree to which DEVCO support addresses issues that could/would not have been better, or equally well, addressed through RTD and vice versa	National level: - None of the evaluated DEVCO interventions directly aim at building capacity in R&I in Vietnam. - DEVCO interventions give opportunities for small research institutes and SMEs to engage and build their capacity. The same organisations would have much less opportunity for engaging in RTD research programmes, due to lack of European networks, limited high level academic standing at international level and a structure and format that does not necessarily comply with RTD standards. The DEVCO programmes have allowed the research institutions to develop networks and capacity such that they are more able to participate in RTD research programmes. - RTD funding frameworks are less interesting for private organisations than

	DEVCO project funding – i.e. need for own financing. Out of the 48 different Vietnamese organisations engaged in FP/ projects only two were SMEs. Regional level: - The RTD programmes are perhaps better suited to well-established universities and institutes with a high academic international standing. This is even more the case with the Horizon 2020 programme than it was for FP7.
JC 43 Level at which DEVCO support has benefited from complementary action financed through RTD and vice versa	National level: - Almost no evidence at all was found of cooperation between DEVCO and RTD in relation to research relevant to Vietnam. - There were very few examples of where findings from RTD research had been used to inform on the design of DEVCO funded projects. The only example named was the REDD+ project, which had made some use of RTD-funded projects on evaluating ecosystem services. - Neither did interviewees seem to have made use of RTD-funded research as input to the implementation of DEVCO funded projects. However, this may be more a reflection of the Vietnamese organisations' roles in DEVCO projects which is in fitting the project to the local needs. It is typically the European lead partner who is identifying existing knowledge to feed in to the project and these may well be making use of RTD funded research. - However, in one telling example, not one of the people interviewed who were engaged in SWITCH Asia projects had heard of an FP7 project concerning collecting good practice examples from SWITCH projects in Vietnam, a project apparently initiated in early 2013 and implemented by the National Agency for Science and Technology Information. - At the institutional level within Vietnam there is also little overlap. It is the Ministry of Science and Technology that has key contact with RTD via SEA-EU-NET and other channels, but the Ministry has limited knowledge nor involvement in DEVCO interventions. Vice versa, the EUD that is directly involved in DEVCO interventions has little connection with RTD. - Staff at a government Technology noted that interaction and cross-fertilisation between RTD and DEVCO projects only really occurs if the same research organisation is involved. This is rare.

5.5 EQ 5: Transfer of R&I results into development processes

EnvCC sector

EQ 5 To what extent has DEVCO support led to the transfer of R&I results into processes likely to impact on the achievement of EU development objectives?	
JC 51 Clear and logical thinking at sector level on how DEVCO support could ultimately lead through to research results being used in development processes	National level: - SWITCH projects in particular have had success in converting R&I into real development value in the area of green growth. Key examples are the MEET-BIS and SPIN-VCL projects which assisted many companies in greener solutions and green products with a relatively high success rate. Success has been most significant and long term where the projects have assisted Vietnamese companies in saving money at the same time as greening their production. Examples are in the SWITCH rattan project where companies have saved money through reducing chemical consumption in bleaching processes. These types of gains are likely to remain long after the project itself has finished. - One key example was found of an innovation developed in Vietnam during a SWITCH project which is now feeding back to the EU. This is in the area of CSR capacity building which has been highly innovative and which UNIDO staff are now disseminating in the EU via conferences and workshops and also business activities. The methods developed are now also being actively used in China in CSR in the construction sector. - Another key means by which DEVCO funded R&I have had impact on the ground is via scientists from supported institutions use knowledge gained for their own innovation start-ups and commercialisation of innovation concepts and products. This was actively encouraged by the leader of one institute leader – of the Cleaner Production Centre. However, this attitude is unusual in Vietnam due to the strong hierarchical system in HEIs, and is not a part of official DEVCO policy in Vietnam. Perhaps such a policy should be adopted. - One research centre, however, did state that the Vietnamese government is pushing centres like them to move more towards innovation and implementation of their knowledge in business start-ups. The Fostering Research Innovation Technology for Vietnam, with World Bank funding, aims at such incubations. However after two years of operation, no funds have yet been allocated from this

	programme. Applications are now over a year old. - Nevertheless, this is occurring on its own. A company has been formed out of the Cleaner Production Centre as a spin off from the SWITCH Spin project. This company is assisting many new start-up companies selling sustainable products and services as well as developing its own innovations with potentially high environmental gains. However, the owner of this company felt that EU interventions in general could be better at encouraging this transformation from R&I to business entrepreneurship. Three barriers also need to be addressed: lack of insight in Vietnam, language barriers, and cultural differences. - Another key example of how DEVCO projects are changing developments on the ground is the ESRT project, which has led the Vietnamese government to put sustainability at the core of tourism development. Sustainable destination development and management is also beginning to be implemented in Vietnam, a previously unknown concept in the country.
JC 53 Extent of external lessons learning, sharing and uptake within the sectors supported in partner countries, and at international level	National level: - As described under JC43 little evidence was found of project partners in Vietnam making extensive use of European research results in designing or carrying out DEVCO funded projects. - The SWITCH Network Facility was, for some partners, a useful forum for exchanging lessons learnt between SWITCH Project partners within Asia, and to a lesser extent between them and businesses.
JC 54 Development processes and outcomes have been built on or used the results of research funded by DEVCO or shared through DEVCO supported research networks	National level: - See under JC 51

5.6 EQ 6: EU capacities

EnvCC sector

EQ 6 To what extent have the EU external relations services ensured adequate capacities to conduct policy dialogue related to R&I and to support research and innovation in partner countries?	
JC 61 Extent to which EU internal capacity to manage R&I support and conduct policy dialogue is in place at the levels required	National level: - The EU delegation has two staff dealing with DEVCO interventions though not specific focus on R&I which in itself has not been prioritised. Reasonably high turnover of staff can have an impact on the support capacity of the EUD. - EUD find it difficult to deal with cross-cutting issues in policy dialogue i.e. R&I within development is an example of that. It is not clear whose responsibility that is. - Due to its decentralised nature it has been hard for EUD to engage fully with the FP7 programme. Interactions between RTD and Ministry of Science and Technology have mostly been via the SEA-EU-NET. This network has been key in linking research organisations in South Easi Asia including Vietnam to potential FP7 projects and calls and European partners. Science, Technology and Innovation days have had key importance in this respect. - EUD staff are invited to workshops etc. in Vietnam where FP7 and other R&I projects are disseminated but otherwise do not have much of a dialogue with the Ministry of Science and Technology - RTD staff do come to Vietnam, however, to meet with Universities and also representatives from the private sector, and meet with the EUD at the same time. - EUD does not have a good overview of the Erasmus Mundus programme

6 Conclusions

DEVCO interventions with relevance for R&I lie for the most part within the theme of Environment and Climate Change. SWITCH Asia projects, however, vary significantly in their focus and are cross-cutting by nature; one of the eight projects implemented in Vietnam also concerns Food Security, Nutrition and Agriculture.

Several DEVCO EnvCC projects have led to an increased R&I capacity of participating organisations. Of the interventions evaluated, almost all included an R&I organisation as partner, and all these organ-

isations reported having their capacity significantly enhanced via DEVCO projects. Capacity strengthening has occurred via transfer of knowledge from European partners, and short and long-term training for project staff in European HEIs.

For some projects it has been necessary to source expertise from elsewhere due to lack of local capacity. This has typically occurred via hiring European freelancers to the project. Again here, where experts have had a long-term connection to the project, transfer of R&I capacity to local partners has taken place. This process has been a side effect rather than a direct aim of the project and DEVCO could perhaps consider including such knowledge transfer and training-by-doing of local staff as a formal element of project goals and project design.

In some projects local academics have been engaged as freelancers, rather than via their research institutes. The reasons are simpler contractual arrangements for the project leader and better financial conditions for the freelancer. This can limit organisational capacity building, especially where the academics are close to or over pension age as has been the case in Vietnam.

Some of the increased capacity in local project partners has also been lost via staff with strengthened CVs moving on to competing organisations, or starting new companies. This is only problematic for the individual partner not Vietnam as a whole. It can also bring synergy opportunities to the original partner. Such spin-offs can also be a direct means for generating innovation. One research centre director has positively encouraged his staff to try their own concepts out via spin-off companies and this has led to a number of successful enterprises. This attitude is, however, unusual in a Vietnamese research environment, which is characterised by rigid hierarchical structures. Moreover, an entrepreneurial spirit is generally lacking in HEIs.

With respect to innovation, a number of SWITCH Asia projects – notably MEET-BIS and SPIN-VCL – have had the direct aim of assisting SMEs in developing new eco-innovative business models. SWITCH Asia assistance to SMEs is most successful where SMEs experience direct economic savings from installation of a new efficient or cleaner technology. However, where a radical change in the business model or a kick-start of a new business model is the aim, the support given by SWITCH is perhaps too short-term.

DEVCO programmes have proved highly valuable in helping Vietnamese organisations to improve their R&I networks. This has occurred both via project partnerships to European R&I organisations, but also via exchanges and meetings organised at regional level via for example the SWITCH Asia Network Facility. These have led to further cooperation and new project opportunities. Network building has been strongest where staff from a Vietnamese organisation have been funded under DEVCO projects to study in a European HEI. The international alumni from these courses keep close contact which has led to R&I cooperation in subsequent years.

However, evidence of improved networks leading to engagement by Vietnamese organisations in RTD research programmes is very limited. Only one organisation interviewed had been involved in both DEVCO and FP7 projects.

Vietnamese participation in FP7 has been strong in the South East Asian context: 48 different Vietnamese organisations have been partners in 41 different FP7 projects. However, linkages with DEVCO projects are almost non-existent. Programme participation in South East Asia is facilitated by the South East Asia and European Union Network Facilitator in close collaboration in Vietnam with the Ministry of Science and Technology. This process would either appear to bypass EUD or the staff at EUD do not take the opportunity to connect organisations working on DEVCO projects to these facilitation activities.

Moreover, no DEVCO partner was aware of having made use of RTD-funded research in a DEVCO funded project. Nor did organisations feel that their potential to access RTD funding had necessarily been improved via involvement in DEVCO projects.

In general cooperation between DEVCO and RTD in Vietnam appears minimal. In one telling example, not one of the people interviewed who were engaged in SWITCH Asia projects had heard of an FP7 project concerning collecting good practice examples from SWITCH.

It was not possible to interview programme coordinators or scholarship recipients of Erasmus Mundus Action 2.

7 Annexes

7.1 Annex 1: List of people interviewed

EU Delegation

Name	Position	Institution
Hoang, Thanh	Programme Officer	EU Delegation in Hanoi
Náplava, Jan	Development Cooperation Officer	EU Delegation in Hanoi

Government

Name	Position	Institution
Bui, Quoc Anh	Division of General Affairs and Multilateral Cooperation	Ministry of Science and Technology
Bui, Thu Lan	Head of Division of General Affairs and Multilateral Cooperation	Ministry of Science and Technology
Dao, Manh Thang	Department of International Cooperation	National Agency for Science and Technology Information - NASATI
Lai, Hang Phuong	Director of International Cooperation department	National Agency for Science and Technology Information - NASATI
Phuong, Hien	Department of International Cooperation	National Agency for Science and Technology Information - NASATI
Vu, Quoc Tri	Programme Director Environmentally & Socially Responsible Tourism Capacity Development Programme (ESRT)	Ministry of Culture, Sport and Tourism

International organisations

Name	Position	Institution
Beranke, Florian J.	UNIDO Lead Expert Societal Responsibility	UNIDO Country Office Vietnam
Nguyen, Ngoc Quang	Environment and CC / Micro-finance Expert	IFAD Office in Hanoi

Research organisations

Name	Position	Institution
Do, Ta Khanh	Director	Institute for European Studies
Le, Xuan Thinh	Vice Director	Vietnam Cleaner Production Center (VNCPC)
Nguyen, Anh Tuan	Director	Institution for Tourism Development Research (ITDR)
Nguyen, Hoang Mai	Deputy Head of Research Management and International Cooperation	Institution for Tourism Development Research (ITDR)
Nguyen, Thi Phuong Nhung	Communication Officer	Vietnam Cleaner Production Center (VNCPC)
Phan, Thi Minh Thao	Consultancy Services Unit/ Project Director	Research Center for Energy and Environment - RCEE-NIRAS

Private sector

Name	Position	Institution
McKeon, Mary	Team leader Environmentally & Socially Responsible Tourism Capacity Development Programme (ESRT)	Gopa Consultants
Nguyen, Hong Long	Director and project manager for Sustainable Product Innovation - SPIN	Centre for Creativity and Sustainability
Partale, Kai	Environmentally & Socially Responsible Tourism Capacity Development Programme (ESRT)	Gopa Consultants
Vu, Ngoc Anh	Accountant-Administration Officer	Centre for Creativity and Sustainability

Civil society and NGOs

Name	Position	Institution
Birch, Katherine	Programme Development Manager	WWF Vietnam
Ledecq, Thibault	Regional Forest Coordinator of Greater Mekong Programmes – project manager for SWITCH Asia Sustainable Rattan project	WWF Cambodia
Nguyen, Ngoc Thang	FLEGT project manager	WWF Vietnam
Rawson, Ben	Country Director Vietnam Programme	Fauna & Flora International

7.2 Annex 2: List of documents consulted

East West (2015): "Proceedings of the Eight International Conference on Economic Sciences (August 24, 2015)". Vienna: East West Association for Advanced Studies and Higher Education GmbH.

OECD (2013): "Effectiveness of Research and Innovation Management at Policy and Institutional Levels – Cambodia, Malaysia, Thailand and Vietnam." http://www.oecd.org/sti/Effectiveness%20of%20research%20and%20innovation%20management%20at%20policy%20and%20institutional%20levels_Meek%20and%20Olsson.pdf