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Evaluation of the EU Support to Research and Innovation for Development in Partner Countries (2007-2013)

Final Report

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Evaluation of the EU support to research and innovation for development in partner countries (2007-2013)

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List of acronyms and abbreviations

ACP	African, Caribbean and Pacific Group of States
AFS	Afrique du Sud
ANDI	African Network for Drugs and Diagnostics Intervention
ARD	Agricultural Research for Development
ASAL	Arid and Semi-Arid Lands
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
ASEAN	Association of Southeast Asian Nations
AU	African Union
AUC	African Union Commission
CAADP	Comprehensive Africa Agriculture Development Programme
CAREN	Central Asian Research and Education Network
CC	Climate Change
CCS	Carbon Capture and Storage
CCT	Clean Coal Technologies
CG	Consultative Group
CGIAR	(Former) Consultative Group for International Agricultural Research
CIP	International Potato Centre
CLE	Country Level Evaluation
COM	Communication from the European Commission to other institutions
CORDIS	European Commission's Community Research and Development Information Service
CRIS	Common RELEX Information System
CRP	CGIAR Research Programme
CSE	Country Strategy Evaluation
CSO	Civil Society Organisation
CSP	Country Strategy Paper
DAC	Development Assistance Committee
DCI	Development Co-operation Instrument
DG	European Commission's Directorate General
DG DEVCO	European Commission's Directorate General for International Cooperation and Development
DG RTD	European Commission's Directorate General for Research and Innovation
DST	Department of Science and Technology
EACEA	Education, Audiovisual & Culture Executive Agency
EBTC	European Business & Technology Centre
EC	European Commission
EDCTP	European and Developing Countries Clinical Trials Platform
EDF	European Development Fund
EEAS	European External Action Service

EECA	Eastern Europe and Central Asia
EIARD	European Initiative for Agricultural Research for Development
EIB	European Investment Bank
ENP	European Neighbourhood Policy
ENPI	European Neighbourhood and Partnership Instrument
EnvCC	Environment and Climate Change
EO	Earth Observation
EQ	Evaluation Question
ERA	European Research Area
EU	European Union
EUD	European Union Delegation
EUMETSAT	European Organisation for the Exploitation of Meteorological Satellites
EUR	Euro
EUROPAN	Apoyo Presupuestario de la Unión Europea al Programa Articulado Nutricional
FED	Fonds européen de développement
FP	Framework Programme
FSNA	Food Security, Nutrition and Agriculture
GCARD	Global Conferences on Agricultural Research for Development
GCC	Global Climate Change
GCCA	Global Climate Change Alliance
GFAR	Global Forum on Agriculture Research
GPARD	Global Programme on Agricultural Research for Development
HEI	Higher Education Institution
HIV	Human Immunodeficiency Virus
HQ	Headquarters
ICARE	EU-China Institute for Clean and Renewable Energy
ICT	Information and Communication Technology
IL	Intervention Logic
INCO	International Co-operation
JAES	Joint Africa-EU Strategy
JC	Judgement Criterion
JRC	Joint Research Centre
LAC	Latin America and the Caribbean
LMIC	Low and Middle-Income Country
MDG	Millennium Development Goal
MESA	Monitoring of Environment and Security in Africa
NET	National Expert Team
NGO	Non-Governmental Organisation

NIS	National Innovation System
OECD	Organisation for Economic Co-operation and Development
PASRI	Programme d'appui au système de recherche et innovation
PCD	Policy Coherence for Development
PP-AP	Pilot Project-Action Préparatoire
RG	Reference Group
RO	Research Organisation
ROM	Results-Oriented Monitoring
RSP	Regional Strategy Paper
S&TP	Science and Technology Programme
SBS	Sector Budget Support
SCP	Sustainable Consumption and Production
SDG	Sustainable Development Goal
SEA	South East Asia
SEC	Miscellaneous documents from the European Commission
SISS	Science, Information Society and Space
SME	Small and Medium Enterprise
SPSP	Sector Policy Support Programme
TB	Tuberculosis
TDCA	Trade, Development and Co-operation Agreement
TEIN	Trans-Eurasia Information Network
ToR	Terms of Reference
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNEP	United Nations Environment Programme
WHO	World Health Organization

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

Executive Summary

Highlights

This evaluation examined the support the European Commission's DG for Development and International Cooperation (DEVCO) provided to Research and Innovation (R&I) in partner countries during the last EU budget period (2007-2013).

During these years DEVCO did not have an explicit policy document to support R&I and yet the study identified programmes worth over EUR 1 billion that included some aspect of R&I work. The evaluation looked at four specific sectors and found that within these sectors there was considerable interest in R&I and that such elements were often included in support programmes under each one.

Policy basis

The EU's policy for support to R&I at the international level is set by two Commission Communications from 2008 (588) and 2012 (497). These refer to R&I supporting the EU's external policies by contributing to sustainable development and tackling global challenges.

Moreover DEVCO was active in supporting R&I at different geographic levels (global, regional and national) and with multiple actors, including not just governments and research communities, but also the private sector and civil society. This support also produced results which impacted positively on development processes particularly at the local and sector levels, but very little effort was made to capitalise on research results and make them known and available to wider audiences.

Support to R&I was therefore a major theme of DEVCO work, yet one that is hidden, not recognised and poorly understood. Given the importance of scientific knowledge and technology for economic development and the rapid pace of change and innovation, this high level of funding is not surprising but what is striking is its low profile. A new departure is to be found in the Joint Africa-EU Strategy signed in December 2007, which identifies support to R&I as a cross-cutting tool and one of eight pillars of co-operation.

The evaluation concluded that while DG DEVCO had achieved a lot with its support to R&I at the sector level, the lack of an overall strategy or explicit overall commitment to support R&I undermined the overall impact of its work in this important area for development.

Background to the evaluation

The objectives of the evaluation were to provide an overall judgment on the extent to which the EU development co-operation policy has adopted a strategic approach to support R&I and whether the approach was appropriate to enhance capacity to reach development objectives.

The conclusions were expected to specifically address areas of particular interest, namely: capacity building; the transfer of research results into social or economic process; the appropriateness of instruments and modalities and the approaches used (country versus regional support, through sector programmes or through direct support to R&I).

The scope of the evaluation was set in terms of sectors, instruments and time.

Two key parameters for the evaluation

The evaluation's scope was limited to:

Four thematic sectors:

1. Food Security, Nutrition and Agriculture (FSNA);
2. Health;
3. Environment and Climate Change (EnvCC);
4. Science, Information Society and Space (SISS).

Three instruments used by DEVCO:

a. The European Development Fund (EDF);
b. The Development Co-operation Instrument (DCI) incl. both geographic and thematic lines;
c. The European Neighbourhood & Partnership Instrument (ENPI).

The DG for Research and Innovation (DG RTD) also implements activities supporting R&I in developing countries. However, RTD's work was not included in the scope of the evaluation. Yet, it is considered from a contextual point of view, and analysed from a complementarity perspective.

Finally, the evaluation was limited in time to the years 2007-2013, which corresponds to the last EU multi-annual budget period and to that of the 10th EDF. This is also the period of DG RTD's 7th Framework Programme (FP7).

The methodology of the evaluation

The methodology used was based on the guidelines of the DG DEVCO Evaluation Unit. It consisted of four standard phases: Inception Phase, Desk Phase, Field Phase and Synthesis Phase, the latter including a dissemination seminar.

The evaluation moved systematically through several stages. First, in order to have a clear understanding and overview of the object of evaluation, an inventory and typology of DG DEVCO support to R&I was produced. Based on this the team built the methodological framework. A key tool was the identification and agreement with the Reference Group on six evaluation questions, with judgement criteria and indicators around which the exercise was organised.

On the basis of this framework, data collection took place in two steps: (i) document review and interviews in Europe during the Desk Phase, and (ii) country visits in the Field Phase. A survey questionnaire was also sent to a wider sample of EU Delegations

The field visits were conducted in ten countries[1], selected across the different regions where the EU works so as to cover emerging economies through to poorer ones. The main objectives of these visits were to fill remaining data gaps and validate or revise the preliminary findings formulated in the desk work. Data was collected by sector and analysed up to the level of judgements for each of the four sectors. Thereafter, synthesis judgements and single responses to the evaluation questions were formulated across sectors combined.

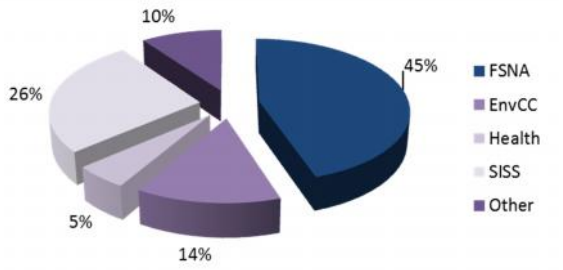
The final Synthesis Phase was devoted to constructing answers to the evaluation questions and formulating conclusions and recommendations on the basis of the evidence.

What did DEVCO fund?

The inventory exercise concluded that DG DEVCO committed a total of roughly EUR 1.1 billion for support to projects with a Research and Innovation component in partner countries over the evaluation period (contracts signed between 2007 and 2013, or just before but with more than 50% of their disbursements in this period).

The distribution by sector (see figure below) shows that EUR 1.0 billion of the total contracted amount were earmarked for the four thematic sectors chosen for the evaluation. EUR 0.1 billion went to other sectors. Out of the four sectors FSNA received the largest share (EUR 0.5 billion) of total commitments. In addition, DG DEVCO financed an estimated EUR 0.3 billion of academic mobility grants at doctoral and post-doctoral levels and for academic staff.

Sector allocation of commitments (shares of total contracted amount)



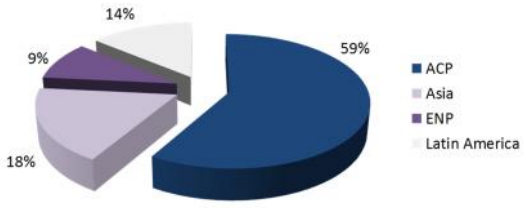
Source: CRIS, Particip analysis

In terms of geographic distribution, half of the funds went on regional level contracts and a third through country level contracts. The remaining 16% of funds were contracted to organisations with global reach. As shown in the figure below, Sub-Saharan Africa and Asia re-

[1] Burkina Faso, Ethiopia, India, Kenya, Mauritius, Peru, South Africa, Tunisia, Ukraine and Vietnam.

ceived the largest shares of total commitments, through both regional and individual country contracts. South Africa and China led the ranking of funding by country.

Shares of total commitments (regional plus individual country contracts) per region



Source: CRIS, Particip analysis

The main funding instruments used were the geographical EDF and the thematic instrument DCI-Food. Each thematic sector used three to four major funding instruments. EU support was contracted through a range of different actors or channels, with international organisations, the private sector and universities at the top of the list for the thematic sectors.

Overall assessment

The overall assessment is two-sided. On the one hand DG DEVCO support to R&I was certainly relevant, but the assessment against the other standard evaluation criteria is far more mixed. At one level, there were many individual projects and programmes with worthwhile R&I components that have benefitted from DG DEVCO support. On the other hand these efforts have not achieved a critical mass, nor a substantial overall result that might have left real improvements in the R&I institutional framework across partner countries.

Looking at the OECD DAC evaluation criteria in turn:

- **Relevance** – DEVCO support to R&I is relevant in different ways at both policy and practical levels. The support is certainly relevant in terms of the achievement of EU development objectives and the MDGs. Innovation in particular is vital for resolving obstacles to sustainable development. For individual projects there was also strong relevance for project objectives. Equally, both the funding itself and the types of support provided were relevant to researchers in countries with minimal resources for research.
- **Effectiveness** – the assessment of the effectiveness of DEVCO support to R&I is mixed. For individual projects, the support has been largely effective in producing results and achieving objectives or to get partner country researchers involved in international research work. Equally, the support to networks has proved an effective way of sharing knowledge. Overall, however, the support is largely ineffective and suffers from the lack of an overall strategy. Thus, capacity building efforts were not commensurate with the needs; mobility schemes did help individual capacity building, but did not impact on institutional development; the modalities used have not always been practical for individual grantees and the wider dissemination of results has proved limited.
- **Efficiency** – DG DEVCO support to R&I has often been efficient at the local level in individual projects but overall does not add up to a cost effective way to develop national R&I systems. The lack of an overall strategic approach has clearly undermined the DG DEVCO's ability to guide choices and focus action on the most efficient approaches. In particular, insufficient attention has been paid to supporting national R&I or Science and Technology (S&T) strategies and the establishment of institutional frameworks for innovation that would have greatly increased the efficiency of R&I systems at the national level.
- **Impact** – The impact of DG DEVCO support to R&I has been limited to specific aims. Impact can be seen at the local level in the way many individual R&I efforts fed results into local development processes. The overall impact has, however, been limited in achieving the type of objectives set out in the reconstructed intervention logic, such as: more innovative development solutions to development problems and global challenges, policy makers more attuned

to using research results or R&I more adjusted to partner countries' needs.

- **Sustainability** – DG DEVCO was not able to build sustainable solutions for its partners on funding R&I in the longer term beyond the term of the DG DEVCO funding. Thus, while the projects and programmes funded were useful, they often depended on continuing EU support. The project funding modality used in many cases was problematic for individual researchers or low capacity research organisations, from a sustainability point of view. In most partner countries, there was little or no institutional support for R&I, both in terms of institutional infrastructure and in terms of research funding, resulting in a heavy dependence on external resources.

Main conclusions

The Conclusions are divided into four clusters relating to (1) policy, (2) operational approach, (3) complementarity with other EU services and (4) the results of research.

Cluster 1 – Policy and strategic focus

These four conclusions relate to the successes and limitations of DEVCO's past strategy of support to R&I and on bringing out some of the positive experiences that could be useful elements for a future lesson learning.

Conclusion 1: DG DEVCO's sectoral/pan-African approach to support R&I has been broadly effective within the parameters set for each sector and the Joint Africa-EU Strategy. However, this approach limits DEVCO's ability to have an across-the-board impact on the use of R&I as a tool to foster development and economic transformation in a world characterised by increasingly rapid scientific and technological change.

Conclusion 2: The lack of a clear overall strategy for DEVCO support to R&I for development means the valuable role it plays is poorly understood and not recognised.

Conclusion 3: Many of the projects supported and reviewed do provide examples of good practice (see the series of text boxes in the report) that could be used to build a wider strategy for support for R&I.

Conclusion 4: There are also lessons to be learnt from some of the well chosen partnerships DEVCO embarked on to provide support at all the three geographic levels at which it worked – global, regional, national (e.g. respectively: CGIAR, the Joint Africa-EU Strategy (JAES) and the *Programme d'appui au système de recherche et innovation* (PASRI)).

Cluster 2 – Operational approach

The second cluster of three conclusions relates to how DEVCO had operationalised its approach to supporting R&I. They cover the type of interventions supported, the use of the different instruments and modalities and the capacity of DG DEVCO to manage this support.

Conclusion 5: The overall logic to DG DEVCO's support to R&I is conceptually solid, but its elements (see text box below) have not always been deployed in a consistent fashion and have rather been used as a menu of elements to draw on.

The main elements of the DEVCO package of support to R&I regularly consisted off:

a. Support to research networks (e.g. ASARECA);
b. Capacity development at three levels (individual, institutional and infra-structural) (e.g. JAES/African Union Research Grants);
c. Careful selection of suitable partners at all three geographic levels – global, regional and national;
d. Policy dialogue on sector research priorities but also on general S&T policy (e.g. South Africa);
e. Funding of actual research (e.g. JAES/African Union Research Grants);

Conclusion 6: DEVCO used its full range of instruments and modalities to fund R&I programmes yet with little apparent strategic thought on how these might affect the conduct of research. R&I often operates in longer cycles than are possible with DEVCO procedures and sustainability is therefore a serious issue. The more intensive use of budget support (e.g. case of South Africa) may need to be considered in appropriate cases.

Conclusion 7: DEVCO capacity dedicated to R&I, particularly in EU Delegations, has been inadequate for a sector so important for economic development. At headquarters capacity was limited though more adequate. Yet it was

organised mostly on a sectoral basis, resulting in little central capacity to guide overall strategic thinking and implementation.

Cluster 3 – Complementarity

The third cluster related to DEVCO's collaboration with other Commission services and EU institutions. The question of complementarity with the international work of DG RTD was a key consideration for the evaluation. Policy coherence for development (PCD) was a second important issue.

Conclusion 8: The division of labour between DGs DEVCO and RTD resulted in a loose modus vivendi which generally operates smoothly. More could have been done to improve understanding, coordinate and ultimately develop a joint strategic approach. In a few cases, where both DGs invested in capacity, particularly in EU Delegations, a higher level of co-operation and more systematic outcomes were achieved.

Conclusion 9: PCD is clearly understood in both DGs DEVCO and RTD and steps have been taken regularly to promote PCD by the different EU actors involved in support to R&I. RTD officials in particular are well aware of the importance of PCD and make a concerted effort to address coherence issues including by engaging with DEVCO's PCD monitoring process.

Cluster 4 - Results

The final set of conclusions relate to the results of the R&I supported by DEVCO. They provide an assessment of the degree of innovation and social uptake that was found and the efforts made to support capitalisation of results. The last conclusion is on the overall visibility of DEVCO's support to R&I.

Conclusion 10: R&I efforts supported by DG DEVCO have contributed to development outcomes (e.g. the International Potato Centre (CIP)) but largely in an ad-hoc manner that did not promote systematic and sustainable progress neither on wider development processes nor on creating conducive conditions for R&I. The lack of a core policy commitment to R&I has weakened uptake and sustainability.

Conclusion 11: Innovation and societal uptake of R&I results from DEVCO support have been scarce due to inadequate national institutional frameworks for innovation. While recognising the importance of supporting learning and dissemination at the individual programme or even sector level, within the period examined DEVCO has rarely felt able to deploy support to national innovation systems (e.g. PASRI).

Conclusion 12: R&I results have not been capitalised on and inadequate support has been provided for the systematisation and dissemination of results (e.g. IssAndes). Research results are therefore by and large only used in the programmes where they have been developed or in the immediate networks of the researchers involved rather than shared further afield.

Conclusion 13: DEVCO is not perceived as an agent for R&I for development, and little effort has been made to create such an image for improved visibility. This would seem largely due to a lack of a clear policy commitment and framework to support R&I for development.

Main recommendations

Corresponding to the organisation of the Conclusions into four clusters the same format is used for the Recommendations.

Cluster 1 – Policy and strategic focus

The evaluation concluded that while DG DEVCO had achieved a lot with its support to R&I at sector level, it should be more explicit about its commitment to support R&I and develop a clear overall strategy for this work. Given the importance of R&I for economic transformation and the very real danger of developing countries being left behind by the rapid pace of technological change and innovation DEVCO should have a clear policy in this area.

Recommendation 1: Formulate a strategic approach to R&I with a focus on establishing institutional frameworks.

DG DEVCO should formulate its own R&I for development policy within the overall EU policy on international co-operation in R&I and better

implement a division of labour with DG RTD. This should be clearly set in the context of the overall contribution of R&I to sustainable development and the achievement of the new UN Global Goals.

Recommendation 2: At national level, develop a strategy for R&I that adapts the support provided to the needs and level of development of partner countries

DEVCO should develop a strategy for R&I that differentiates between partner countries at various stages of development and provides adapted support, based on the examples of positive experiences with supported projects reviewed in this evaluation.

Cluster 2 – Operational approach

DEVCO's experience with funding R&I throws up a good many ideas and good practices that can be used to formulate a solid approach.

Recommendation 3: DG DEVCO support should continue to focus on seven principal elements.

These include five common elements that emerge from much of DEVCO's support to R&I in the past and two elements that have not been so prominent, but experience shows are important: (i) Support to networks, (ii) capacity development, (iii) careful selection of partner institutions, (iv) policy dialogue, (v) actual funding of research for development, (vi) capitalisation of results and (vii) the establishment and strengthening of national innovation systems.

Recommendation 4: Employ instruments and modalities suited to the needs of R&I.

DG DEVCO should recognise that R&I needs to be built up over the longer term and should explicitly address sustainability issues. It should examine the mix of instruments and modalities it uses and review them to design approaches adapted to the long time frames in scientific research, in the research-to-uptake pipeline, and in R&I institution strengthening.

Recommendation 5: Ensure adequate human resource capacities for support to R&I.

DG DEVCO's commitment to R&I for development will mean little if there are no improvements in staff capacity. At Headquarters, greater involvement will require more resources. In the field, R&I capacity should also be strengthened if the EU wants to remain a relevant partner in this area.

Cluster 3 – Complementarity

DG DEVCO is already collaborating with DG RTD but this could be taken further.

Recommendation 6: Consolidate and implement an explicit division of labour with DG RTD.

DGs DEVCO and RTD should agree a clearer division of labour in their respective roles in international co-operation for R&I and ensure it is followed through at all levels. Cooperation should be stepped up on the design of framework programme calls so they meet developing country needs, on the coordination of staffing in EUDs and on the capitalisation of research results ideally using RTD's CORDIS database.

Recommendation 7: Maintain the political and practical commitment to promoting Policy Coherence for Development.

Policy Coherence for Development (PCD) on R&I for development should continue to be a major concern for DG RTD and other EU services and institutions supporting R&I directly or indirectly. This is particularly important in the new context of the UN Global Goals and the value they attach to Policy Coherence for Sustainable Development as a vital component of global partnership.

Cluster 4 – Results

DEVCO should do more to capitalise on research results. Supporting interested partner countries to develop national S&T policies and establish national innovation systems is a key way to encouraging uptake and engagement between researchers and the private sector.

Recommendation 8: Take more deliberate and systematic steps to foster results.

DG DEVCO should focus and coordinate its support to R&I more carefully so as to create critical mass within a national or regional context. A clear approach to support national and regional R&I frameworks and the establishment of national innovation systems will assist this focus. Support for R&I inside specific sectors should continue to play a role, but wher-

ever possible this should be linked to the national and/or regional R&I policy context.

Recommendation 9: Develop a clear strategy for the transfer of results.

Specifically targeting the transfer and dissemination of results and ensuring they are systematically taken up by EU Delegations and project implementers is essential.

Recommendation 10: Provide explicit support to the capitalisation of results.

DG DEVCO should develop and implement a strategy for the systematisation or 'capitalisation' of results of R&I. This could be done in conjunction with DG RTD and would be built around the broader institutional development that DG DEVCO already supports (e.g. high-speed internet networks) and further support to institutional frameworks for innovation.

Recommendation 11: Build a visibility strategy on a stated commitment to R&I.

DG DEVCO should publically state the important role it sees for R&I in the achievement of EU development objectives and the UN Global Goals, as well as the role it sees itself as playing in promoting R&I for development. Such a clear statement will then also provide a foundation on which to build a communication and visibility strategy.

1 Introduction

1.1 Mandate and scope of the evaluation

A broad evaluation scope covering a seven-year period of European Union (EU) support in third countries, regions and through relevant instruments.

The thematic scope of the evaluation encompasses the EU support to Research and Innovation (R&I) in four key sectors (henceforth "thematic sectors"):

1. Food Security, Nutrition and Agriculture (FSNA);
2. Health;
3. Environment and Climate Change (EnvCC);
4. Science, Information Society and Space (SISS).

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 Research and Innovation in the key sectors and whether the approach was appropriate to enhance capacity to reach development objectives in these fields. Moreover, the Terms of Reference (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 process likely to impact on poverty reduction in longer term;
- The appropriateness of instruments and modalities made available;
- The approaches, notably country versus regional support, as well as addressing research directly or through the inclusion of important components of research activities within sectoral programmes.

The legal scope of the evaluation is delineated by the activities supported by the Directorate General for International Cooperation and Development (DG DEVCO) within the framework of the following co-operation 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 and Innovation (DG RTD) implements activities supporting Research and Innovation in developing countries, its policies, strategies, programmes and activities are not included in the scope of the present evaluation and therefore neither in the in-depth analysis. They are, however, considered from a contextual point of view, and analysed from a complementarity and synergy perspective.

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 7th Framework Programme (FP7).

1.2 Structure of the report

The report is structured in four volumes:

Volume 1

Chapter 1 – Introduction;

Chapter 2 – Key methodological steps;

Chapter 3 – Overall policy framework of the EU strategy in relation to Research and Innovation;

Chapter 4 – Intervention logics of DG DEVCO and DG RTD support to R&I in third countries, based on an analysis of major normative documents and the sector intervention logics presented in Volume 2;

Chapter 5 – Inventory analysis: an analysis of the inventory of interventions related to Research and Innovation financed by DG DEVCO in the period 2007-2013;

Chapter 6 – Answers to the evaluation questions, including summary findings for each evaluation question, as well as the synthesis judgements across sectors;

Chapter 7 – Overall assessment;

Chapter 8 – Conclusions;

Chapter 9 – Recommendations.

Volume 2

Sector introductions, judgement criteria and underlying indicators for each of the four thematic sectors (FSNA, Health, EnvCC, SISS). Volume 2 is accordingly divided into four sub-volumes.

Volume 3

1. Terms of Reference;
2. Inventory of interventions related to R&I financed by DG DEVCO in the period 2007-2013 (methodology, analysis and full list of contracts);
3. Regional and global Case Studies;
4. Survey to EU Delegations (approach, analysis and questionnaire);
5. Final evaluation matrix;
6. List of persons interviewed;
7. Bibliography;
8. Methodology.

Volume 4

Country Notes for the countries visited during the Field Phase.

2 Key methodological steps

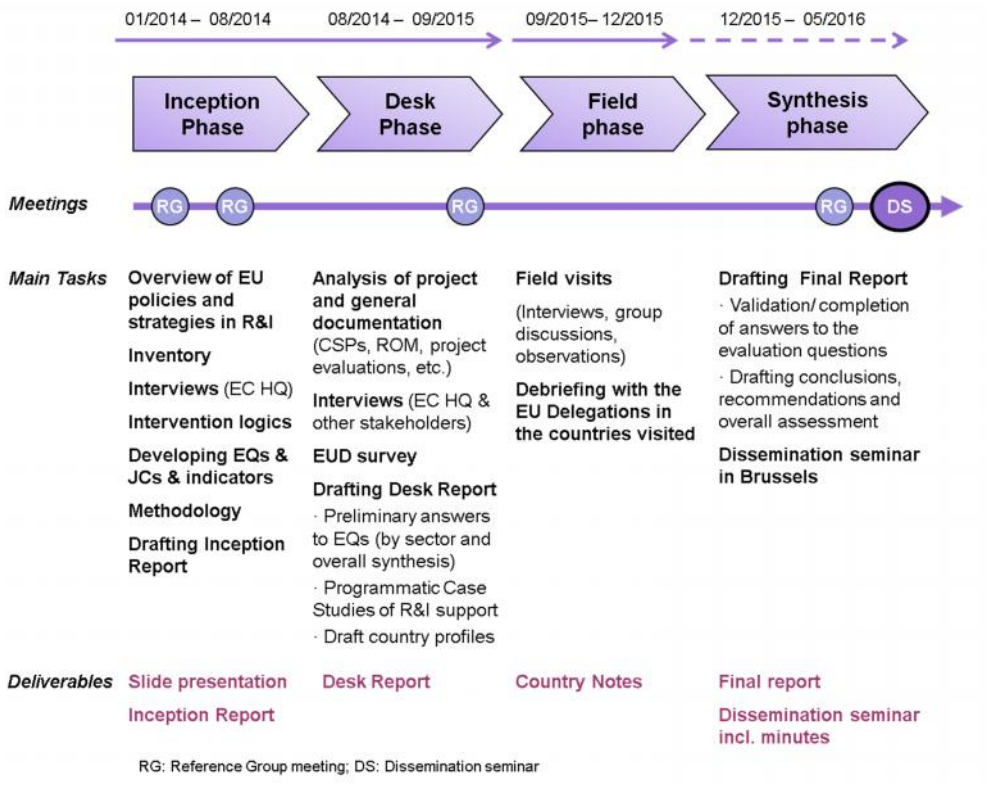
2.1 Overall methodological approach

An approach in four phases.

The methodology applied for this evaluation is based on the methodological guidelines developed by the DG DEVCO Evaluation Unit. The guidelines give precise indication on the design of the study, structure of the evaluation process in several phases, and provide an array of tools that can be used for evaluations.

The evaluation was conducted in four main phases (as summarised in the following figure) between January 2014 and May 2016. It was managed and supervised by the DG DEVCO Evaluation Unit. Evaluation progress was closely followed by a Reference Group (RG), chaired by the Evaluation Unit, and consisting of members of DG DEVCO, DG RTD and the Education, Audiovisual and Culture Executive Agency (EACEA). The figure also lists the main tasks implemented and tools used in each phase, the RG meetings held, and the deliverables for each phase. Each phase started after formal approval of the deliverables of the previous phase by the Evaluation Unit. Further methodological details can be found in Annex 8 of Volume 3.

Figure 1 Key steps of the evaluation process



The evaluation process adopted a systematic approach that used various building blocks to gradually construct an answer to the evaluation questions (EQs), and to formulate conclusions and recommendations.

The analytical tools used for the evaluation process are summarised in Annex 8 of Volume 3. The remainder of this section briefly discusses the procedure for geographic and case study sampling, as well as the survey to EU Delegations (EUD) and the limitations encountered during the evaluation.

2.2 Selection of country, regions and interventions

Geographic units and interventions were systematically selected to obtain a relevant and representative portfolio for in-depth study.

Since it was not possible to conduct an in-depth assessment of R&I support for all relevant interventions and countries/regions, a number of country cases and interventions were selected for in-depth study. The selection process aimed to keep the number of cases within realistic dimensions while simultaneously reflecting the whole R&I portfolio through sufficient variety of interventions and contexts in order to allow generalising findings and ensuring external validity of the analysis.

The portfolio of R&I interventions was first sampled along geographic levels (national, regional and global). Within each level, specific interventions were then chosen to represent a sufficient variety of types of support, contractors and programmatic approaches.

2.2.1 Country selection

The country selection took place in three steps. First, a list of criteria was developed to pre-select a 'broad' sample of 38 countries (see details in Annex 8 of Volume 3), for which a 'light' (preliminary) analysis conducted at the beginning of the Desk Phase along the following lines:

- Identification of R&I-specific evidence in Country Strategy or Regional Strategy Papers (CSPs and RSPs) and Country Strategy Evaluations (CSEs);
- Light screening of contracts in the inventory (including their financial volume);
- Collecting information about countries' participation in regional EU support to R&I;
- Assessment of the availability of relevant documents.

These 38 countries also represent the set of countries contacted for participation in the online survey to EU Delegations (see details on the survey approach in Annex 4 of Volume 3).

Subsequently, out of these 38 countries, a 'small' sample of 19 countries was selected for in-depth desk analysis based on the previous criteria (that is, by prioritising countries that mention R&I in their CSPs/CSEs, received high amounts of country-level funding, serve as hubs for regional support and/or for which good documentation was available) and in discussion with the Reference Group. The evaluation team developed preliminary country profiles (not included in this report) as a basis for the final selection of field mission countries.

Finally, the ten countries to be visited in the Field Phase were chosen at the end of the Desk Phase in consultation with the Reference Group: Burkina Faso, Ethiopia, India, Kenya, Mauritius, Peru, South Africa, Tunisia, Ukraine and Vietnam. After the field missions, the preliminary profiles of these ten countries were elaborated as detailed Country Notes presented in Volume 4, each including at the end a collection of evidence structured by judgement criteria.

A summary table in Annex 8 of Volume 3 lists the three samples and thus illustrates how the country selection was gradually narrowed down from initially 38 to the ten countries visited in the Field Phase.

2.2.2 Case Studies at regional and global level

The regional and global level of R&I support has been mainly covered through a selection of Case Studies presented in Annex 3 of Volume 3 and that feed into the evaluation matrix in Volume 2. The Case Studies provided a useful way of looking at the material evaluated in a more 'programmatic' way that examines cross-sections of activities according to their implementation channels, the different ways they are 'packaged' by the EU to follow a certain strategic logic or for external communication or visibility purposes. These studies therefore cover specific major programmes or dialogue processes.

At the regional level, the numbers of contractors and implementation approaches to choose from turned out relatively large. A first list of 'candidate' interventions was prepared in the Inception Phase, aiming to achieve balance across regions (relative to their different weights in the inventory), implementation channels and to include programmes of large size. The list was then reduced to 13 regional case studies and was validated by the Reference Group. At the global level, the number of programmes and contractors was more limited in the inventory. Seven of the major global programmes and contractors were covered through in-depth Case Studies, chosen by simply looking at all the global programmes/channels individually and considering their specific nature and role. The list of all Case Studies is presented in the following box. Annex 8 in Volume 3 shows in addition their sector and geographic coverage.

Box 1 List of Case Studies presented in Volume 3

Regional Case Studies

1. @lis2 (Alliance for the Information Society Phase II) & ALICE2 (Latin America Interconnected with Europe 2)
2. ACP Science and Technology Programme
3. ACP Sugar Research Programme
4. Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA)
5. EU-Asia Link Phase III
6. Intra-ACP Energy Facility
7. Joint Africa-EU Strategy (JAES) 8th Partnership
8. Monitoring for the Environment and Security in Africa (MESA)
9. (Annual Work Plan for) Poverty-related Diseases 2006
10. Promoting Research for Improved Community Access to Health Interventions in Africa
11. IssAndes (Strengthening Pro-poor Agricultural Innovation for Food Security in the Andean Region)
12. SWITCH-Asia
13. Technology Transfer for Food Security in Asia

Global Case Studies

1. Former Consultative Group for International Agricultural Research (CGIAR)
2. Clean Coal Technologies (CCT) and Carbon Capture & Storage (CCS)
3. Global Climate Change Alliance (GCCA)
4. Global Forum on Agricultural Research (GFAR)
5. Global Programme on Agricultural Research for Development (GPARD)
6. Higher Education
7. World Health Organisation (WHO)

2.3 Survey to EU Delegations

A web-based survey to EU Delegations to reduce gaps of evidence.

The evaluation team conducted a survey to EU Delegations to complement the documentary review and country visits. The results have been integrated into the synthesis and sector judgements in Volume 1 and 2 respectively. The survey focused on issues identified as gaps of evidence during the early Desk Phase and covered the following thematic areas:

- Dissemination of information about R&I opportunities;
- Policy dialogue;
- Outcomes of support to R&I, dissemination, uptake and innovation;
- Aid delivery methods, funding instruments, implementing channels & approaches;
- Co-ordination and complementarity;
- Lessons learnt from support to R&I;
- EU institutional capacities;
- Value added.

A questionnaire including quantitative and qualitative elements was developed by the evaluation team and was approved by the Evaluation Unit of DG DEVCO. The evaluation team prepared the questionnaire as a web-based survey and managed the survey in-house. DG DEVCO Evaluation Unit contacted 37 EUDs to obtain contact details of the main survey respondents in the Delegations. 32 EUDs responded to the request. Invitations to the survey were sent out as soon as the contact details were received, starting 21 May 2015. The survey was closed on 4 September 2015.

Completed questionnaires were received from 22 EUDs. The main respondents were Heads of Co-operation and S&T contacts in the Delegations, and questions were generally well understood by the respondents. The final version of the questionnaire and the survey report with detailed results are presented in Annex 4 of Volume 3.

2.4 Challenges and limitations

The evaluation faced some challenges in terms of data collection and conceptual work.

A number of limitations, both in the data collection process and of conceptual nature, have been encountered, most of them during the Desk Phase:

- The ToR required the team to study four different thematic sectors. In the EU support analysed here, R&I is rarely treated as a separate sector for purposes of programming, but embedded into other sectors. Furthermore, R&I activities tend to constitute only one of many components of (or add-ons to) thematic interventions. This resulted in an extended period of document screening and analysis since:
  - The inventory compiled during the Inception Phase was large with over a thousand contracts. As a result, a large number of documents had to been screened – in four sectors, rather than only one.
  - The density of relevant information on R&I found in strategy and CRIS (Common RELEX Information System) documents was generally very low: specific evidence came as small bits of information, which were scattered across an unusually large number of documents – even within sectors and after filtering interventions with R&I components to the best extent possible.

- In general, strategy and programming documents made little specific reference to R&I. Potential sources of evidence for R&I in sector dialogues (e.g. Sector Budget Support Programmes) were scant in the evaluation period and for the country sample.
- The availability of specific documents within contracts and decisions in CRIS varied hugely, with many only providing one or two programming documents and nothing on monitoring or reporting.
- It was not always possible to base the analysis of performance and actual outcomes of interventions on existing documentation since progress reports, Results-Oriented Monitoring (ROM) reports or Mid-term Reviews were partially unavailable.
- The country strategy or thematic evaluations available offered virtually no specific information on Research and Innovation. This lies in the fact that EU support is mainly limited to only two or three focal sectors and possibly a couple of non-focal sectors. The result is that broad sectors are chosen and that these are very unlikely, if ever, going to include R&I as a focal sector in its own right.
- In the EUD survey, several Delegations highlighted the problem of limited institutional memory due to staff turnover, which inevitably led to a relatively larger coverage of the later part of the evaluation period.
- Since the survey covered all four sectors, but EU support to R&I was usually concentrated on one or two key sectors the sample size at sector level tends to be low. For the sector judgement and country notes, evidence from the survey has been mainly used in anecdotal fashion whereas more robust statistics are available at the overall level (synthesis judgements).
- Little direct observations of projects was used during the country visits since each field missions lasted only five work days; however, stakeholders interviewed provided information on final beneficiaries.

3 Overall policy framework of the EU strategy in relation to Research and Innovation

3.1 General framework

EU support to R&I arises from two distinct roots: support to research and support to development.

The ability to generate, absorb and apply new knowledge is an increasingly important factor in determining the international competitiveness of modern economies as well as in contributing to sustainable development, prosperity and growth. While developing countries make political commitments to research that are often expressed in international fora, most have limited financial resources for investing in R&I or lack the capacities for accessing and adequately using available resources. Development co-operation in the area of research can therefore be a key instrument to use if development programmes are to impact on poverty reduction and sustainable growth challenges facing developing countries. As awareness of this link has increased, EU development policy in R&I has evolved considerably over the past 15 years. To date, however, there has been no evaluation of EU support to R&I for development, so the current exercise started from first principles.

The policy statements discussed in the following present the EU's support to R&I as an EU strategy with DG RTD and DG DEVCO working in complementarity with each other. Specifically, DG RTD is in charge of the overall EU support to R&I both inside the EU and in the wider European Research Area under its International Co-operation programme, while DG DEVCO supports R&I in developing countries through funds destined for development purposes. The need for coherence between both policy areas is underlined at various appropriate moments.

EU support to R&I thus arises from two distinct roots: support to research on the one hand (discussed in Section 3.2) and support to development on the other (Section 3.3), institutionally embodied in DG RTD and DG DEVCO respectively. The Strategic Framework Communication (COM(2008) 588, p.2) explains the policy objectives in R&I as follows:

"The main objective is to contribute to global sustainable development and to foster Europe's S&T excellence, which is increasingly a basis for economic competitiveness at a time when EU companies are ever more facing competition from emerging economies."

Thus on the one hand there is an emphasis on the need to protect and enhance the EU's interests and particularly its global competitive advantage through excellence in S&T, and on the other the need to support sustainable development at the global level. These twin objectives are not necessarily incompatible but individually may not always lead in precisely the same direction. As this evaluation focuses on EU support to R&I for development, the prime consideration for this study is the development objective.

In order to clarify the scope of the evaluation, the evaluation team developed and worked along the following definition of the terms 'Research' and 'Innovation':

Box 2 Definition of Research and Innovation

Research:	The process of inquiry into and evidence collection on new or developing areas of knowledge, so as to build up expertise and knowledge for development processes.
Innovation:	The process through which the evidence from and outcomes of this research and knowledge creation are taken up by society, translated and adapted into new knowledge that is then proactively used in development processes.

3.2 International co-operation on Research and Innovation

The policy context of international co-operation in R&I is set through three Communications.

The policy context for international co-operation on R&I is mainly provided by three consecutive EU policy documents on R&I listed in Box 3 below. These are communications put forward by DG RTD in 2001, 2008 and 2012, but they are supported by the whole Commission including DG DEVCO. DEVCO for its part does not have separate policy papers on R&I, but the topic is referred to in the principal development policy documents discussed in Section 3.3 further below.

Box 3 Key EU policy documents on international co-operation in R&I

COM(2001) 346: Communication on the International Dimension of the European Research Area

COM(2008) 588: A Strategic European Framework for International Science and Technology Cooperation

COM (2012) 497: Enhancing and Focusing EU International Co-operation in Research and Innovation: A Strategic Approach

In 2001, the *Communication on the International Dimension of the European Research Area* (COM(2001) 346 final) emphasised the key role of international scientific co-operation and opened up the EU's research Framework Programmes to third countries, including developing countries.

The subsequent *2008 Strategic European Framework for International Science and Technology Co-operation* (COM(2008) 588 final) recognises that major global challenges such as climate change, poverty, infectious disease, and threats to energy, food and water supply highlight the need for effective global science and technology co-operation to promote sustainable development and, consequently, formulates a number of principles underlying the framework for international co-operation in R&I. Chief amongst these is first the widening opening up of the European Research Area (ERA) and second the need to ensure policy coherence between R&I policy and other policies including those for development. The strategy also seeks to foster partnerships with key third countries in different regional groups as well as promote the EU's attractiveness as a research partner.

In terms of programmes, the 2008 Communication underpins the FP7 whose duration corresponds to the 2007-2013 evaluation period. It is thus the main relevant Communication on international co-operation in R&I for this evaluation. The FP7 covers research actions in a number of areas such as the environment, food and nutrition, health and climate change that are important for sustainable development. Under its International Co-operation (INCO) element, the programme facilitates collaboration with researchers from developing countries who participate directly in a range of EU projects. A major aspect of the policy is to improve the framework conditions for international S&T co-operation involving among other things support to the development of global research infrastructure initially with emerging economies in Asia and Latin America but also to other regions as well as support to the mobility of researchers.

The more recent Communication *Enhancing and Focusing EU International Co-operation in Research and Innovation: A Strategic Approach* (COM(2012) 497 final) reiterates the need for Research and Innovation policy to support EU's external policies. For developing countries, it calls for emphasis on complementing the Union's external policies and instruments by building partnerships to contribute to the sustainable development and address challenges such as the green economy, climate action, im-

proved agriculture, food security and health. The Communication, which forms the policy basis for current EU policy on support to Research and Innovation and for DG RTD's Horizon 2020 (the successor programme of FP7), only covers the last year of the evaluation period. It does however provide an important marker indicating where evolving EU thinking on support to R&I had reached by the latter years of the study period and has hence be fully taken into account in terms of strategy analysis.

The 2012 Communication proposes a series of activities for engagement with third countries[2], and developing countries are listed as one of the target groups, with a focus on building partnerships and R&I to address global challenges such as the Millennium Development Goals (MDGs) or climate change. Equally the communication outlines a set of instruments including policy dialogue, information and data collection, funding instrument (principally Horizon 2020), co-ordination with other EU policies and engagement with international fora.

Shift in the policy focus of R&I co-operation over time towards developing countries and strategic approaches.

From the three previous Communications, it becomes apparent that the policy focus has shifted over time. The orientation of international co-operation in R&I has essentially evolved along three central strands:

1. The strengthening of the international dimension of the European Research Area (ERA) (2001);
2. Improving the framework conditions for international S&T co-operation (2008);
3. The implementation of a sustainable partnership (2012).

A further key change in policy, articulated through the 2012 Communication, is the emphasis on innovation in addition to research.

In terms of the *ultimate objective or global impact* of research policies, throughout the three different Communications, the focus is clearly on fostering EU research excellence. However, from an emphasis on Europe's position as the hub of the worldwide knowledge-based society (2001), the focus moved to contributing to global sustainable development and Europe's S&T excellence (2008), and finally also to including the aim of impacting on (and resolving) global challenges, as well as excellence and attractiveness in Research and Innovation (2012). A more detailed analysis in terms of DG RTD's *inputs, activities and approaches* shows that over time DG RTD keeps on striving to be more open to third country researchers and organisations, to improve research infrastructures, partnerships and mobility of researchers – and innovators.

Besides the explicit enhanced emphasis on innovation, other notable developments since 2008 include the attention to science diplomacy, and reciprocal access to third countries' programmes, the stakeholder-driven basis, the aim to strengthen demand-led research, and the promotion of common principles for the conduct of international research.

Both the 2008 and 2012 Communications pay attention to complementarity with Member States and the need to coordinate among the Union's external policies and instruments. Moreover, in 2012 this also includes involving other relevant stakeholders, such

[2] In all three Communications a differentiation is made according to different country groupings: neighbourhood, key third countries including industrialised and major emerging economics, developing countries and some established country groupings, like ASEAN and the AU. For these different country groupings, the strategic objectives largely remain the same, from fostering integration into, or alignment with, the ERA for the EFTA and EU enlargement countries; to increasing competitiveness and co-operation for industrialised countries and emerging economies; and to partnerships and sustainable development for developing countries. In enlargement, neighbourhood and developing countries support is to also include building research capacity.

as industry, universities and research organisations and other initiatives, platforms and partnerships.

While in 2008 the identification of areas for co-operation is supposed to be part of the policy dialogues, especially via S&T agreements, in 2012, the more strategic approach stands out, setting out multi-annual roadmaps to identify areas for targeted co-operation with key countries and regions. This also entails better information gathering, including on the various policies and programmes by Member States and Associated Countries.

3.3 Development and R&I

References to R&I in global and regional development strategies.

In 2005, the EU emphasised the close links between research and development. The Council's landmark Conclusions on promoting *Policy Coherence for Development* identified 12 policy areas that, if made coherent with development policy, could accelerate progress towards the Millennium Development Goals, with Research and Innovation being one of them. More specifically on the development policy side and in the same year the *European Consensus on Development* (OJ 2006/C 46/01), Part I of which relates to the EU as a whole (Member States as well as the Commission), reiterated the commitment to Policy Coherence for Development (PCD) with Research and Innovation as one of the 12 key areas on which to make progress. The Consensus specifically mentions development-related research as the tool for bridging the digital divide in information and communication technologies, and commits the EU to support global agricultural research to advance rural development and food security.

The EU's most recent overarching development policy document, the *Agenda for Change* (COM(2011) 637 final) endorsed by the Council in May 2012, (i) underlines the importance of promoting sustainable growth with respect to the environment, biodiversity and the use of natural resources, (ii) calls for investment in cleaner technologies and innovation, and (iii) recognises the need for capacity development and exchange of knowledge to carry out and use the results of research.

*EU development co-operation***,** with its policy base as indicated above in the European Consensus for Development (2005) and the more recent Agenda for Change (2011), supports the *application of science, technology and innovation* to address particular problems and opportunities at the global, regional and national level in developing countries, focusing on the most serious challenges and those where developing countries most need assistance (e.g. food security, maternal and child health and infectious diseases, adaptation to climate change, sustainable use of natural resources). At the same time, as indicated in the Cotonou Agreement referred to further below, the EU is keen to support *capacity development for research* in the developing countries with which it cooperates. Thus the EU seeks to promote awareness and capacity-building in the use of research as a tool for development by encouraging developing countries to mainstream it in their development strategies and develop an autonomous capability to design and implement their own programmes. At the African, Caribbean and Pacific (ACP) and the African level in particular, the building of capabilities to define research priorities and manage the transnational research programmes to address them is of the outmost importance.

The EU also participates in developing country-led *regional initiatives*, seeks to enhance *international dialogue* by promoting developing country participation in research networks. Equally it works with other donors and in *multilateral fora* to advocate for the use of Research and Innovation as enablers for sustainable development.

The EU has concluded *bilateral science and technology agreements* with a number of

individual countries[3] – 14 of these countries are developing or transitional countries also cooperating with the EU under the ENPI, DCI or EDF. These agreements constitute a framework and a privileged forum to identify common interests, priorities, policy dialogue, and the necessary tools for science and technology collaboration.

More specifically in the *European Neighbourhood policy*[4], research and scientific co-operation are a priority to catalyse technological progress and support the process of extending the internal market and regulatory structures. Integration into the European Research Area (ERA) through the FP7 for Research was expected to stimulate innovation and promote research capacities for development. The establishment of the ENPI[5] sets the participation in Community Research and Innovation activities and researchers' mobility within the areas of co-operation under the Instrument. The revised Neighbourhood policy in 2011[6] highlights the particular focus on knowledge and innovation, and presents the commitment to work towards a Common Knowledge and Innovation Space, pulling together several existing strands of co-operation – policy dialogue, national and regional capacity building, co-operation in Research and Innovation, and increased mobility of researchers and students.

The ACP-EU Cotonou Partnership Agreement of 2000 identifies co-operation on Research and Innovation as an important aspect of ACP-EU development co-operation in various thematic areas listed in its Part 3 on Co-operation Strategies (Art.18 ff.). Thus the importance of co-operation on research is highlighted in agricultural development (Art.23), science and technology (Art.23), the social sectors (education and health)(Art.25), regional sustainable development (Art.29) and in institutional development and capacity building (Art.33). Later in the Agreement, under the Technical Co-operation heading (Art.79), the point is also made that ACP experts and research institutions are to be encouraged to participate in contracts financed by the European Development Fund (EDF). Moreover, in the Final Act of the Agreement research establishments are specifically identified as one of categories of 'actors of the partnership' (Declaration I) referred to under Article 6. Over 80% of the 10th EDF for ACP countries (2008-2013) was budgeted and prioritised through national and regional strategy papers and around 10% through the Intra-ACP co-operation envelope. The Intra-ACP co-operation strategy (2008-2013) sets research as one of its priorities through the continuation of the intra-ACP innovations and capacity building programme to address the issues of building and enhancing strong scientific and technological capacity to support research, development and innovation in the ACP region, and through a new programme to support EU-Africa 8th partnership science component.

The EU-Africa summit in 2007 concluded a new *Africa-EU strategic partnership* managed jointly by the EU and the African Union**.** The Joint Africa-EU Strategy[7] (JAES) provides an overarching long-term framework for Africa-EU relations, prioritising support to building capacity in research, and to research in the health sector (vaccines and new medicines for both major and neglected diseases), as well as in agriculture and food security (including support for the African Union's Comprehensive Africa Agricultural Development Programme – CAADP). The JAES' first and section action plans covering the period up to 2013 outlines eight Africa-EU strategic partnerships; one of them being the *Africa-EU 8th Partnership on Science, Information Society and Space*, with a priority action on support to science and technology capacity building in Africa and implementing Africa's science and technology Consolidated Plan of Action.

[3] http://ec.europa.eu/research/iscp/index.cfm?lg=en&pg=countries
[4] COM(2003) 104 final – Wider Europe — Neighbourhood: A New Framework for Relations with our Eastern and Southern Neighbours
[5] Regulation No. 1638/2006 of the EP and of the Council, laying down general provisions establishing a ENPI
[6] COM(2011) 303 final: A new response to a changing Neighbourhood
[7] The Africa-EU strategic partnership – A joint Africa-EU Strategy 2007 Council of the EU 16344/07

References to R&I in the Development Co-operation Instrument.

The EU's main budget instrument for supporting development co-operation, *the DCI*[8], sets up geographic and thematic programmes. In the *geographic programmes*, relevant to Asia and Latin America, scientific and technological co-operation is specifically promoted in the area of education. The strategic partnership between the EU and the countries of Latin America and the Caribbean[9] (LAC) has also prioritised intensifying co-operation in research, science and technology.

The *thematic programmes* outlined in the DCI regulation[10] discuss research especially with regards to Investing in People (health, education), and Food Security. The DCI Investing in People strategy (2007-2013) elaborates on the priorities in health, including accelerating and improving the availability and access to "public goods", stimulating development of innovative strategies to confront diseases and improving capacity of institutions and communities to participate in this process, and support for innovative environmental measures for disease prevention. Under the DCI strategy for the *Food Security* thematic programme (2007-2013), Research, technology transfer and innovation to enhance food security is one of three strategic priorities.[11] The main emphasis is on agricultural research for development (ARD) with an expanded focus that includes nutrition (including horticulture and livestock production), ecologically efficient intensification of agriculture, sustainable natural resources management, and agricultural biodiversity and the sustainable management of agricultural ecosystems. The DCI thematic programme on *Environment and Natural Resources* strategy (2007-2013) prioritises technology capacity building in climate change mitigation to facilitate the development of enabling environments, the design of mechanisms for knowledge sharing and improvement of know-how. It should also help to adapt technologies to local circumstances. In sustainable energy area, the priority is to boost capacity and technology transfer in developing countries with a view to creating an enabling environment for investments in sustainable energy solutions, as well as a suitable policy dialogue improving co-operation with the EU.

[8] Regulation (EC) No 1905/2006 establishing a financing instrument for development co-operation.
[9] COM(2009) 495/3 The European Union and Latin America: Global Players in Partnership.
[10] Regulation (EC) No 1905/2006 establishing a financing instrument for development co-operation.
[11] Strategic priorities were streamlined for the period 2011-2013. In the first period of the strategy (2007-2010), the relevant strategic priorities were: Supporting the delivery of international public goods contributing to food security: research and technology; and Promoting innovation to combat food insecurity.

4 The intended intervention logics of EU support to Research and Innovation in partner countries

The DEVCO-reconstructed intervention logic provides the basis for defining the evaluation questions. The intervention logic for the DG RTD 7th Framework Programme is considered from a complementarity perspective.

The evaluation team reconstructed six intervention logics (ILs) for the EU support to Research and Innovation (R&I) for development in partner countries: (a) one for each of the four thematic sectors, (b) the overall reconstructed IL for DG DEVCO support and (c) the IL diagram for DG RTD's FP7.

While the sector specific intervention logics are presented in the sector introductions in Volume 2, this section presents the overall IL for DG DEVCO support to R&I and the IL diagram for DG RTD. Although the focus of this evaluation is on DEVCO support, the FP7 is relevant from a complementarity perspective. The objectives of producing these two ILs were:

- To help clarify the objectives of the EU support and translate them into a hierarchy of expected effects/results so that they can be evaluated;
- To help propose evaluation questions to assess these effects;
- To help in assessing the internal coherence of the EU support.

4.1 The intervention logic diagrams for DG DEVCO and DG RTD FP7

Overall intervention logic for DG DEVCO support to R&I:

Since there is no overall DG DEVCO strategy document for Research and Innovation, faithful intervention logic could not be drafted. A key challenge was to deduce an overall DG DEVCO policy and strategic approach for supporting R&I from references in a variety of existing policy and programming documents. The evaluation team looked at strategy documents of the EU, both from DG DEVCO and from DG RTD. The sources of the DG DEVCO diagram are the Regulations for the DCI and ENP (European Neighbourhood Policy) for 2006-2013 discussed in Section 3. These refer in several places to research as do, for instance, the Cotonou Partnership Agreement, the European Consensus on Development from 2005 and the Agenda for Change 2011. However, in all cases these are passing references in lists of what the EU considers should be funded. Nowhere is a real case made for why and how R&I is important for promoting development and achieving the EU's development objectives. Therefore, the overall for DG DEVCO support to R&I has been reconstructed from the four sectoral ILs.

The sector-specific ILs, in turn, have been derived from sectoral strategy documents. The sector ILs are presented in the four sector introductions in Volume 2 together with the list of documents from which they have been constructed. Deriving one overall IL for DG DEVCO support from the sector ILs provides a single logical framework for this evaluation, rather than a series of sectoral evaluations.

Intervention logic for DG RTD's FP7:

DG RTD has three consecutive policy documents covering the scope of this evaluation period. As the 7th EU Framework Programme is especially relevant covering the main part of the evaluation period, the 2008/588 Communication on the International Cooperation side of FP7: A Strategic Framework for International Science and Technolo-

gy Co-operation was used as the key reference document. The IL for DG RTD adds a complementary perspective to the analysis[12].

4.2 The different levels of the reconstructed DG DEVCO intervention logic

Four major strands or priority areas of EU policy: policy dialogue; capacity development; promoting innovation, societal uptake and use of research results; research funding for development.

Based on an analysis of the major normative policy documents for DG DEVCO and the four thematic ILs presented in the sector introductions in Volume 2, four major strands or "priority areas" of DG DEVCO policy were identified:

- Policy dialogue;
- Capacity development via a) individual, b) institutional and c) infrastructure development;
- Promoting innovation, societal uptake and use of research results via support to networks, Research and Innovation funding, and harmonised EU approaches to R&I;
- Research funding for development, via appropriate institutions, alongside the FP7 funds.

The intended objectives or causal chains are not explicitly discussed in official documents but have been derived from the thematic logics. More specifically, at each vertical level of the intervention logic, the individual elements for the overall IL have been derived from the underlying sector logics. This is reflected in the discussion of the outcomes and impacts below.

4.2.1 Global impacts

High-level impacts: more sustainable development, eradication of poverty and the achievement of MDGs

The intended global (i.e. high-level) impact of DG DEVCO's efforts in supporting R&I in developing countries is to contribute to more sustainable development, eradication of poverty and the achievement of MDGs. This is based on the long-term impacts of the four sectoral intervention logics that all aim to contribute to the achievement of a range of MDGs focussing on the poorest people. R&I support by DG RTD is also taken into account as an important contextual factor.

- The FSNA intervention logic ultimately aims to improve Food and Nutrition Security for the poorest and most vulnerable people to contribute to achieving MDG1;
- The Health intervention logic aims to improve health outcomes especially for the poorest in line with the MDGs, and strengthen global health security;

[12] With regard to the complementary actions by DG RTD, the funding DEVCO manages in this area could be seen as serving the purposes of the FP7 INCO strategy albeit with the caveat that DEVCO money should support development co-operation objectives. The RTD Communication 2008/588 and other documents for FP7 show that roughly speaking the Commission wants to concentrate DEVCO funding of Research and Innovation in developing countries on capacity building of partner country research communities, leaving the actual funding of research ('doing research together') to FP7. DEVCO also directly supports research for promoting development, which is the INCO element of FP7, to bridge the gap and in particular to strengthen international co-operation in R&I by improving the frameworks (institutional and material) within which researchers work and building up the networks within which they can collaborate effectively.

- The EnvCC intervention logic focuses on contributing to poverty eradication, combating social exclusion, promoting health, making globalisation work for sustainable development, achieving sustainable patters of consumption and production, sustainably managing natural resources and strengthening governance for sustainable development;
- The SISS intervention logic aims to contribute to the MDGs and economic and social well-being.

Hence, DG DEVCO support in the area of Research and Innovation in these four sectors intends to contribute to most MDGs, notably MDG1 (*eradicate extreme poverty and hunger*), MDG 4, 5 and 6 (*reduce child mortality, improve maternal health, combat HIV/Aids, malaria and other diseases*), MDG7 (*ensure environmental sustainability*), and MDG 8 (*global partnerships for development*).

4.2.2 Intermediate impacts

Enhanced development processes and outcomes, global challenges increasingly resolved, reduced poverty and inequality, more transparent and open knowledge economics in developing countries.

The intermediate impacts identified emanate from the four major strands or "priority areas" identified of DG DEVCO support. The intermediate impacts anticipated in the overall IL for DG DEVCO are based on those as identified in the four sector ILs.

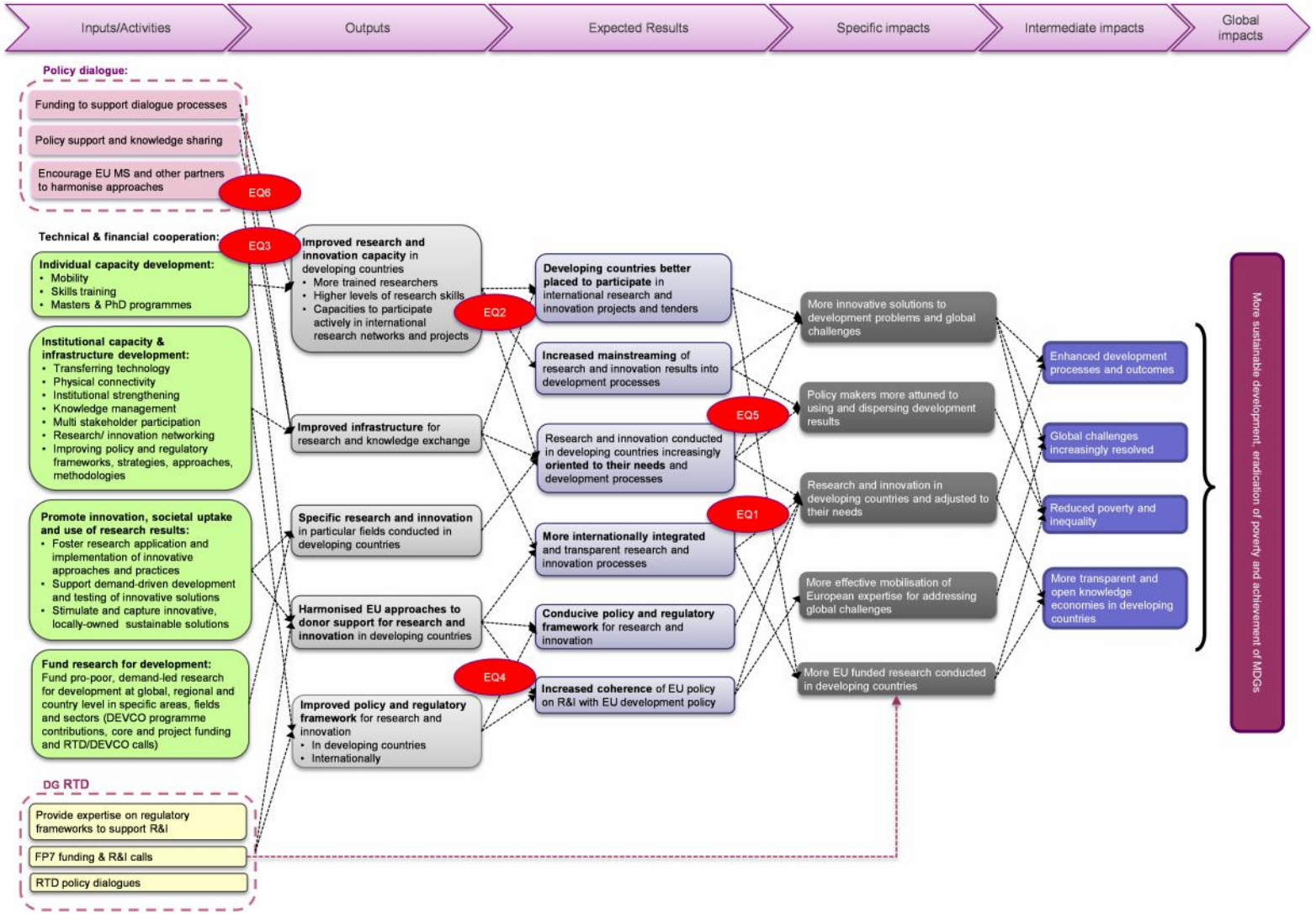
Enhanced development processes and outcomes. This includes for the four sectors the following more specific intermediate impacts: a) improving the impact of the EU Food Security policy on MDG1; b) accelerating progress towards health MDGs; c) mainstreaming environment into development processes and implementing external aspects of EU environmental policy; and d) promoting democracy, freedom of speech, human rights, mutual understanding and peace amongst people.

Resolved global challenges. This encompasses for each of the four sectors intermediate impacts such as a) improving delivery of global/international public goods in the area of agricultural R&I; b) achieving policy consensus on global health interdependence and improving health security; c) and fulfilling international and global environmental and climate commitments.

Reduced poverty and inequality. Key intermediate impacts in the thematic sectors include: a) promoting sustainable agricultural development of the poorest and most vulnerable and reducing the incidence of hunger and malnutrition; b) reducing health inequalities; c) managing sustainably natural resources; effectively Global Climate Change (GCC) adaptation and mitigation strategies at national and regional level; and d) increasing the competitiveness in the global economy, economic growth and new employment opportunities.

More transparent and open knowledge economies in developing countries. The specific intermediate impacts at sector level include: a) achieving policy consensus on the importance of health R&I; b) having coherent international policy development across the three pillars of sustainable development; and c) and promoting an inclusive information and knowledge society.

Figure 2 *Reconstructed intervention logic DG DEVCO R&I*



4.2.3 Specific impacts (outcomes)

More innovative solutions to development problems and global challenges are expected; policy makers more attuned to dispersing development results; R&I adjusted to the needs of development countries; more effective mobilisation of European expertise for addressing global challenges; more EU funded research conducted in developing countries.

The specific impacts identified are correlated with the four priority areas. The impacts identified in the overall reconstructed DG DEVCO intervention logic based on the four sector specific intervention logics are:

More innovative solutions to development problems and global challenges are expected. Partner countries and their research institutions should acquire a strengthened capacity and infrastructure to conduct their own Research and Innovation and are better placed to participate in international Research and Innovation to increase the mainstreaming of Research and Innovation results in development processes. This relates to the following specific impacts within the four sectors: a) strengthening national, regional and global agricultural research and development institutions; b) incorporating global health threats and opportunities into policy and political dialogue; c) achieving globally agreed environmental goals.

Policy makers more attuned to dispersing development results. The improvement of policy and regulatory frameworks should increase coherence and create a conducive environment for Research and Innovation in countries and internationally. This specific impact focuses on a) applying research results and innovative approaches that promote agricultural development; b) increasing national contributions to global health security; and c) contributing to more fruitful policy dialogue and negotiations in the sector of Environment and Climate Change.

R&I adjusted to the needs of development countries. Actual joint Research and Innovation between EU and developing countries should be more oriented to those countries' needs and development processes to assure in each of the four sectors specific impacts such as: a) developing and innovative and locally owned, sustainable solutions in agriculture, b) strengthening the link between EU support to health R&I and achievement of MDGs, c) preparing developing countries for low-emissions climate-resistant development, ensuring better access to affordable and sustainable energy; and d) contributing to private investments and market development.

More effective mobilisation of European expertise for addressing global challenges. The related specific impacts in the four sector intervention logics are a) advancing the EU food and nutrition security agenda; b) strengthening of the coherence of EU support to R&I, addressing the poverty-environment linkage; and d) reducing the scientific divide and contributing to scientific excellence.

More EU funded research conducted in developing countries. Actual joint Research and Innovation based on proposals from consortia of researchers in both EU and developing country research institutions contributes to the following specific impacts in each of the four sectors: a) reducing food insecurity; b) developing new health tests, products and procedures; c) preventing environmental degradation; and d) reducing the digital divide.

4.2.4 Inputs and activities

A diversified set of instruments (geographic, regional and thematic) and types of support, including (i) providing policy dialogue, (ii) support to networks, (iii) capacity development and institutional development, and (iv) use of appropriate institutions.

A variety of instruments and types of support are employed in the different outcome areas to lead to the intended impacts. The instruments used differ for each of the sectors but include geographic instruments – e.g. EDF and ENPI – and thematic instruments such as DCI-FOOD. DG DEVCO has a fairly standard approach to supporting R&I as suggested in the IL diagram through various types of support: (i) policy dialogue, (ii) support to networks, (iii) capacity development and institutional development, and (iv) use of appropriate institutions.

4.3 The different levels of the intervention logic for DG RTD FP7

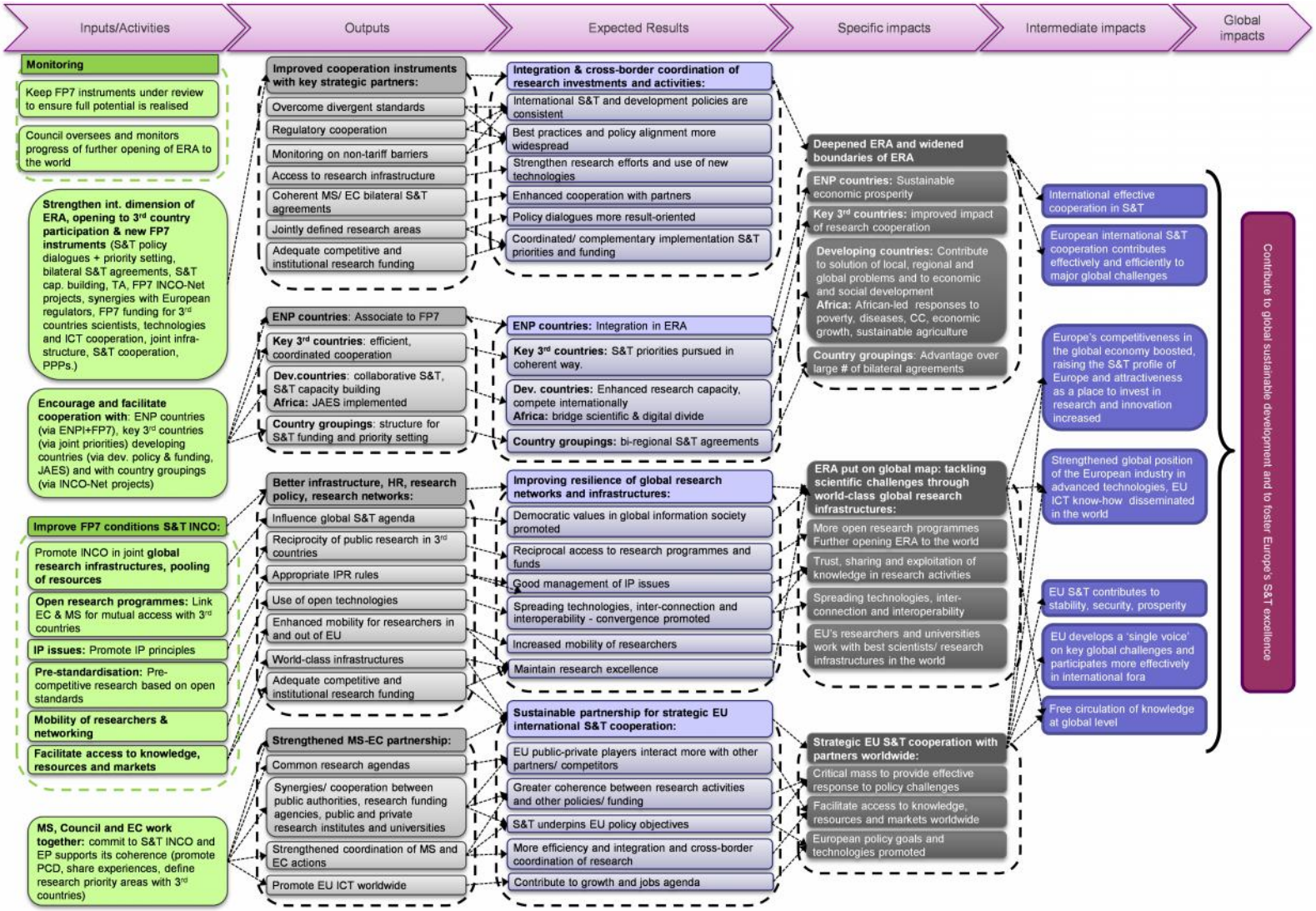
Three major strands or priority areas of DG RTD policy: strengthening the international dimension of the ERA, improving framework conditions for international S&T and the implementation of a sustainable partnership.

Based on the policy documents, comparing the 2008/588 Communication with its predecessor (COM 2001/346) and successor (COM 2012/497), the international co-operation in Research and Innovation is throughout this time period focused on three major strands or "priority areas" of the DG RTD policy:

- The strengthening of the international dimension of the European Research Area (ERA);
- Improving the framework conditions for international S&T co-operation;
- The implementation of a sustainable partnership.

Further details are given in Figure 3 below.

Figure 3 *Intervention Logic RTD*



5 Inventory analysis

This section presents a synthesis analysis of the resources allocated by DG DEVCO to support Research and Innovation in partner countries in the period 2007-2013. The detailed explanation of the approach taken to the mapping and classification of the contracts included in this inventory, as well as the key challenges and limitations, are presented in Annex 2.A of Volume 3. The full analysis is presented in Annex 2.B, and Annex 2.C shows the complete inventory with all the contracts identified.

The objective of the inventory is twofold. First, it illustrates the *realised* intervention logic, as compared to the *intended* intervention logic coming from the analysis of normative policy documents (see Section 4). Second, it provides a summary of the scale, the sectors and the geographic distribution of EU interventions and their evolution over time via tables and graphs based on objective data, such as contracted funds, year of commitment etc., directly extracted from the available CRIS database, which is the source of all data unless otherwise specified.

The source of all data in this section is the CRIS database and the evaluation team analysis, unless otherwise specified.

5.1 Methodological limits and challenges

A worldwide inventory reconstructed using a sound methodology, albeit with limitations.

The specific and systematic approach used for the identification, extraction and analysis of financial contributions is presented in Annex 2.A of Volume 3. Here, special attention is given solely to the limits and choices that needed to be made.

Box 3 Limits and key challenges

The challenges stemmed mainly from the complexity and size of the thematic scope of the evaluation, combined with the type and structure of data available for exploration. Here, the limits inherent to CRIS relate in particular to the following aspects:

In many cases no **DAC** (Development Assistance Committee) **sector code** has been attributed to the interventions, or the codes have been assigned inconsistently. A more innovative approach, such as that outlined in Volume 3, is required, combining key-word searches with (semi-) manual line-by-line cleaning and classification of data.

The **thematic scope** of the evaluation is rather difficult to precisely delineate using the fields available in CRIS – e.g. by financing instrument, budget line, or similar identifier.

There is rather **limited information** available for each contract. This especially relates to any information on the content and/or objectives of any intervention, which is mostly limited to the data given in the decision and contract titles. While for selected large interventions it is possible to find more information e.g. on the internet, it is not feasible to carry out such follow-up search individually over thousands of contracts. Therefore, the decision on the inclusion of a specific contract in the inventory is based on incomplete knowledge and is to some extent arbitrary for borderline contracts. This risk has been countered by sharing the draft inventory with key DG DEVCO RG staff depending on their geographic and thematic area of operation, to cross-check its completeness.

The problem with incomplete information about specific contracts extends also the subsequent step of **classification** of the interventions. The area of R&I is cross-cutting in nature with respect to thematic sectors. Four focal sectors were stipulated for this evaluation in the ToR, one of which ("Science, Information society and Space") is rather cross-cutting itself. However, for any further analysis necessary in the evaluation, it was important to distribute the inventory within these sectors to the maximum extent possible. While there was a sound basis for each choice made, it is clear that it mainly relied on information presented in the database and on the inter-

pretation of this information.

Some interventions, especially larger programmes, can include **components**, which are research-related and as such are part of the scope of this evaluation. However, as there is no reliable way to identify the share of resources in support of research activities, these programmes are not part of the inventory and the quantitative analysis, but are dealt with qualitatively in the evaluation.

5.2 Main findings

The main findings are set out in the box below.

Box 4 Key findings of the inventory

- DG DEVCO committed a total of roughly EUR 1.1 billion for support to Research and Innovation in partner countries over the evaluation period (largely contracts signed in 2007-2013, plus some contracts signed before but with more than 50% of their disbursements concentrated in this period).
- The sectoral composition shows that EUR 1.0 billion of the total contracted amount were earmarked for the four thematic sectors. EUR 0.1 billion went to other sectors. In addition, DEVCO-supported an estimated EUR 0.3 billion of academic mobility grants for doctoral and post-doctoral researchers and academic staff.
- Food Security, Nutrition and Agriculture represented the largest proportion (EUR 0.5 billion or 45%) of total commitments.
- In terms of geographic distribution, the primary benefitting zone of contracts was the regional level (relative to the global level and individual countries).
- Sub-Saharan Africa received the largest shares of total commitments among all regions, through both regional and individual country contracts.
- South Africa and China lead the ranking of commitments by individual countries.
- Within countries, contracts tend to be a highly concentrated in at most two key sectors (different for each country).
- The main funding instruments were the geographical domain EDF and the thematic instrument DCI-Food; together they account for more than half of total commitments.
- Each thematic sector used three or four major funding instruments.
- EU support was contracted through a range of different actors/channels, with international organisations, universities, research institutes and the private sector at the top of the list.

5.3 Total and sector commitments

Total DG DEVCO funding related to Research and Innovation in the period 2007-2013 was EUR 1.1 billion, with the FSNA sector accounting for almost half of the total amount.

Overall, a total of EUR 1,138 million was found to be committed by DG DEVCO for R&I related interventions in partner countries in the period of 2007-2013. This also includes contracts signed before the evaluation period, but for which more than 50% of the disbursements fell within 2007-2013.

Total commitments across all sectors showed a slightly upward trend over the evaluation period (mainly driven by the FSNA sector), albeit with highly fluctuating individual yearly values, where high peaks were followed by setbacks in the next years.

The subsequent table and figure present the distribution of the total contracted amounts across sectors.

Table 1 Total commitments by sector

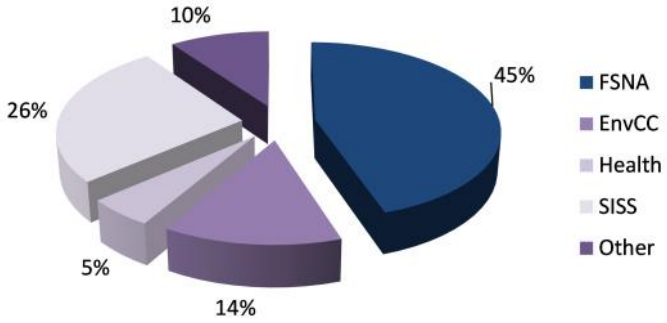
Sector	Total contracted (EUR)	Number of contracts
Food Security, Nutrition and Agriculture (FSNA)	511,156,844	381
Health	58,925,013	44
Environment and Climate Change (EnvCC)	154,789,754	110
Science, Information Society and Space (SISS)	300,500,585	421
Other	112,942,196	66
Total	**1,138,314,391**	**1,022**

Source: CRIS, Particip analysis

Food Security, Nutrition and Agriculture represent the largest share of commitments of all sectors (EUR 511 million or 45%). Science, Information Society and Space received EUR 301 million or 26% of total funds committed for all sectors. The remaining sectors, Environment & Climate Change and Health, represent comparatively only small proportions of the funds supporting Research and Innovation, with EUR 155 million and EUR 59 million of respective allocations, or 14% and 5%.

In addition, DG DEVCO contributed to academic grants at doctoral and post-doctoral levels as well as for academic staff within mobility programmes managed by the EACEA. The overall value of these grants in partner countries is EUR 281 million (see details in Annex 2.B in Volume 3).

Figure 4 Sector allocation of commitments (shares of total contracted amount)



Source: CRIS, Particip analysis

5.4 Geographic distribution

Half of the contracts benefit the regional level, followed by the country level. Global contracts account for 16% of the total value but only 2% of the total number of contracts in the inventory.

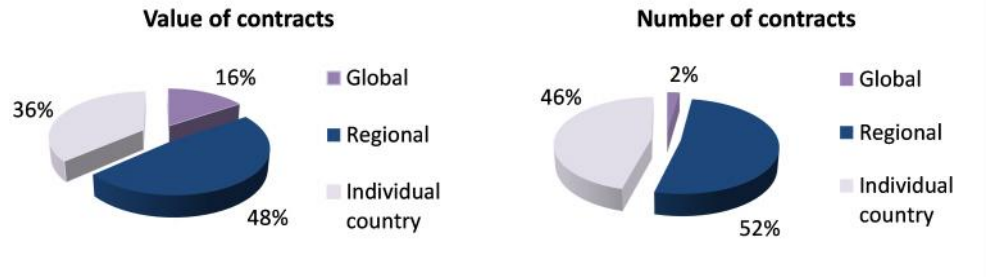
Contracts were allocated to three different levels of benefitting zones:

- Global contract (benefitting zone “All countries”);
- Regional contract;
- Individual country contract.

The following figures illustrates that regional contracts constitute the majority of all con-

tracts, both in total financial volume (48% or EUR 546 million) and in number of contracts. Global contracts represent a relatively small number of contracts (2%) but show a disproportionately larger financial volume (16% or EUR 178 million). Many global contracts are with international organisations, and thus have above-average values.

Figure 5 *Geographic scope of commitments for thematic sectors as given by benefitting zone*

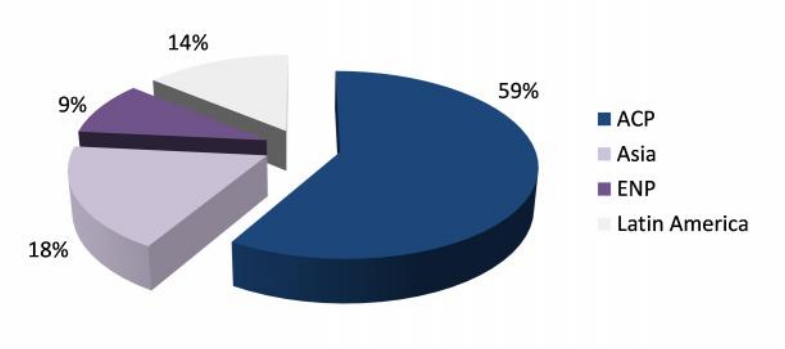


Source: CRIS, Particip analysis

The ACP region represents 60% of all country-level & regional funding.

The next figure represents the distribution of commitments by region. Total commitment per region is composed of contracts to individual countries in the given region, plus contracts to the entire region. Global contracts are not included precisely because they are not linked to specific regions. The figure shows that the ACP region was the biggest recipient of support for R&I, both in terms of individual country and regional contracts, with a share of 59% (EUR 556 million) of all geographically assigned commitments. The second largest recipient was Asia (18% or EUR 171 million).

Figure 6 *Shares of total commitments (regional plus individual country contracts) per region*



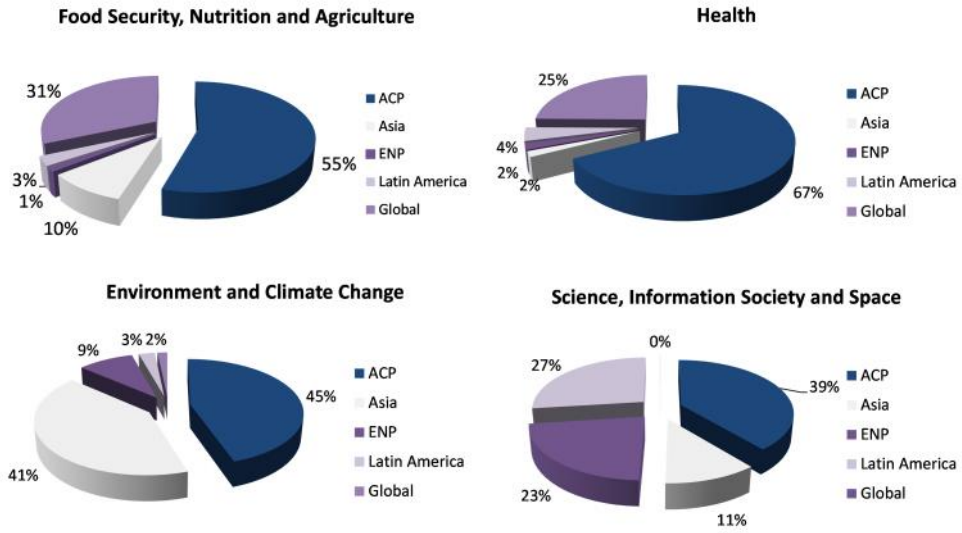
Source: CRIS, Particip analysis

The regional distribution of funding differs across sectors. The FSNA and Health sectors have put much weight on the ACP region and global contracts. In contrast, the inventory for EnvCC and SISS is regionally more balanced but shows only a negligible share of global contracts.

To analyse regional patterns by sector, the set of figures below adds global contracts as an extra category on top of the four regions depicted in Figure 6 above. The four graphs show the respective distribution of commitments by region for each of the four thematic sectors. In Food Security, Nutrition and Agriculture, 55% of the total amount

was committed to the ACP region and 31% through global contracts. This geographic distribution is broadly similar for Health. In contrast, for Environment and Climate Change, commitments are almost evenly spread between the ACP region and Asia (45% and 41% respectively), while the volume of global contracts is negligible. Global contracts also do not play any important role in SISS either. The SISS sector shows the most even regional distribution of commitments but has virtually no global contracts.

Figure 7 *Commitments per region by thematic sector (shares of contracted amounts)*



Source: CRIS, Particip analysis

Each of the 15 largest recipient countries obtained more than EUR 10 million of national-level funding for R&I; South Africa and China lead the list.

The following table presents the 15 countries (out of 82 in total) with the highest commitments through individual country contracts, and the distribution of these funds among the sectors. Each of these 15 countries received individual commitments of more than EUR 10 million for R&I. The list is headed by South Africa and China. A common pattern is that country-specific support tends to be focused on at most two key sectors per country.

Table 2 Top 15 countries receiving EU support for R&I (individual country contracts), and its distribution within sectors

Country	No. of contracts	Total contracted (EUR)	FSNA	Health	Env CC	SISS	Other
SOUTH AFRICA	7	**34,377,348**	0%	11%	1%	1%	87%
CHINA	77	**29,120,760**	2%	0%	67%	29%	2%
MEXICO	16	**18,159,303**	0%	0%	0%	56%	44%
ALGERIA	6	**16,624,473**	7%	0%	0%	93%	0%
BANGLADESH	9	**15,819,702**	77%	0%	16%	7%	0%
KENYA	11	**15,531,579**	86%	0%	14%	0%	0%
UGANDA	4	**15,323,972**	69%	31%	0%	0%	0%
EGYPT	41	**15,002,600**	8%	8%	5%	78%	1%
TUNISIA	11	**14,405,190**	0%	0%	18%	81%	1%
JORDAN	20	**14,309,972**	0%	0%	52%	48%	0%
UKRAINE	11	**12,689,815**	0%	0%	4%	92%	3%
INDIA	6	**12,659,958**	0%	0%	19%	58%	23%
ETHIOPIA	6	**12,158,212**	18%	0%	82%	0%	0%
PAPUA NEW GUINEA	9	**11,066,421**	49%	0%	7%	44%	0%
TANZANIA	4	**10,490,413**	52%	48%	0%	0%	0%

Source: CRIS, Particip analysis

5.5 Distribution by domain

EDF and DCI-Food were the most widely used instruments in terms of total funding, but instruments vary considerably by sector.

The EU support to R&I in partner countries was funded by a variety of financing instruments, both geographic and thematic. The following table shows the distribution of main funding instruments for each sector, as well as for all sectors together (last column). Each cell shows the percentage of total commitments in the given sector financed through the instrument listed in the corresponding row (percentages hence add up vertically, not horizontally). Empty cells indicate that the corresponding funding instrument was not used in the sector.

Table 3 Distribution of commitments by domain and sector (shares of contracted amounts)

Domain	FSNA	Health	EnvCC	SISS	Other	All sectors
DCI-ALA	0.59%	1.26%	2.00%	19.15%	25.04%	8.14%
DCI-ASIE	0.34%		27.54%	3.90%	12.53%	6.17%
DCI-ENV	0.29%		34.47%			4.82%
DCI-FOOD	58.95%					26.47%
ENPI	0.25%		6.50%	12.41%	0.13%	4.29%
FED	33.24%	16.26%	21.79%	37.12%	19.64%	30.48%
PP-AP		28.19%	1.11%	5.51%		3.06%
SANTE		44.44%				2.30%
Other domains	6.32%	9.87%	6.60%	21.90%	42.66%	14.26%
Grand Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

Note: "Other domains" includes all domains that simultaneously account for less than 5% of funding across all sectors and less than 10% of funding within each of the four thematic sectors.
Source: CRIS, Particip analysis

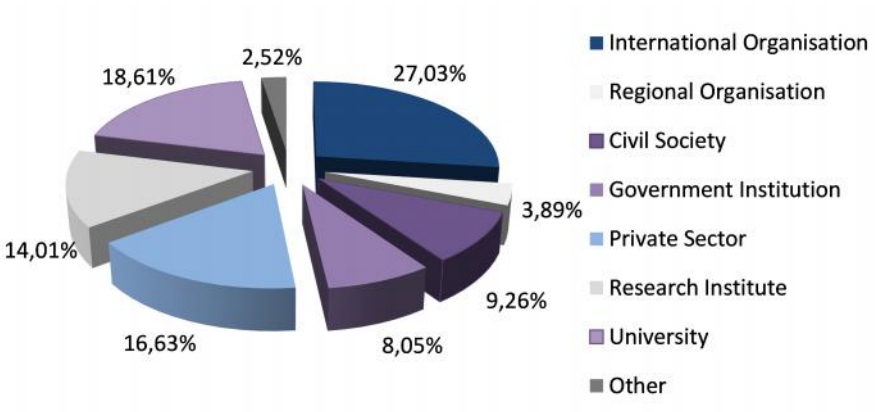
As evident from the last column, 30% of the total contracted amount was financed through the EDF/FED (*Fonds Européen de Développement*) and more than one quarter through the DCI food security instrument. This distribution was predictably different across sectors.

5.6 Distribution by channel of delivery

International organisations are the most widely used contractor channel, in particular in the FSNA sector. Universities and research institutes play a stronger role in the other thematic sectors.

Figure 8 depicts the distribution of contract amounts by detailed contractor channel for all sectors together. 27% of total commitments were channelled through international organisations, the single most widely used channel. Similarly, universities and research institutes combined represent about one third of the total value of the inventory. The private sector also represents a relatively large share (17%) of total funding.

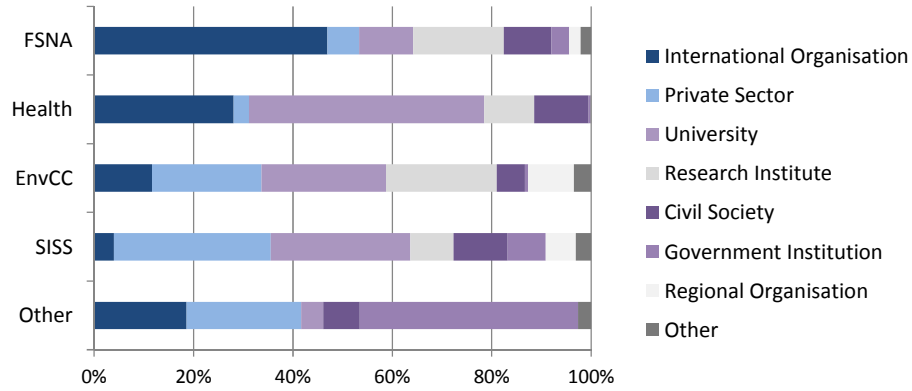
Figure 8 *Distribution of commitments by type of contractor (shares of contracted amounts)*



Source: CRIS, Particip analysis

Finally, the following figure shows the use of funding channels in each sector. While the overall dominance of international organisations in the contractor portfolio has its origin primarily in the FSNA sector, universities and research institutes are more common in the other thematic sectors (Health, EnvCC and SISS).

Figure 9 *Distribution of contracted amounts by sector and type of contractor*



Source: CRIS, Particip analysis

6 Answers to the evaluation questions

6.1 EQ 1: Development policy objectives

To what extent has EU support to R&I through DEVCO been successful in promoting the overall development policy objectives of the EU?

Rationale and coverage of the question

The core of the EU's development policy is poverty reduction. Over the evaluation period, this goal was pursued in the context of the MDGs. Key commitments in the European Consensus on Development (2002) and the more recent Agenda for Change seek to focus co-operation on poverty reduction. The MDGs identify not only specific goals and targets, but also more general aspects such as global partnership for development. For example, MDG 8 on global partnership explicitly included R&I under the target relating to assuring a reliable and affordable package of drugs and pharmaceuticals to developing countries. Through the MDGs, and via EU policy commitments, gender equality and environmental sustainability are also integrated in the EU's overall approach to development.

The rationale for the question is simple: DG DEVCO support has to be grounded in EU commitments, and in the case of development co-operation, those commitments have to do with poverty reduction.

This question is articulated through two judgement criteria and a number of indicators, with detailed reporting in Volume 2.

Summary answer to the evaluation question

EU support to R&I through DG DEVCO has promoted the overall development policy objectives of the EU. A general EU policy on support to R&I exists that covers the work of both DGs RTD and DEVCO but without defining a clear role or strategy for the latter. Overall, the EU is supportive of the role of R&I in development and sees this support as an important element of its pursuit of its development objectives; however, the link between R&I and development is frequently made but rarely spelt out in detail. DG DEVCO has thus tacitly adopted what might be termed a 'mainstreaming approach' where R&I components are regularly included in various sector programmes and in policy dialogues at multiple, global, regional and national levels. This has resulted in most of DG DEVCO's support to R&I being 'hidden' inside wider sectoral programmes. Occasionally, this has been complemented by more systematic initiatives that address directly the R&I or S&T policy of a particular global, regional or national authority with targeted policy dialogue and specific support for implementation. There is also a very wide range of different types and scales of interventions at all levels suggesting no overall clarity of focus.

Equally there are important variations in approach between the four sectors examined, with support to R&I work in the more 'traditional' and well recognised sectors of Health and FSNA generally better integrated into partner programmes and policies, than for the more recently recognised EnvCC sector or generally unrecognised SISS sector.

Key points:

- In EU documents it is usually taken as given that R&I, and indeed S&T, is an important element for achieving EU development policy objectives and the MDGs specifically. Reference to the input of R&I in the achievement of certain specific MDGs is made from time to time and more frequently

in some sectors (e.g. FSNA and Health) than others, but for the most part the documentation is not specific. It is also difficult to trace the details of how the EU supports R&I because much of the support is spread across a multitude of programmes and projects many of which have quite small R&I components. The Agenda for Change and EU programming guidelines, by encouraging CSPs to focus on a limited number of sectors and programmes, have often led to R&I being invisible.

- Despite these difficulties, specific examples, especially in the FSNA sector, do exist where it is clear that support to R&I has been an important factor for the advancement of the programme in question and its contribution to achieving EU development objectives. It is also clear that the EU has an open and encouraging attitude to the use of R&I results in development co-operation and interventions are, at a general level, placed in a factual context derived from research with a variety of studies and reports contributing to their design. Evidence of this openness and encouraging approach to R&I in development was identified at national, regional and global levels and across all the four thematic sectors for this evaluation.
- At a sector level, in FSNA the scale and spread of support is more extensive than for the other thematic sectors. There are also more specific policy guidelines for R&I in this sector than for the others, and the EU supported both demand-led R&I at a national level and actively contributed to R&I for global public goods. In the health sector, the major avenue for support has been through the EU's partnership with the World Health Organization (WHO), although DG DEVCO has also supported regional networks, especially in Africa. In EnvCC, the EU supports R&I at all three levels: national, regional and global. In SISS, not a traditional 'sector' in its own right, the focus of EU support has been more broadly to encourage the spread of S&T and its application for development. Information and Communication Technology (ICT) and tackling the digital divide (MDG8) is an area that is widely and specifically targeted, particularly at the regional level. While the SISS programmes are generally more at the regional and national levels, the EU does also engage in global discussions on the importance of S&T and R&I in development.

6.1.1 The link between R&I activities and EU development objectives as outlined in the European Consensus and Agenda for Change is strong (JC 11)

The link with EU policy objectives is clearly made but much of the support to R&I is hidden in sectoral projects and programmes.

EU policy documents at all levels and co-operation agreements with key groups such as the African, Caribbean and Pacific countries (ACP), African Union (AU), and Association of Southeast Asian Nations (ASEAN) relate EU development co-operation activities to the EU's stated development objectives, including the MDGs and other goals associated with the European Consensus and the Agenda for Change. Where R&I is mentioned, the link between R&I and the EU's development objectives, including the MDGs, is also made though often more implicitly than explicitly. What is less clear, however, is the role envisaged for R&I in the overall co-operation activities planned and implemented. Partly this is because of the many small R&I actions that take place within larger sectoral projects and programmes so that they are not immediately visible and accessible.

The likely contribution of R&I to achieving the MDGs is well spelt out.

Overall, the positive contribution that R&I can make to the MDGs and the EU's development objectives is taken as given and rarely spelt out. This does vary from sector to sector, however. The role of R&I in helping to achieve development objectives is perhaps most explicit in the FSNA sector where reference is made to the poverty and hunger MDG 1, but also to the environmental MDG 7 and to MDG 3 on women given their major role in farming and nutrition. In the SISS sector, two links that are regularly and very clearly made with MDG8 are first on the need to promote high-speed ICT communication to address the 'digital divide' and second on working with the private sector to encourage innovation. For the health sector, the most ex-

plicit link is with R&I on infectious diseases (MDG 6).

In the FSNA sector alignment was good, particularly in cases where domestic policy was strong.

In FSNA, R&I needs figure in high-level EU policy documents and sector policy Communications, and the link between R&I in the FSNA sector and the MDGs is explicitly made. However, such references are often sparse in country-level strategic documents. Two complementary pathways can be recognised in the documentation: on the one hand, a direct approach supporting demand-driven research and technological innovation in developing countries and on the other hand a more indirect approach supporting the provision of international public goods through global, regional and national agricultural Research and Innovation partnerships. At country level, field visits confirmed that implementation of R&I components shows good alignment with EU development objectives and, where appropriate, with specific MDGs. But in countries with weak domestic FSNA policies and/or implementation where Budget Support is used as a modality, alignment with EU objectives was often found to be reduced. In FSNA, the EU participates actively in various regional and global fora on R&I and the R&I needs for FSNA, the MDGs and global public goods do feature in the related statements.

Though health activities are policy relevant it is usually difficult to identify the contribution of health R&I.

DEVCO-supported Health activities are almost invariably linked to the relevant policy commitments regarding the diseases of poverty and tropical and neglected diseases, goals in child and maternal health, and improved health care for the poor. However, within this the contribution to health R&I is difficult to identify except in specific cases such as support to research on infectious diseases. DG DEVCO's contributions to pharmaceutical development fall squarely within MDG 8 on global partnerships. Aside from DEVCO-supported R&I, documents analysed also regularly mention the use of DG RTD funds for health research. In partnership with WHO, the EU (both DG DEVCO and DG RTD) has been involved in high-level international as well as regional fora setting policies for R&I.

EnvCC programmes are also well aligned to policy objectives but the specific contributions to the MDGs are not apparent.

In EnvCC, global, regional and country-level programmes are well aligned to EU objectives. All main programmes embed their activities in the relevant MDGs including global programmes such as the Global Climate Change Alliance (GCCA) and the Carbon Capture and Storage (CCS) / Clean Coal Technologies (CCT), the regional efforts (most prominently in EU-Asia Link, SWITCH Asia and EduLink) and the national programmes such as Sector Budget Support (SBS) Ukraine, EU-China Institute for Clean and Renewable Energy (ICARE Institute) in China and Arid and Semi-Arid Lands (ASAL) Agricultural Productivity Research Project in Kenya. However, even though the MDGs provide the thematic backdrop, they are not specifically operationalised in any of the programmes and it remains unclear whether and to what extent the activities supported are contributing to the achievement of the MDGs.

Projects in the SISS sector link well to MDG8 targets on the 'digital divide' and on working with the private sector.

In policy documents related to the different areas covered by SISS there are frequent general references to the importance of S&T for development and the need for R&I to develop them further, but the case is usually not spelt out any further, except in the example of support to ICT networks and bridging the 'digital divide' from MDG 8 mentioned above. The space element is less easily linked to the MDGs though there are examples of DG DEVCO funding for the use of satellite technology applications that support development processes that are more indirect (e.g. satellite imagery for environmental man-

agement and agricultural production in the Monitoring of Environment and Security in Africa (MESA) regional project with the AU). At the global level, the EU has participated actively in discussions such as the United Nations (UN) post-2015 debate, where the importance of S&T for development is underlined and EU policy papers contributing to these debates clearly spell EU support for this position. At the country level, field visits indicate that project implementation shows good levels of alignment with EU development objectives and, where appropriate, with specific MDGs. This is evident, for instance, in the Budget Support to the Department of Science & Technology in South Africa, or in the several projects addressing innovation that can be linked to MDG8 on working with the private sector to make new technologies available (e.g. PASRI[13] project in Tunisia or the European Business & Technology Centre (EBTC) in India).

The contribution of R&I to development objectives and the MDGs has usually been taken as given and rarely been spelt out explicitly.

To conclude, R&I is generally construed by EU policy makers as important for development and sustainability and useful for the achievement of EU development objectives. This is not to say, however, that all R&I actions are explicitly tied to the pursuit of one or another MDG. Sometimes this is the case; but more usually not. Moreover, much DG DEVCO support to R&I is part of larger projects where the R&I elements are not explicitly spelt out. So while the general case for R&I contributing to EU development objectives is made, the link has often remained vague and specific references to R&I are generally sparse in EU policy documents. Rather the argument of how, in practice, R&I will contribute to development objectives and the MDGs has usually been taken as given and rarely stated explicitly in any detail. Project implementers on the ground are, paradoxically perhaps, often clearer on the link.

6.1.2 R&I has informed sector policy dialogue and sector support at national and regional levels though the approach has not always been taken as far it might have been (JC 12)

The positive use made of R&I results in public policy only became apparent in the Field Phase.

Although limited evidence of R&I results informing sector policy dialogue and sector support at national and regional levels emerged in the Desk Phase, the picture changed with the Field Phase. For the most part, only some indications of the intention to use R&I results in sector policy dialogue were apparent in the documentation, whereas in practice many small examples were found during country visits.

While, at a general level, the EU's sector policy reviewed (in all four sectors) is placed in a factual context derived from research in the form of studies and reports, the documents reviewed did not bring this out in a specific manner. Equally the very few examples of Sector Budget Support in the countries selected for study did not refer to the use of R&I results.

Many specific examples exist of the value of R&I components of wider projects.

Nevertheless, numerous specific examples of sector support involving elements of R&I did emerge particularly from the field missions. One example was in support to the Health sector in South Africa where an R&I component had been included to improve the quality of medical care for the poor. In Peru, the EU supported a nutritional programme as part of a national integrated strategy against poverty that uses a model based on research evidence on the impact of interventions on factors determining malnutrition among under 5-year old children.

[13] *Programme d'appui au système de recherche et Innovation*

Sector policy dialogue also played a key role in encouraging the use of R&I results.

In terms of sector policy dialogue involving R&I there are also examples from the health and FSNA sectors:

- In South Africa, health sector dialogue between the EUD and the government involves discussion on R&I. Indeed, the review of the EU Dialogue Support Facility concluded, and the field mission confirms, that R&I had been successfully integrated into all sector dialogues in that country.
- The EU-China Dialogue on Agriculture aimed to encourage discussion on a wide range of R&I related issues and, especially at the level of implementation. This Dialogue built an institutional framework for cooperative and collaborative exploration in the field of organic farming. It heavily involved R&I actors, in particular faculty, staff and students from Higher Education Institution (HEIs) in both China and the EU.
- In the FSNA sector a wide range of examples was found where R&I has informed sector policy dialogue and support, especially in Ethiopia, Kenya and Peru as well as at regional and global levels. In Peru, the International Potato Centre (CIP) has contributed to the development, strategy and implementation of a new law on nutrition and food security and the law on family agriculture. Evidence from the country visits also suggests that centres and research of the Consultative Group for International Agricultural Research (CGIAR) have been relatively successful in informing policy dialogue and sector support. Impact on policy processes has been central to the approach of a number of EU-funded CGIAR research programmes, at national, regional and global level (c.f. CGIAR case study).

In the environment sector programmes have helped creating institutional contexts that provide conduits for channelling R&I outputs into policy-making circles but the actual impact on policy is less clear.

In the environment sector, evidence, particularly from the field missions, indicates that the programmes at the global and regional level have succeeded in creating institutional contexts that act as conduits for channelling R&I outputs into the policy-making process at the level of implementation. At national level, EUDs sometimes fund dissemination activities for results from DEVCO-funded projects, targeting policy makers among others. However, this funding is not automatic and not even the norm. Where it does take place, respondents to the EUD surveys consider that workshops, to which policy makers are invited, and funding of publications are the most effective means of supporting dissemination. Networking facilities such as the SEA-EU-NET[14] and the SWITCH Asia Network Facility provided much appreciated forums for dissemination including, for example, Science and Technology days in South East Asia. However, no evidence of the actual impact of such forums on policy makers could be found.

Equally in the EUD survey, eight out of 12 EUDs managing EnvCC related projects stated that they engage in policy dialogue; however, 58% of these dialogues were considered as having a low or very low impact on eventual R&I policy or strategy. Rather policy influence is considered most likely where EU support has led to strengthened capacities of institutions that have a direct advisory role to government.

[14] NET: National Expert Team

DG DEVCO has been involved in dialogue on both regional and national R&I and S&T policy but not in a consistent fashion suggesting there is no overall strategic approach.

Finally, as the SISS 'sector' as used in this study is not a traditional sector that one might expect to see in national or regional plans, 'sector' support policies cannot really be expected in this area. Under SISS, however, the EU is involved in a number of dialogue processes at national and regional levels, such as the JAES 8th Partnership (from which the SISS name is derived), that do stress the importance of S&T for development in various more traditional sectors (e.g. education, industrial development, ICT). Details on the JAES 8th Partnership, including two specific projects covered in this this evaluation (AU Research Grants and MESA) are given in the text below.

Equally, at the national level, in four middle-income countries visited (India, Tunisia, South Africa and Ukraine), the EU has been directly involved in dialogue with the government on S&T policy and has been instrumental in moving S&T policy development forward, to varying degrees dependent on occasionally difficult local circumstances. Yet, in other countries such as Ethiopia, the EU has not been involved in dialogue on the government's overall S&T policy suggesting there is no overall strategic approach to supporting R&I policy.

Box 5 The JAES – R&I policy dialogue built on a regional partnership

The Joint Africa-EU Strategy (JAES) was adopted by EU and African leaders at the Lisbon Summit in 2007. The JAES is a platform for both dialogue and collaboration between the EU and the African Union (AU). It includes a number of partnerships, of which 'Science, Information Society and Space', the 8th Partnership, is intended to promote the development of knowledge-based societies in Africa. The JAES partnerships involve not only the EU and AU institutions but also all Member States. Components are thus funded by different sources, but the bulk of the funding has come from the EDF Intra-ACP envelope.

The JAES recognises S&T as essential engines of socio-economic growth and sustainable development. Not only does meeting the MDGs require S&T 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 strengthening collaborative links between African and European partners.

Two projects were covered in this evaluation:

African Union Research Grants (ARG):

The AU Research Grant programme aims to ensure that S&T in Africa is used as a catalyst for sustainable development, to encourage the participation of African researchers, to ensure intra-regional scientific research collaboration and co-operation, and to build Africa's research capacities through direct funding of research on the AU S&T priorities.

The AU Commission's (AUC) Department for Science & Technology managed the programme, with support from the EU, through two open calls for proposals (2011 and 2012), inviting European and African consortia of a minimum of three research organisations from at least two African countries. The focus was on socio-economic issues in the sectors of food security, sustainable energy and integrated water resources and waste management. The two ARG calls resulted in 20 grants up of to 750,000 (total value: EUR 13.8 million). The contracts all end between December 2015 and December 2016.

The AU Research Grants are a positive tool for capacity building and for providing a funding opportunity to encourage research tailored to the African context and needs. A special effort was also made to build up the capacity of the AUC S&T Department to manage research grants. The programme has also encouraged networking across research communities and promoted regional integration. Of the 20 projects funded, five were led by European and 15 by African organisations, (in contrast with FP7 consortia which are usually European led) although activities always take place in Africa. Although the AU Research Grants are not yet well known, demand was high and only 5% of the proposals could be funded. The available funding is thus not adequate to meet the strong demand for Africa-focused research grants.

MESA (Monitoring for the Environment and Security in Africa):

The MESA programme seeks to make earth observation satellite data available across Africa for monitoring, analysis and diffusion of information in support of environment, climate and food security policies, programming, decision-making and implementation of national, regional and continental sustainable development plans. It works with the Regional Economic Communities (RECs) in sub-Saharan Africa and makes a major contribution to the

New Partnership for Africa's Development (NEPAD) Environmental Action Plan. The AUC has a coordinating role. Space-based and in situ Earth Observation (EO) technologies and applications are powerful tools to support socio-economic development; yet, many African countries lack the human, technical and/or financial resources needed to exploit EO data and services 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. MESA uses existing technology, with the aim to roll it out and make data available and usable for development purposes and R&I across Africa. It provides access to satellite information free of charge.

Data provided under MESA have proven to be highly relevant for development purposes, and a useful basis for further R&I. While MESA is not a research project itself, the technology and data provided supports innovation and provides data for African academics and decision-makers to which they previously did not have access. The demand and interest is high, particularly in meteorological services, but also for agriculture and fisheries. 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 increasingly using the data for their own research.

6.2 EQ 2: Impact on partner country research communities

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)?

Rationale and coverage of the question

A fundamental assumption regarding the EQ is that partner country institutions need to be involved in R&I processes if they are to lead to practical solutions to real-world problems. Local problems require local participation in the discovery, design and dissemination of solutions. As a result, building capacity for Research and Innovation in partner countries is a key element in many EU-financed actions.

Capacity is a multi-dimensional concept encompassing not just skills but also institutional capacity and the ability to participate in and exchange knowledge and data with other researchers worldwide through networks. This human and institutional capacity is also underpinned by infrastructure. This means that the coverage of this question is quite broad. It includes mobility of researchers, participation in networks, the improvement of administrative capacity in research institutions, capacity both to engage in R&I and benefit from advances in R&I in ministries, and provision of physical infrastructure and equipment.

This question is articulated through four judgement criteria and a number of indicators, with detailed reporting in Volume 2.

Summary answer to the evaluation question

DG DEVCO funding of R&I, as well as DG RTD's FP7, have made a valuable contribution to involving partner country scientists in international research. They have done so principally by promoting international networks at all levels, global and regional, and promoting bilateral and multilateral scientific collaboration. Closely related to networks are programmes such as Erasmus Mundus that, by helping young researchers develop European links, have served as an incubator for later FP7 participation.

At the same time, the evaluation has revealed a number of limitations. DG DEVCO support to R&I is coherent with global policy agenda and priorities, but particularly at the national level, the alignment tends to be with national development goals rather than with R&I agenda themselves. Often this is because the country has no R&I strategy, but the evaluation has found no cases where EU instruments were used to help develop such policies, even when there was apparent interest. Thus, there was no capacity building for agenda setting. While capacity building of all kinds was consistently stressed in programming, this tended to be at the individual level benefitting participating scientists, not at the level of institution strengthening. There is thus a gap: DG DEVCO cannot support the long-term, predictable effort required and DG RTD, with its emphasis on scientific excellence, 2-year funding cycle, and mission oriented to European science, is ill-suited to capacity building. The result is a weakening of sustainability. Two other problems with capacity building have been identified. One is adverse selection; those who benefit most from capacity building, especially through FP7, tend to be those who have the highest capacity to start with. The second, expressed by scientists in the field, is that capacity building has become biased towards downstream applications as opposed to the fundamental research needs upstream in the R&I pipeline.

Key points:

- While DG DEVCO generally recognises that R&I can be a potent force for development, appreciation of the sector is highly variable both at Headquarters (HQ) and in EUDs. The Agenda for Change, calling on EU country strategies to focus on a handful of sectors, essentially makes it impossible to identify R&I as a focal sector in its own right.
- Both DG DEVCO and DG RTD have supported scattered projects aiming to increase FP7 participation, but there is no sign of a coherent, thought-out strategy for institution strengthening. The level of excellence required to compete effectively in the international science marketplace is very high, indeed, and few partner country institutions are close to it. It is telling that less than half of respondents to the EUD survey felt that DG DEVCO support to R&I had strengthened participation in FP7. Three countries (China, India, and South Africa; all with Science and Technology Agreements) accounted for over half the FP7 participations. It is well known in scientific circles that the administrative and organisational burden of running an FP7 consortium is high. Even when Third Country researchers are eligible to take the lead, many admit that they prefer to free-ride on the organisational depth and experience of a European university.
- One of the more valuable EU contributions to capacity has been the financing of high-speed internet networks to enable data and information exchange.

6.2.1 DG DEVCO support to R&I is aligned with relevant policies and strategies (JC 21)

While alignment with global and regional policies is good, it varies at national level.

DG DEVCO support to R&I is aligned and coherent with the EU's own policies and well reflects policies at the global and regional levels. However, despite the fact respondents to the EUD survey considered all of the 54 major R&I interventions they identified as relevant to country priorities, the field mission found that alignment with relevant national level policies and strategies of partner countries is more variable. In part, this is because in many countries (e.g. Burkina Faso) these do not exist and in others e.g. Kenya, Ethiopia, Tunisia) these are only now being elaborated. In countries such as South Africa with a strong R&I policy, field mission visits found DG DEVCO alignment with national priorities to be excellent. In general, DG DEVCO tends to consider R&I strategic alignment with respect to development goals, not with respect to R&I goals per se.

In focusing on only a few sectors in line with the Agenda for Change, DG DEVCO tends not to stress R&I.

R&I is not uniformly regarded across DG DEVCO as a key sector for economic development. 65% of EUD survey respondents ranked R&I as a low priority, a very low priority, or no priority at all – yet over 80% of survey respondents characterised the priority given to R&I as "adequate". In all sectors, DG DEVCO's interlocutors are usually line ministries, not the Ministry of Research. This probably accounts for the fact that, while DG DEVCO support for R&I is coherent with development policies, it seldom takes account of research priorities. DG DEVCO's concentration on a handful of broad sectors under the Agenda for Change makes it unlikely that R&I would be selected as a priority area.

The FSNA global programmes are well aligned with EU development objectives, but problems of alignment have been noted at regional and country levels.

In FSNA, at global level DG DEVCO has aligned its efforts successfully with EU development objectives via the CGIAR and the Global Programme on Agricultural Research for Development (GPARD). At regional level, EU monitoring reports have criticised the lack of alignment with regional strategies (e.g. in the case of Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) and Technology Transfer in Africa). Country Notes produced for this evaluation paint a mixed picture – in some countries, there has been adequate alignment between R&I support

and country development priorities, while in others lack of a policy or strategy has been a constraint. The EU is strongly supportive of reform efforts at CGIAR, where reviews have cited lack of relevance to country-level priorities and constraints. Evidence from field missions hints towards CGIAR alignment with country-level policies improving in Peru, Kenya, and Ethiopia.

In health, alignment was generally with health policies (specifically, the fight against poverty-related diseases), not R&I policies.

In the Health sector, most countries examined, including some with explicit S&T policies, had no explicit health R&I strategic priorities. However, there was de facto alignment with certain obvious needs, for instance: local production of HIV drugs in Tanzania, malaria control in Mozambique, drug resistance in South Africa and the surrounding countries, and tuberculosis (TB) vaccine development. DG DEVCO Budget Support in health financed innovative operational research in primary health care. At the global level, all of the DG DEVCO support to WHO was relevant to partner countries' needs and in line with the relevant high level strategies. At regional level, support to emergent infectious disease research in ASEAN and pharmaceuticals development in Africa (ANDI) were found to be coherent.

Similarly, EnvCC programmes have aligned with strategies and policies in the environmental and climate change fields, not with R&I policies.

Much the same situation prevails in EnvCC. DG DEVCO support to R&I has made considerable efforts to align with relevant priorities and strategies in partner countries and with policy objectives set in global and regional consultative fora. Programmes such as the GCCA, CCT/CCS, and SWITCH Asia were designed to further the overall goals set in regional and global climate change policy-making. However, the policies and strategies aligned to were those for Environment and Climate Change as a whole, not those for R&I (with the exception of EduLink). EUD staff in all countries visited where EnvCC was an active sector ranked relevance to country priorities as the key strategy driver.

EUDs are not always aware of national efforts to elaborate R&I strategies.

For SISS, R&I programme documents are generally aligned and coherent with relevant policy documents from the EU at the global/thematic, regional and national levels. At the national level, CSPs make, and CLEs usually confirm, the link to regional-level framework policies. Evidence from available evaluations also suggests this alignment generally exists with national government policy documents where these exist. In countries with relatively developed S&T policies such as India and South Africa, policy dialogue has ensured good alignment, and the EU has helped to develop such policies in countries such as Tunisia, as confirmed by the field mission. However, in two other field mission countries, Ethiopia and Kenya, the EUD was unaware of efforts being made at national level to develop an R&I strategy. At the regional level, the EU also supports S&T strategies such as the AU's STISA2024 (Science, Technology and Innovation Strategy for Africa 2024), a further indication of the search for alignment.

6.2.2 EU has supported on 'capacity building' and enhancing institutional sustainability, but there is a gap concerning long-term sustained support (JC 22)

Precise estimates of capacity building are hard to get, but it is clearly a priority component of R&I support.

The precise scale of spending on capacity development is hard to ascertain, but it is a relatively important element. About 15% of the evaluation's inventory, EUR 150 million, is coded to the Development Assistance Committee (DAC) Higher Education code. Outside the inventory, a further EUR 281 million goes on Mobility Programmes administered by the Education, Audiovisual & Culture Executive Agency (EACEA). Across all four sec-

tors, about three quarters of EUD responses to a question assessing the importance of different types of R&I support ranked individual capacity building and institutional capacity and infrastructure development as very important or important.

While the importance of R&I capacity building is recognised, three problems have been identified: sustainability, adverse selection, and downstream application bias.

The need for R&I capacity building is recognised in all documentation reviewed. Monitoring reports and evaluations show that implementation follows suit with reasonable levels of success. Institutional capacity development is regularly covered in national level programmes and there is an important effort to build up capacity in the form of regional high-speed ICT networks to support knowledge exchange and data transfer between researchers. However, a key sustainability concern is what happens after DG DEVCO support comes to an end. Another issue, raised in field missions, is that capacity building has been skewed towards institutions and researchers whose capacity is already reasonably high. Scientists interviewed expressed concern that there is bias towards downstream applications-oriented R&I capacity building (for example in CGIAR projects), leading to concerns that partner countries will failing to develop the capacity needed for fundamental research at the upstream end of the R&I pipeline.

While FP7 participation contributed significantly to capacity building, this tended to be at the individual, rather than institutional, level. DG DEVCO instruments are not well suited to long-term institution building and, with its focus on scientific excellence and research results, DG RTD is unable to fill the gap.

Field interviews with EU officials and national researchers involved in FP7 established that virtually every project helped to build capacity and promote institutional sustainability by involving researchers in international networks which they would otherwise have had difficulty in accessing. The less developed the partner country, the more important this contribution. However, field interviews confirmed that FP7 capacity building takes place more on the individual level, with the effect on institutional strengthening being limited. Effective institution strengthening would require greater predictability of funding, either by the EU itself or in co-ordination with other donors. Field mission interviews and analysis of programmes such as ACP S&T suggest that the process of upgrading capacities to the level required for success with FP7 takes time and continued support. Only about 40% of EUD survey respondents felt that DG DEVCO R&I support had considerably increased national researchers' access to FPP7 funding.

DG DEVCO instruments are not well suited to long-term institution building and, with its focus on scientific excellence and research results, DG RTD is unable to fill the gap. Moreover, because of the heavy administrative and management responsibilities, as well as the risk of failing to receive funding after putting in a great deal of work on the application, participation in FP7 consortia managed by another institution is usually more attractive than taking the lead even when that opportunity is open to them. No evidence was found that DG DEVCO support has specifically targeted the administrative and management capacity of research institutions.

While there were widespread efforts at individual capacity building, there was no consistent strategy for strengthening research institutions to achieve long-term sustainability.

In FSNA**,** the DG DEVCO strategic documents recognise the importance of adequate R&I capacity for development. Capacity building and institutional development are not seen as separate activities from research, but rather as an integrated part of R&I support. In Health, outside a core of actions very specifically devoted to R&I, EU support to health capacity building, whether via projects or Budget Support, focused on concrete issues of improving access rather than capacity for health R&I. In the EnvCC sector, programmes that involved local co-operation concentrated sustainability efforts on securing local ownership. Other programmes, such as SWITCH Asia, EduLink or

EU-Asia Link at regional level as well as the EU-China Institute for Clean and Renewable Energy (ICARE) at national level, were designed to generate more tangible products. Here, the available evidence is that market uptake of the outputs is limited. In SISS, a fairly strong emphasis on *individual capacity building* is evident in EU planning documents. However, systematic attention to building up *institutional capacity and sustainability* is less regularly apparent in the documentation, though there are certain programmes (e.g. ACP S&T Programme) where this is a focus. An important contribution of DG DEVCO to capacity building has been its support to research infrastructure in the form of regional high-speed ICT connectivity projects connecting national networks and various EU funded projects. (@lis, Central Asian Research and Education Network (CAREN), Trans-Eurasia Information Network (TEIN), ACP Connect) address this area.

What emerged as a general theme across the sectors is the relatively feeble efforts made to strengthen research institutions with a view to their long-term sustainability. There has been some degree of "trickle up" from individual capacity building to institution strengthening, and the incorporation of individuals (and institutions) into international networks has made a positive contribution, but very few of the research institutions studied in this evaluation are able to compete effectively for funding in international science.

6.2.3 DG DEVCO helped to improved access of developing countries' research communities to EU FP7 (JC 23)

FP7 projects are highly concentrated, with three countries (China, South Africa, and India) accounting for over half. The evaluation found only scattered instances of projects to promote FP7 participation.

As mentioned above, only a disappointing 40% of EUDs who answered the question whether they believed DG DEVCO support increased access to FP7 stated that they strongly agreed. However, FP7 2007-13 data on a selection of countries that, while not suitable for establishing time trends or precise details such as number of collaborating institutions and number of publications, suggest a rich portfolio of FP7 support. DG RTD statistics show that 1,063 FP7 funded projects have participants from some of the 18 countries selected for closer scrutiny in this evaluation. These projects are spread roughly evenly between the four thematic sectors, but projects from countries with S&T Agreements dominate the country distribution, and three countries (China, South Africa and India) together account for more than 50% of all projects.

RTD-financed specific projects to help researchers access FP7 funding, either BILAT[15] (bilateral) projects (all countries with a Science and Technology agreement) or regional ones (INCO-NETs). Although doubling international participation is an objective for DG RTD, it is not part of the co-operation strategy and there are no specified targets. Still, DG RTD provides opportunities for extensive co-operation between European and African researchers through the framework programmes and, increasingly, this co-operation is becoming more strategic and joint (EU-Africa) as a result of the High Level Policy Dialogue. In a few countries (e.g. Tunisia, Ukraine) DG DEVCO, as well, financed projects that aimed to encourage participation and help interested researchers in various ways to submit FP7 applications. In Ukraine, the DEVCO-financed ERA project put in place and trained National Contact Points for FP7; these are now functioning on their own in the context of Horizon 2020 and the project is largely deemed to be a success. As confirmed by field missions, in countries with S&T Agreements with the EU and those

[15] BILAT: Bilateral EU Co-operation in Science, Technology and Innovation

with S&T Counsellors access is better and efforts are made to encourage applicants to FP7.

Because of heavy FP7 administrative requirements, there is incentive for research institutions to free ride off of the administrative capacity of large European ones.

What emerged strongly from the field missions is that, across all sectors, scientific collaboration is based in large part on personal contacts established over time. Researchers interviewed stressed the importance of building on existing ties rather than manufacturing artificial ones through the consortium-building process. Erasmus Mundus made a significant contribution to increasing FP7 participation because researchers who benefited established personal ties which they then followed up on when they returned to their home countries.

The field missions found that almost all researchers interviewed still felt that the best way of participating in an FP7 consortium was as a collaborating institution, not as a leader. The lack of capacity for management and administration was often mentioned. ACP researchers use the ACP S&T programme as a learning ground to build up their knowledge and experience of participating in international research projects to subsequently apply to FP7. However, the number of cases of this occurring was found to be quite limited. In Peru and Ukraine, field missions revealed that national researchers considered EU funding process time consuming and demanding.

6.2.4 DG DEVCO support enhanced networking of developing countries' researchers at regional and inter-national level (JC 24)

In all sectors, both DG DEVCO support to R&I and FP7 have contributed significantly to network development.

In all four thematic sectors, considerable emphasis has been put on promoting international networking among researchers, which is considered a key aspect of supporting R&I for development. Much of the support to networks comes through regional level contracts involving both traditional conference/seminar based networking and EU support to building up regional high-speed ICT networks. Scientists interviewed in Africa stated that, particularly in countries with weak research institutions, being a partner on an FP7 project or participating in a DEVCO-financed network provides a lifeline to national researchers, particularly through reducing brain drain an giving access to the latest information and data. Among EUDs giving a rating in a particular category, 71% felt that DG DEVCO support to R&I increased partner countries' access to European science, 75% felt that access to European scientific communities was enhanced, and 73%% felt that EU support has substantially increased the funding share devoted to network activities.

In FSNA, support for networking has been effective at the global level, less so at regional level.

In FSNA, the share of funding dedicated to networking facilities involved a total contracted amount of EUR 8.4 million, or 1.6% of the total. These are all regional contracts related to inter-university high-speed connection networks, research platforms and conferences. At the regional level, ASARECA, Forum for Agricultural Research in Africa (FARA), Pro Poor Innovation in the Andes, and Technology Transfer in South East Asia (SEA) made verifiable contributions to regional networking between researchers and other stakeholders. However, in the latter case, the approach chosen failed to produce regional priorities; an independent assessment found that, as a consequence, dialogue, networking and learning across countries and programmes were less and less effective. While ASARECA has made a significant contribution to regional and sub-regional collaboration, a disproportionate number of the projects it has coordinated have been implemented in Kenya, Uganda, Ethiopia, and Tanzania. Box 6 below provides more details

on the regional exchanges under ASARECA.

At the global level, the Global Forum on Agriculture Research (GFAR) organised global dialogues and networking on R&I priorities, particularly for the CGIAR (GCARD – Global Conferences on Agricultural Research for Development). GFAR's main contributions were the building of active and mutually accountable partnerships and enabling diverse partners to work together effectively. GCARD showcases the Consortium and partners' research and serves as a marketplace of advances in science for uptake by stakeholders or for further development by the contributors to the Fund.

Box 6 ASARECA – Enhancing regional exchanges for research

The Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) coordinates multi-stakeholder research projects at the regional level with national, regional and international partners – such as national agricultural research extension and training organisations, CGIAR centres and programmes, the Forum for Agricultural Research in Africa (FARA), farmers, NGOs, etc.; thereby promoting and facilitating regional collaborative research. Through these research projects, ASARECA has strengthened the network capacities of research communities in East and Central Africa by establishing collaborative research networks. This has led to an increased exchange of ideas, information and data between researchers and other key stakeholders in the region. Moreover, researchers emphasised that contacts made through the ASARECA research projects were useful when they are building regional research partnerships and consortia.

The distribution of resources between stronger and weaker research institutes is an issue that has received significant attention from ASARECA. The Association has for example adopted a form of 'affirmative action' to ensure weaker countries in the region benefit from calls for proposals, as well as the traditional strong performers such as Kenya.

In health, by contrast, DG DEVCO support to networking integrated developing-country experts into global priority-setting.

In Health, DG DEVCO was an active player in supporting research networking. At the global level, the major networking project was "Support for research into poverty-related, tropical, and neglected diseases," the WHO Pilot Project-Action Préparatoire (PP-AP) project implementing Element 1 of the Global Strategy and Plan of Action (GSPoA) (priority setting). At regional level, the standout example is ANDI (African Network for Drugs and Diagnostics Innovation), starting with EUR 5 million in seed money from DG DEVCO and now counting over 30 affiliated Centres of Excellence. The Go4Health project assembled a web-based network of developing-country experts to provide input into the development of the health SDGs (Sustainable Development Goals); this was RTD-financed but DG DEVCO took a keen interest and followed the project closely. All health projects, both DEVCO- and FP7-financed, visited during field missions, contributed strongly to the integration of researchers into international networks.

In EnvCC, DG DEVCO support promoted South-South partnerships.

In EnvCC, EU support for R&I has expanded the regional and international networking activities of researchers in partner countries by creating institutional spaces and building pathways to existing networks at regional and international level. Efforts have focused on building capacities to enable more effective participation in policy dialogues concerning environmental and climate change issues. At the global level, both the GCCA programme funded projects in Asia and in the Caribbean were based on regional networks of institutions from partner countries. The regional programmes, EU Asia Link, SWITCH Asia (including the SWITCH Asia Network Facility) and EduLink, funded 22 projects featuring South-South partnerships. Other examples of programmes that have successfully put in place sustainable South-South networks include the SIFOR (Smallholder Innovation for Resistance) climate change programme under GPARD, CGIAR regional activities, EBTC activities in India and the ARANetLAC in Latin America.

An exception to the rule that partner country institutions rarely take the lead is the AU-Africa Research Grants Initiative under the JAES.

SISS documentation includes many references to enhanced networking of developing country researchers at regional and international levels. Field visits also provided considerable evidence of networking. One Mapping Study of best practice (see JAES Case Study in Volume 3) stresses the importance of networking as one factor that tends to encourage quality research. There are many examples in the inventory of projects with both partner country and European Research Organisations (ROs) involved but the latter are quite prominent in the contracting. A prominent exception is the AU-Africa Research Grants Initiative funded by DG DEVCO under the JAES: of 20 grants allocated to consortia of African and European universities in the first round, 16 were led by African institutions.

6.3 EQ 3: Instruments and modalities

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

Rationale and coverage of the question

DG DEVCO has at its disposal different financial instruments (EDF, DCI, and ENPI) that have both thematic and geographical parameters. These can be used individually or combined in different ways and the funds deployed via different modalities (project modality, Budget Support). The EU can also use different channels and types of contractors to work with (e.g. government agencies, multilateral agencies, research institutions, civil society organisations) depending on what it is seeking to achieve as well as on the scale of the activity and the flexibility required. The choice of modality will thus be partly determined by the chosen actor and vice versa. Geographical funds may be used either at country or regional level.

One of the added values often cited for the EU is the range of instruments and modalities at its disposal. At the same time, combining these instruments is not always smooth and straightforward in practice. The rationale for the question is that different approaches are designed to meet different needs and have different strengths and weaknesses. The quality of EU support is greatly dependent on using the right approach or the right combination of approaches. The EQ is intended to present evidence to respond to Section 3.1 of the ToR that seeks conclusions and recommendations from the Evaluation on the ways in which instruments and modalities are used.

This question is articulated through three judgement criteria and a number of indicators, with detailed reporting in Volume 2.

Summary answer to the evaluation question

DG DEVCO has used its full available range of instruments, channels and modalities in funding R&I. Geographic instruments are the main source of funding (75%) though particularly in both FSNA and Health the relevant thematic instruments are also important (~50%). Funding has also been provided at global, regional and national levels with regional programmes allocated about half the funds, a third going to the national level and the remainder to global level programmes. The use of different channels varies from sector to sector and the rationale for the choices made lie primarily at the sector level. A third of the funds have gone to universities and other research organisations, while regional organisation and private sectors have had about a quarter each. The modalities used tend to be determined by practical considerations related to the type of actor to be funded. A few instances of Sector Budget Support were identified particularly in the FSNA sector. The only case of Sector Budget Support directly for R&I as a sector in its own right, in South Africa, provides an interesting example of the scope for funding the development of national R&I and/or S&T policy. The bulk of funds has therefore been provided using a project funding modality. In certain conditions, for particular purposes (e.g. for long term capacity development) and for particular actors this modality was not ideal and caused difficulties. Thus, while the choice of modality may be appropriate in the EU's terms, it is not seen as such by the grantee.

Overall, it is clear that the EU has an open mind as to which actors to work with on R&I and has been willing to explore a whole range of options using the different instruments, channels and modalities available. There is also good evidence that careful consideration has also gone into the choices made

within the parameters available. However, it is difficult to reach a measured view on whether the options chosen maximise the value of the instruments.

Key points:

The **channels** used vary from one thematic sector to another.

- In both Health and FSNA, a **global** organisation exists and which acts as a forum to coordinate and indeed implement joint R&I programmes – the WHO for Health and the CGIAR for FSNA. Much of the EU support to R&I in these two sectors goes through these two global level channels. In EnvCC, the EU has created its own global programme, the GCCA, and in SISS, no global level programme was identified. A World Bank trust fund is also used for some aspects of FSNA support to R&I.
- In all four sectors different types of channels are used at the **regional** level. In SISS, regional programmes via existing regional organisations (e.g. the ACP, AU) are prominent channels for supporting R&I, but support to establishing regional high-speed internet networks is typically channelled via national and regional ICT, research and regulatory organisations. In EnvCC, a number of important regional level programmes have been established by the EU (e.g. EduLink, SWITCH Asia). FSNA also supports regional networks such as ASARECA.
- In all four sectors there is extensive **national** level funding. If the government is not the implementer, this was mostly through the project modality using calls for proposals, a system which was poorly suited to addressing long-term R&I needs for instance in capacity building.
- The civil society channel is extensively used; this can be Non-Governmental Organisations (NGOs), but many HEIs and other research organisations are also funded through different modalities. The private sector is also supported though this has not always proved to be straightforward. Again, the use of these different channels varies from sector to sector.

Both the regular modalities (Budget Support, project funding) have been used:

- Aside from in FSNA, only a couple of cases of Budget Support were identified in the Health and EnvCC sectors, and in both one of these cases involves South Africa. There is of course more widespread use of Budget Support for health and environment programmes in general but the evidence suggests very little of this goes into supporting R&I. In SISS, there were no cases of Budget Support. Both programme and project funding are found in each sector.
- It is therefore only on Budget Support that there are major variations in the use of modalities between sectors and this seems likely to relate to the nature of the sector, the stakeholders available and the type of R&I work supported. The lack of national R&I strategies in many of the countries would also make Budget Support specifically to R&I very difficult to organise. South Africa is a strong exception in this regard.
- What is less clear is just how much of an overall strategic approach or effort has gone into making the choices between or on combining different modalities. Some of the choices are clearly strategic and a strategy is easier to discern in some sectors than others. For instance, in the case of the WHO or the CGIAR that occupy what are, in effect, monopoly positions as umbrella organisations to which the EU is committed.
- One might expect more use to be made of Budget Support focusing on R&I, particularly as the project modality creates difficulties notably in terms of the continuity for long term capacity development for research. The main reason why this does not happen appears to be that R&I is never a chosen as a focal sector in its own. This can be because a government has no overall R&I or S&T policy or because there are other development priorities such as agriculture or health. In these cases R&I work may then benefit from Budget Support 'via the back door' as one element in the support to that focal sector.

6.3.1 Appropriate use has been made of the EU's different financing instruments and modalities, yet the choice of modalities and the way they have been applied has a mixed effect on enhancing R&I (JC 31)

Funding for R&I comes largely from geographic instruments, notably the EDF, and from one thematic line, that for Food Security.

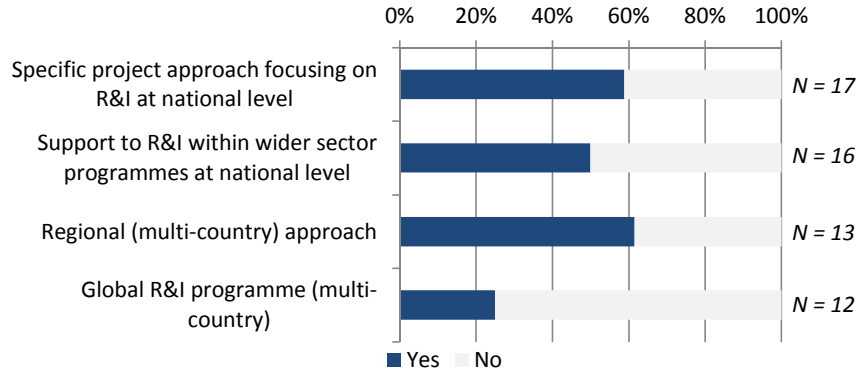
A wide range of different funding instruments have been used to fund R&I work; however, two thirds of the funds are geographic in origin. As Table 3 in Section 5.5 shows 30% of the value of the funding came from the EDF. Other important lines have been the geographic programmes for Asia and Latin America of the DCI and its pre-2007 predecessor contributing around 15% and 10% respectively. The ENPI and its MED and TACIS[16] predecessors contributed a further 8% and the line for South Africa (AFS) 3%.

Most of the remaining third of the funds came from the lines dedicated to three of the four sectors examined in this evaluation. The DCI Food Security line heavily dominated this remaining third with 26% of the total funding.

While all modalities available to the Commission are used for supporting R&I it is not possible to identify any one that is particularly favoured or appropriate. However, responses from the EUD survey provide some indication of the modalities used as indicated in the figure below. This shows that all aid approaches listed, except global R&I programmes, were used in approximately 60% of the respondent countries to address R&I challenges. In contrast, global R&I programmes were only used in a quarter of these countries.

When asked in another question about the suitability of these different approaches, the respondents expressed more confidence in the project modality than in wider sector approaches[17].

Figure 10 Use of different aid approaches



Note: Multiple approaches per country possible. Each bar displays the fractions of EUDs that used the given approach - or not.
Source: EUD survey

There is little evidence to suggest that one modality is more suitable for R&I funding than another.

There is thus little evidence to suggest that one modality may be more suitable than another in the funding of R&I. R&I is largely financed as part of other sector projects and less as R&I per se. Moreover, at least in the SISS sector, justifications found in programme documents are usually at the level of general justifications for different modalities and instruments and not particularly related to R&I considerations. Certainly in Health, but also to some extent elsewhere, although most choices made seem reasonable, it is not clear

[16] TACIS: Technical Assistance to the Commonwealth of Independent States
[17] Respondents displayed very little confidence in the regional and global approaches but this may be due to lack of awareness, as these are generally administered from headquarters or by specialised 'regional' EUDs such as the one for the AU in Addis Ababa.

that there was any strategic consideration in the mix of instruments and modalities used.

While the thematic lines are the main source of funding for the FSNA sectors, geographic funds are key for EnvCC and SISS.

Both geographical and thematic instruments have been used in all four sectors though in very different proportions. On the one hand as indicated in Table 3, the thematic Food Security line dominates the funding of the FSNA sector (59%) and the Santé line that of the Health sector (44%). On the other hand the EnvCC is 62% funded from the geographic lines and gets about 36% of its funding from the thematic lines. The SISS sector is virtually entirely funded from the geographic lines and particularly the EDF (37%), the DCI-ALA[18] (19%) and the ENPI (12%).

In both the Health and SISS sectors there were a couple of cases of PP/AP funding prompted by the European Parliament. In the first case, the funding stands out as particularly important for global health R&I. In the case of SISS, these funds were used to support a technology transfer and business-to-business project in India that proved difficult to implement. Field research suggested that the reasons for the use of this modality in this latter case were entirely related to priorities of the European Parliament.

A broad range of relevant contractors which also varies widely between the four sectors studied are receiving support.

A wide range of different ROs, NGOs and other actors are funded in all the sectors and the evidence collected on a case by cases basis suggests that the choice of beneficiaries is largely appropriate.

As the Figure 9 in Section 5.6 shows however, the distribution of contractors varies widely among the four thematic sectors. FSNA and Health show a much greater use of international organisations. Universities and research institutes are important in all four sectors. Civil Society Organisations (CSOs) are prominent in Health whereas private sector actors are most prominent in the EnvCC and SISS sectors. The field work also confirmed that a wide range of relevant research actors are applying for and receiving support.

Funding global R&I programmes through recognised global players is a key element of the FSNA and Health sectors.

Global level programmes represent a quarter of the value of DG DEVCO's portfolio in R&I (see Figure 5 in Section 5.4 above). Such programmes implemented through organisations like CGIAR and WHO are particularly important in FSNA and Health. These are key international players that set the global agenda in R&I in their respective sectors and as such entirely appropriate organisations for the EU to fund. In EnvCC, the absence of any similarly dominant global organisation has meant that the EU has established its own programmes: the GCCA and the CCS/CCT, rather than channel support though existing organisations, though it does collaborate on these with the United Nations Environment Programme (UNEP). SISS has no global programmes reflecting the absence of such organisations.

Regional programmes represent half the total funding for R&I and make a valued contribution in all four thematic sectors.

As indicated in the same charts (Figure 5 further above) regional level funding is important in all four sectors, and, overall, represents half of the total value DG DEVCO funding to R&I.

- In the EnvCC and SISS sectors, much of the funding is provided through a series of successful regional programmes such as the EU Asia Link, SWITCH Asia and EduLink in the former, and the ACP Science and Technology Programme (S&TP) or the JAES 8th Partnership with the AU for the latter. In SISS, a series of regional high-speed internet networks are also an important element.

[18] ALA: Asia and Latin America

- In FSNA at the regional level, evidence suggests some channels perform better than others. Thus, in the case of ASARECA, the EU's use of the multi-donor trust fund of the World Bank (WB) resulted in less bureaucratic pressure and better co-ordination in reporting demands and recommendations, while the Pro Poor Innovation programme's management through the International Fund for Agricultural Development (IFAD) has not been as satisfactory.
- In Health there is no funding of regional organisations but a few inter-university consortia programmes conducting research on health issues across particular regions have been funded.

National level funding makes up a third of DG DEVCO's R&I effort.

Finally national level funding from geographic and thematic budget lines is used in all four thematic sectors. It accounts for a third of the overall R&I portfolio.

National level commitments dominate the funding in ENPI countries whereas in Asia, Latin America and particularly the ACP regional funding is more important (see Figure 6 in Section 5.4). It is particularly in South Asia and sub-Saharan Africa that regional contracts are important.

The choice of global, regional or national level funding has been largely dependent on the presence of effective partners.

The choice of global, regional or national level funding for R&I is dependent on the presence of appropriate partners at each level. In the two sectors of FSNA and Health, a global dialogue on R&I priorities is well established and the EU participates. In EnvCC and particularly in SISS, this is much less the case. At both regional and national level there exist many opportunities for funding R&I work in all four sectors and DG DEVCO is well engaged at both levels.

No evidence was found to suggest that using different geographic or thematic funding instruments or funding at particular levels (global, regional or national) was more or less appropriate for support to R&I.

The Budget Support modality is rarely used for funding R&I.

Budget Support is most common in the FSNA sector where examples of both general Budget Support including FSNA and Sector Budget Support for the agricultural sector involving R&I were identified. In EnvCC and in Health, there are a few cases of Budget Support. In this latter sector where Budget Support is used extensively for support to general health programmes, evidence suggests, overall very little of this money finds its way into R&I, with the one exception of South Africa.

In the EnvCC sector, there are two cases of R&I being funded out of sectoral Budget Support funds, again one of which is in South Africa, in SISS none at all. In South Africa, Budget Support has also been successfully combined with the use of the Dialogue Facility to fund the government's Department of S&T and the development of an overall national S&T policy.

None of the cases of Budget Support identified provided funds to universities or education institutions for training postgraduate researchers or indeed to ministries of education. Rather they were used to fund other government departments and the programmes that they funded (e.g. the EUROPAN[19] Child nutrition programme in Peru, the food security programme Fertipartenaires in Burkina Faso or to fund a health sector call for proposals for NGOs in South Africa).

There is only one case of Sector Budget Support directly to a ministry of S&T

[19] *Apoyo Presupuestario de la Unión Europea al Programa Articulado Nutricional.*

or R&I, that is the Department of Science and Technology (DST) in South Africa (see details in the text box below). Partly, this is the result of general R&I / S&T development programmes not being selected as a focal sector for support in EU CSPs, but it is also likely to be due to the lack of specific R&I / S&T policies in many of the countries where DG DEVCO supports R&I.

Box 7 Innovation for Poverty Alleviation – Sector budget support to R&I in South Africa

Under the Sector Policy Support Programme (SPSP) "Innovation for Poverty Alleviation" (EUR 30 million, 2008-2013) the EU supported the Department of Science and Technology (DST) of South Africa to implement the country's Science and Technology policy, with a particular focus on the domains of applied research that contribute to poverty alleviation through employment creation. The SPSP was based on the National Research and Development Strategy (NRDS) of 2002, as the overarching sector strategy, 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. The Sector Programme (SP) was consistent with the EU 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 goals of the SPSP included using science and technology to improve development outcomes in a wide variety of areas. Other results anticipated were the 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.

The SPSS is broadly regarded as a success and the DST is now in the process of preparing a new proposal in which sector support will strengthen capacity to identify and pilot R&I outputs with strong anti-poverty potential.

Yet Budget Support, rather than project funding appears to be more suitable for R&I.

During the field missions it became apparent that certain types of funding modalities have different effects on R&I. In particular, EU funding was regularly reported as creating various difficulties in certain circumstances:

- Calls for proposals and project funding create problems of continuity and matching long term research cycles with short term funding cycles and can stifle initiatives to develop innovative business models.
- Paying invoices in different currencies is difficult for ROs situated in non-hard currency countries, creating an incentive to let European ROs with Euro bank accounts lead consortia or at least manage the administration.
- In poorer countries with limited institutional capacity for R&I, funds for recurrent financial expenditure are inadequate and EU project funding, with its limited expense eligibility criteria, cannot cover the expenditure involved.
- Finally, EU accounting procedures are widely seen as excessive and too rigid, thereby involving excessive transaction costs.

Researchers interviewed generally reported that where EU funds could be channelled through government, alongside national research funds, the administration was more straightforward and less cumbersome.

Due to the long-term commitment required, project funding is not adequate for capacity development for R&I.

While the desire has been expressed from all sides that DG DEVCO should engage in more R&I capacity building, the long-term nature of what is needed is not well suited to DG DEVCO's project modality. Yet, there is clearly a gap to be filled, as DG RTD's emphasis on scientific excellence and results excludes many developing countries because of inadequate capacity.

The choice of funding modality does have mixed consequences on R&I and needs to be thought through carefully.

In sum, while the choices of modalities may be appropriate in terms of what is available to EU officials, the regularly used project modality combined with calls for proposals is inadequate, unduly cumbersome or even inaccessible for some of the ROs the EU might wish to fund. In cases where intermediaries exist (e.g. European ROs in research consortia or global ROs such as the WHO and CGIAR) to manage the funding, these problems are avoided.

On the other hand, the limited cases of Budget Support for R&I identified in the evaluation do lead to the conclusion that SBS funding to individual sectors or specifically to support national R&I or S&T policies works better. However, apart from in the FSNA sector, this has not been not extensively used by DG DEVCO.

6.3.2 A strategic approach has been adopted to choosing different possible actors / channels with whom the EU can work to support R&I (JC 32)

The EU has been open minded in its search for partners: universities and ROs have benefitted most, then regional organisations and private sector actors.

A wide choice of actors and channels has been selected for support to R&I, so the EU has clearly had an open mind in its search for appropriate partners. The choice also appears objectively reasonable for each of the four sectors examined. About one third of the funds have gone to ROs and universities, a quarter to regional organisations and just under a quarter to private sector actors. The question is, however: how much of an overall strategic approach has gone into making the choices.

At the global level for R&I in FSNA the CGIAR is a strategic partner for the EU.

In *FSNA* at the *global level*, the choice of R&I partners is limited by the dominant position in agriculture R&I of the CGIAR, the former Consultative Group of International Agricultural Research Centres, which, during the period under evaluation, was reformed to become the CGIAR Consortium, to be funded by a Fund Council in which most important donors including the EU participate. One important rationale behind the reform was to increase the Consultative Group (CG) Research Centres' responsiveness to national and regional stakeholders' demands. This was improved by aligning CG research into global CGIAR Research Programmes (CRP), focusing on a limited number of agreed global agricultural research priorities. Also, multi-stakeholder partnerships, policy outreach and collaborating closely with national institutions, NGOs and farmer organisations have become more central features of most CGIAR Research Programmes (CRPs) thereby, making the strategic choice of the CGIAR as a partner for the EU stronger (Case study CGIAR). The text box below summarises key messages and recommendations that emerged from the in-depth study of the CGIAR.

Other global DG DEVCO initiatives, such as GPARD (Call for Proposals) and GFAR (dedicated funding for regional and global dialogue jointly managed with the Food and Agriculture Organisation (FAO) are closely aligned with EU development objectives. GFAR is designed to operate as the main global agricultural multi-stakeholder platform debating agricultural research priorities.

Box 8 EU support to CGIAR – Influencing change in global agricultural research

Key messages

The EU's coordinated influence on the CGIAR reform has been significant.

European CGIAR donors coordinated their efforts to reform the CGIAR, mainly through the European Initiative for Agricultural Research for Development (EIARD). EU action in particular helped the CGIAR to strengthen consultations and policy dialogues with national and (sub-)regional stakeholders, such as farmers' and research organisations. CGIAR research is increasingly emphasising the importance of multi-level and multi-stakeholder approaches - connecting local, national and global implementation and policy levels. Its research programmes (CRPs) define impact pathways and build partnerships to increase the relevance and uptake of their results. However, institutional obstacles remain, for example financial and administrative limitations with regard to building formal, long-term partnerships with national research institutes and other partners.

DG DEVCO support to CGIAR is distributed over multiple channels and instruments.

CGIAR centres have sometimes overlapping mandates, and compete for the same funding sources. Besides, CGIAR donors - by pursuing their own research priorities - have a large impact on defining the research agenda/research priorities. The variety of funding channels and instruments the CGIAR engages with contribute to its complex governance structure; posing severe challenges to the coherence, effectiveness and efficiency of CRP implementation. Finally, the administrative burden for researchers is felt to be high because of differences in donor requirements.

CGIAR research has contributed to development outcomes, but results and approaches could be documented and shared more systematically.

The evaluation has found that investing in CGIAR research produces 'good value for money'. The EU's choice to directly fund CRPs has proven to be an effective way to strengthen the EU agricultural research for development agenda. Multi-stakeholder partnerships, policy outreach and collaborating closely with national institutions, NGOs and farmer organisations are now central features of most CRPs. As such the CRPs lay an important foundation for a sustained delivery of global and regional public goods for sustainable agricultural development. Involving and strengthening national research collaborator partners requires further improvement; at present less than 20% of CRP funding reaches national collaborators. Furthermore, in all cases studied serious limitations were observed with regard to allowed budget lines, the (short) duration of funding periods and the continuity between funders and funding periods.

Recommendations

Rethink the theory of change for supporting the CGIAR.

A key question is whether CGIAR is capable of going to 'the last inch' to reach smallholder farmers. Complex partnerships and participatory approaches do not combine well with ever-shorter funding cycles and high demands on impact attribution. In order to achieve long-term impact, funding cycles and reporting requirements should be longer and more flexible. More time should be made available to mobilise the multiple stakeholders needed to prepare and carry through the medium-term, multi-level, multi-stakeholder and inter-disciplinary research proposals needed to achieve such impact.

Research uptake and upscaling is strongly conditioned by the existing local and national innovation systems, including national agricultural research and extension system (NARS) as well as the relevant private and public sectors. DG DEVCO and European Member States should rethink their theory of change and the complementarities between their different instruments for supporting the CGIAR and national innovation systems.

Invest and learn from CGIAR monitoring for impact.

CGIAR is still in search of the best way to monitor and evaluate its work on partnerships, gender, nutrition, and to identify and measure impact, particularly with regard to programmes that address system-level challenges. It is also still grappling with how to work more effectively with, and build capacity of NARS. To stimulate understanding and learning from the complex multi-stakeholder work of CRPs, DG DEVCO could, for example, make sure that the experiences learned from systems/programmes that have experimented most with innovative and interdisciplinary approaches (systems analysis, participatory research, innovation platforms, farmer-led research, etc.) are capitalised upon and fed into current programs.

This requires a larger and more specific investment into developing methodologies that are better able to document, report and assess the impact of the more complex CGIAR programs. Moreover, DG DEVCO should address the institutional barriers that remain to be resolved in order to ensure the full participation of (non-research) stakeholders in international research and review its funding periods to take into account the need for longer research cycles.

At the regional level in FSNA partnerships need to be based on clearly formulated R&I priorities.

At the *regional level* in FSNA, the existence of clear R&I priorities plays a significant role in determining the success of the EU approach to selecting partners and proposals. Where these are well elaborated, and supported by relevant regional actors, regional support programmes have been more successful (Mercosur[20], ASARECA, Pro-Poor Innovation) than in situations where the agenda has not been defined in advance.

The choice of FSNA partners for R&I at the country level respects national priorities.

Evidence at *country level* for the FSNA sector suggests the approaches adopted to choose priorities and partners to support R&I are in line with national and where applicable, regional agendas. EU actors respect the autonomy and ownership of national stakeholders and require multi-stakeholder consultations as a basis for programming EU support. Chile, Peru, Congo, Ethiopia and Burkina Faso are examples of county level funding working well with an integrated multi-stakeholder approach.

In Health the main partners for R&I were respected ROs such as the WHO and a selection of European universities.

In the *Health* sector, project documents demonstrate that the choice of the WHO as a global partner in health R&I was reasoned, pragmatic and strategically sound. The WHO is responsible for coordinating implementation of the Global Strategy and Programme of Action on Public Health, Innovation, and Intellectual Property Rights which effectively covers all health R&I and which the EU and its Member States were involved in negotiating. Aside from this, the largest implementers, according to amounts contracted, were European universities, and the choice was generally appropriate. The absence from the list of implementing partners of health NGOs with expertise of the "what works" variety is somewhat surprising, but in the health sector these organisations are often so concentrated on delivering services that they have little time to spend on doing research.

European HEIs play a prominent in the R&I funding portfolio for EnvCC. CSOs are also present though the amounts involved are small.

In *EnvCC* programmes *at all levels*, analysis of relevant documentation shows that the EU has undertaken considerable efforts to identify and engage appropriate actors and channels and to make inclusive choices of actors and, where possible, channels. However, project assessments also indicate some instances in which in practice individual choices proved problematic at both global and national levels.

At the *global level*, the GCCA and other regional programmes such as Forest Law Enforcement, Governance and Trade (FLEGT) included NGOs in all projects analysed; at *regional level*, the SWITCH Asia programme engaged NGOs in promoting Sustainable Consumption and Production (SCP) and, at *national level*, projects to improve the livelihoods of Arid and Semi-Arid Lands (ASAL) farmers in Kenya also relied on NGOs, while the REDD+[21] project engaged local community NGOs in building capacity amongst local populations. Yet, these efforts must be seen against the backdrop of a mere 7% project funding share for Civil Society Organisations (CSOs) indicating the small size of the projects.

European HEIs play a more prominent role among the EnvCC contractors. There are fewer partner country HEIs given the relative capacities between HEI from Europe.

There is no indication in the inventory that funds for R&I in the EnvCC sector have been channelled through research programmes of other international organisations. However, field work revealed that the SWITCH Asia collabo-

[20] Mercosur: *Mercado Común del Sur*
[21] REDD: Reducing emissions from deforestation and forest degradation

rates with UNEP on some aspects of the programme.

In the SISS sector academic ROs and the private sector are the main actors.

In *SISS*, the choices made also appear broadly reasonable and are generally supported by the few available evaluation reports that comment on R&I. Closer examination at the field level confirms that an appropriate choice of actor and channel was made in most cases.

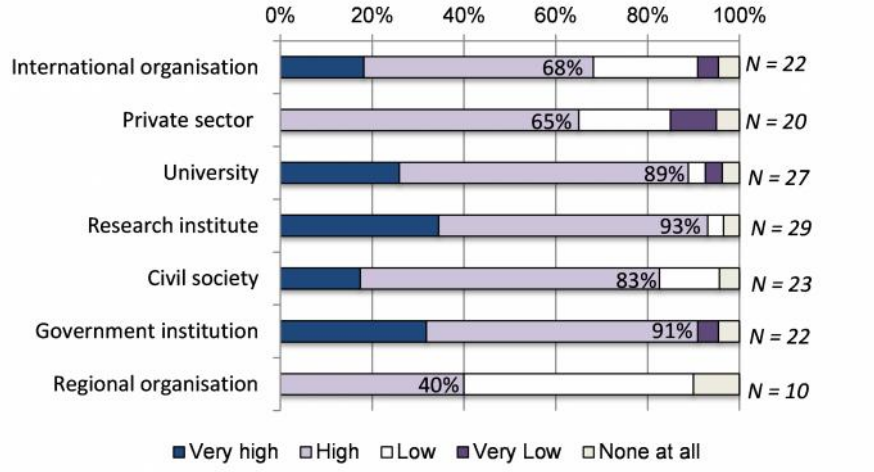
Private sector organisations and academic research institutions were be the largest categories of beneficiaries. Again, EU universities generally play a prominent role but one that can be justified in capacity terms and is usually in collaboration with other actors, notably developing country universities. Where they work in consortia involving both EU and partner country universities, the EU members of the consortia often hold the lead contract and have responsibility for reporting and the respect of EU procedures.

Overall, in some SISS programmes, it might have been appropriate to increase the proportion of R&I funding going to NGOs and private sector actors. However, there are also cases where appropriate NGO consortia have been supported to carry out major tasks in specialised areas such as in establishing high-speed ICT data networks.

EUD survey respondents consider universities and ROs as the most suitable partners for R&I. Regional organisations and the private sector are seen as least suitable.

The EUD survey asked respondents to assess the suitability of the channels for R&I support in the individual countries. The following figure shows the responses aggregated across all sectors. Universities, research institutes, civil society organisations and regional organisations were perceived as the most suitable, followed by international organisations and the private sector. Given the extent to which the EU does use them as a channel, it is interesting that regional organisations are considered the least suitable channels[22].

Figure 11 Assessment of implementing channels (all sectors)[23]



Source: EUD survey.

[22] As indicated earlier this response may be influenced by a lack of awareness of the role of regional organisations in EUDs as these are usually administered from Headquarters. Field missions also indicated that EUD staff knew little about regional organisations' spending of EU funds even where this occurred in the countries where they were situated. This type of lack of information was something EUD staff complained about in interviews.

[23] The question was asked by sector, but aggregated across all sectors due to the low numbers of responses per sector. The different parts of each bar represent the percent of times that EUDs rated the suitability of the specific implementing channel across all sectors as very high, high, low, very low, or none at all. The total N's reflect the number of total responses (assessments) of the specific type of support by all EUDs in all sectors. The percent values inside the bars show the fractions of 'very high' and 'high' responses.

Evidence from the field missions confirmed that choices of actors and channels were generally robust.

The field missions essentially backed the choices of actors and channels made for the different R&I programmes and projects examined. Although some projects under scrutiny had run into difficulties or were not advancing as fast as planned this could only rarely be ascribed to a poor strategic choice of actor or channel. The individual choices largely made sense at a strategic level.

6.3.3 Considerable effort has been taken to choose between and combine different channels, but the choice of modalities is largely determined by practical considerations (JC 33)

The EU has put considerable effort into its choice of channels for funding R&I – with success.

A wide selection of channels is certainly used and actively considered. Yet the evidence gathered does not allow to make a strong judgement on the level of effort taken to choose and combine modalities and channels.

At the *global level*, in some cases, the choices appear to be straightforward to make, for instance in the case of co-operation with the WHO or the CGIAR that occupy what are, in effect, monopoly position as umbrella organisations. In the case of CGIAR, the EU has also gone to considerable effort to proactively steer the formulation of its research programme.

At the *regional level* the choice of channels was constrained, but the EU has identified some partners to work with. Among these are some to which it is politically committed such as the African Union Commission (AUC) but which have required considerable support to build up their capacity. In other cases, the EU has taken the trouble to create regional programmes such as SWITCH Asia.

At *country level*, there is also a wide range of different channels employed suggesting that the EU has not held back in its efforts to identify suitable partners. The national level analysis of relevant documentation shows straightforward rationales for the choices made on instruments, modalities and channels used.

The choice of modalities however is largely determined by practical considerations.

The combination with different modalities is largely driven by practical constraints once the channel has been chosen. The EU's procurement rules will often impose the choice of a project modality and Budget Support is only possible under specific conditions.

The use of the Budget Support modality is largely a function of the choice of focal sectors.

One might expect more use to be made of (sector) Budget Support than is the case but this is related to R&I per se not being chosen as a focal sector for support. Budget Support funds being used to support R&I is in a by-product of a decision on which focal sectors are chosen whether these sectors happen to involve R&I work.

One of the few countries where Budget Support has been used is South Africa where stronger institutions exist than in many poor developing countries and where the government has had a clear priority to develop its S&T policy. In other countries with higher income levels such as Ukraine and India, Budget Support has not been used but in both cases this relates more to the priorities of EU co-operation with the country. The EU-India S&T collaboration is thus based on joint funding through coordinated calls for proposals (managed by DG RTD in the EU case and the DST for India) with each authority funding its own participating ROs. In Ukraine, the emphasis has been on capacity building to enhance Ukrainian researcher participation in DG RTD framework programmes.

Considerable thought went into choosing an appropriate combination of instruments modalities and channels for each programme.

There is no evidence that DG DEVCO had an overall rationale for combining different instruments, modalities and channels for its funding of R&I in any of the four sectors, but careful reflection has gone into the choices made for each programme. Thus, the evidence suggests that on the one hand where DG DEVCO has specifically wished to support R&I in a particular sector, it has first identified the instrument to be used for funding. It has then sought out relevant actors with whom to collaborate. This then has led to a choice of channel, which may or may not prompt a review of the instrument to be employed. These choices have then in turn led to a choice of modalities. Where R&I has occurred within a wider sectoral support programme, the choices of instrument, channel and possibly even of modalities has been dictated by that sector's needs.

More specifically by sector:

- In FSNA DG DEVCO has made an effort to choose and combine different modalities and channels strategically. At country level, the documentation studied includes straightforward rationales for the choices made on instruments, modalities and channels used. In the case of Uruguay, the CSP includes a quite specific list of instruments, modalities and channels to support the innovation, research and economic development focal sector in the country.
- In Health, while there is no evidence that DG DEVCO rationally planned which modalities and channels to use for R&I, the decisions reviewed were in themselves objectively reasonable.
- For EnvCC, there is little explicit documentary evidence to help reconstruct EU assessments on modalities and channels.
- In SISS, there is a wide variety of channels being used and programming documents and field interviews show some thought has gone into making these choices. Interviews in the field suggest that considerable thought has been put into selecting appropriate channels (e.g. PASRI in Tunisia where is also a combination of different channels).

DG DEVCO has coordinated the use of modalities and channels reasonably well and liaised with other DGs and Member States.

Efforts to collaborate with a variety of other DGs have been made by DG DEVCO and not just DG RTD on specific projects. The general pattern is that other DGs provide additional inputs or opportunities for stakeholders but do not directly collaborate in the funding of the DEVCO managed project. At the same time, EUDs are often not in a strong position to coordinate or even have an overview of support to R&I from other DGs in that they do not automatically get sent full information on these activities.

More specifically by sector:

- For FSNA at the level of headquarters there has been on-going dialogue between DGs DEVCO and RTD, but little evidence is available on liaison with other relevant DGs and Member States (apart from the European Initiative for Agricultural Research for Development (EIARD): see text box below). The wider agricultural Research and Innovation sector in Europe is, however, densely networked and well organised in its approach to international Research and Innovation though this is less the case in partner countries. At the country level, inside the EU no systematic links exist between DEVCO-funded and RTD-funded R&I projects/programmes and no systematic effort has become apparent to coordinate and build complementarity between different European R&I donors. Often, the EUD has not been involved or sees no role for itself. In-country efforts are

therefore left to European research partners, national government agencies, research institutions and other R&I stakeholders.

Box 9 The EIARD – A platform for European donor co-ordination

One example of EU co-operation on a specific channel is the EIARD (European Initiative for Agricultural Research for Development), a permanent platform that involves the Commission and Member States that determines, among others, a common position to the CGIAR, including on the funding instruments used as well as the restructuring process. While the EU agricultural R&I sector subscribes to a common vision on AR4D and seems to agree on the need to improve European leadership, co-ordination and influence on global AR4D, in their actual funding behaviour of CGIAR Research Programmes a 'common position' is not so apparent.

- In Health the EU (DG SANTE[24], DG RTD and DG DEVCO) sought to work within the framework of the WHO Global Research Strategy. DG DEVCO participates in the Global Health Policy Forum, an important European network bringing together DGs, the private sector (essentially European pharmaceutical firms), NGOs, academics, and other stakeholders that, among other things, discusses priorities for health research.
- In EnvCC the available evidence suggests that policy-makers understand the need for co-ordination across different DGs. However, the available data are silent on whether and to what extent co-ordination of financing of this kind has taken place.
- In SISS one of the best examples of co-ordination between DGs is on the JAES because of the Commission-wide political commitment to collaboration with the AU. The EU Member States are also involved but less actively. Under the JAES, DG DEVCO and DG RTD have collaborated closely with the AUC to establish the Africa Research Grants scheme. The funding has so far been provided by DG DEVCO from the EDF as with most EU funding to the AUC, but in the next cycle will come from the EU Budget and the new Pan-African instrument agreed by the EU Member States and the European Parliament. The JAES also covers the MESA programme in which DG RTD, the Joint Research Centre (JRC) and agencies such as the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) are involved.

External consultation mechanisms exist in all sectors but their influence on the choice of modalities and channels was limited.

External consultation mechanisms such as the EIARD in the FSNA sector, the JAES platform under SISS, or the Global Health Policy Forum, all just mentioned above, or the GCCA in EnvCC, exist and the EU makes active use of them to dialogue on research policy. While these provide fora for policy discussions and prioritisation which the EU does pay attention to, the evidence suggests that the influence of these fora over the EU's choice of instruments, channels and modalities is limited.

[24] DG SANTE: European Commission's Directorate General for Health and Food Safety

6.4 EQ 4: DEVCO-RTD complementarity and coherence

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

Rationale and coverage of the question

DGs DEVCO and RTD have declared their intention to work closely together and respect a clear division of labour so as to avoid duplication of effort or contradictions emerging. Achieving good levels of complementarity should not only lead to greater efficiency but ideally also increase the impact of their work. At the same time, the two DGs have different objectives; they manage different budget lines with different purposes, and deal with different principal interlocutors, so ensuring complementarity works in practice is not necessarily straightforward.

Policy coherence for development is a principle rooted in the Treaty on the European Union (TEU) since 1992. Council Conclusions on Policy Coherence for Development (PCD) from May 2005 reaffirm this commitment and identify R&I as one of the 12 priority areas where coherence with development policy should be actively promoted. Subsequently, in 2009, Council Conclusions identified five policy areas for particular attention (trade and financial policy, food security, migration, climate change and security and development). The principle is also reiterated in the 2005 *European Consensus for Development* and the 2011 *Agenda for Change.* An active effort is also made since 2007 to monitor progress on PCD through the biennial EU PCD reports.

This question is articulated through four judgement criteria and a number of indicators, with detailed reporting in Volume 2.

Summary answer to the evaluation question

At the strategic level, there is a consensus that DG DEVCO should finance capacity building and institution building in R&I while DG RTD finances research itself. This should result, over time, in enhanced developing country participation in framework programmes, which should in turn contribute to PCD. In fact, while DG DEVCO did mostly finance capacity building and DG RTD did mostly finance research over the evaluation period – although there was a great deal of stepping over the line in both DGs -- this model did not operate well, for a number of reasons. The institutional strengthening needs of developing countries are huge if they are to participate effectively in global science. DG DEVCO does not have the ability to provide the long-term, consistent, predictable support needed to meet these needs (c.f. EQ 3). DG RTD, with its mission to serve the needs of European R&I by rewarding scientific excellence and mandate to finance developing-country researchers only in line with that mission, is not suited for capacity building. Thus, there is a gap and no meaningful sustained effort has been made to address it.

The evaluation found few examples of strategic operational planning to achieve complementarity and reap synergies. At the same time, no examples of wasteful overlap and duplication were identified. In the field, complementarity was actively pursued, it tended to be in contexts where there was a DG RTD S&T Counsellor as well as an EUD DEVCO staff member following the R&I portfolio. In the absence of these favourable conditions, co-ordination was ad hoc, personality-driven and under-strategised. Less than half of EUDs responding to the relevant question felt that DEVCO- and RTD-financed activities had been complementary. Communications and informal consultation between the two DGs in Brussels are relatively good, but formal procedures and processes are missing. While

each DG has benefited from the activities of the other, these represent external benefits, not the result of strategically thought through planning. The evaluation looked in vain for concrete examples of DG DEVCO projects informing FP7 Calls for Proposals or FP7 research results being translated into DG DEVCO actions.

At the same time, despite the absence of concrete formal mechanisms to ensure it, and despite the scientific orientation of DG RTD, the situation regarding PCD is not bad overall. In FSNA, Health, and EnvCC, there is a great deal of overlap between DG RTD research priority areas and development needs. The fact that FP7 has been opened up to developing country researcher participation is a major step forward, as is the putting in place of the INCO unit at DG RTD, although it is reported that the views of INCO and thematic desks are often not in harmony. Field visits found FP7 projects to be often highly relevant for development.

Key points:

- Despite the division of labour is spelt out and clearly understood at high level, in practice, there has been considerable flexibility.
- Capacity constraints, especially serious at field level, have seriously hampered the odds of meaningful co-ordination.
- Communications and informal consultations between the two DGs at HQ level are good; for example, DG DEVCO has the opportunity to comment on DG RTD's Calls for Proposals. However, interest in R&I in DG DEVCO is variable (a finding from answering EQ 2) and interest in the development agenda is varied at DG RTD.
- DG RTD benefitted from DEVCO-implemented actions such as Erasmus Mundus and the financing of high-speed internet networks, but the examples cited in the EUD survey of concrete support to FP7 were rather trivial.

6.4.1 There is a strategic consensus at high level on how DGs DEVCO and RTD should co-operate, but this is not effectively implemented at the operational level (JC 41)

While there is a high-level consensus on the strategic division of labour between DG DEVCO and DG RTD, it is not consistently applied in practice.

There is an overall strategic consensus on a division of labour, with DG RTD funding actual research and DG DEVCO funding capacity development so as to enable developing country researchers to participate in RTD-funded research. This is spelt out in a staff working paper from early in the evaluation period (SEC(2008) 434) but it is not repeated in the two Communications since then (2008 and 2012) both of which are DG RTD communications rather than joint RTD-DEVCO ones. However, the division of labour is not managed in a consistent fashion. Some HQ interviewees refer to frequent (though irregular) formal and informal consultations between the two DGs while others are vague. The work patterns and cycles of the two DGs are different, resulting in synchronisation issues (for example, DG RTD runs on a two-year call for proposals basis that has no counterpart at DG DEVCO). The institutional cultures are different: DG RTD is staffed by science administrators, most with a scientific background; DG DEVCO is staffed by development experts, many with backgrounds in social science, medicine or law. The basic mission of DG RTD is to strengthen European health science and benefit the European citizen by encouraging international co-operation when it is in the European interest; that of DG DEVCO is to promote development and the MDGs. In Brussels interviews at DG DEVCO, concern was expressed that, while DG RTD has an excellent grasp of the research process, it does not fully understand the obstacles that must be overcome to achieve take up. At DG RTD, the concern was that DG DEVCO does not translate research results into concrete development results.

Field missions seldom found that a conscious attempt to achieve complementarity had been made.

Despite the high-level strategic vision for co-operation and complementarity, country field missions found no evidence of DG DEVCO and DG RTD consciously exploiting complementarities. When they did so, it was on an ad hoc basis at the level of national programmes and project partners. Of those (admittedly few) EUDs responding to the question, half considered DG RTD and DG DEVCO support to be not complementary. Field missions found that assessments of potential overlap are rudimentary and undocumented. The only real exception is in relatively developed economies such as South Africa and Ukraine where national R&I partners and infrastructures are strong enough to create such relationships on their own. It emerged from field missions that many EUD staff know little about DG RTD. DG RTD communication channels with ministries responsible for R&I largely bypass the EUD.

In an ideal division of labour, DG DEVCO would provide long-term capacity building and institution strengthening to bolster partner country participation in DG RTD framework programmes. This is not happening on a scale commensurate with needs.

The greatest need, and opportunity, is for long-term capacity building. Yet, such long-term institution building is difficult for DG DEVCO to engage in and virtually out of bounds for DG RTD with its orientation towards rewarding scientific excellence (see also JC 42 below). To fill existing gaps, DG DEVCO would need to investigate means of financing long-term institution strengthening while DG RTD would need to take more into account the constraints and challenges faced by developing-country researchers. As found in answering EQ 2, while capacity building was a major focus of DG DEVCO support for R&I, less than half of EUD survey respondents to the question felt that DG DEVCO support had led to significantly greater FP7 participation. Both DG DEVCO and DG RTD have financed scattered capacity building projects designed to improve developing-country partner scientists' access to FP7, but there has been no consistent and predictable large-scale, long-term effort coming close to addressing the needs in this area.

In all sectors, the story is repeated – a good high level vision of complementarity but little done to operationally implement it.

In FSNA, as established in Brussels interviews, there is clear understanding of the division of labour and complementary roles. DG DEVCO funds regional and continental research organisations active in FP7 to build capacity and translate research results into tangible approaches to food security and nutrition. DG DEVCO also finances research at the global level (e.g. CGIAR through the Food Security Thematic Programme), and this coordinates with and complements FP7. However, there was little evidence at field level of co-ordination or consciously exploiting complementarities.

In EnvCC, country missions found little evidence of DEVCO-RTD collaboration at the operational level, in part because of a lack of guidelines. DG RTD had not been directly involved in R&I projects managed by EUDs. However, country field missions found that, when DG DEVCO engaged in R&I in the sector, usually on an ad hoc basis, it was in the area of capacity building, and no cases of overlap were identified.

In Health, despite good communications and ad hoc consultations, the DGs operate with little co-ordination. At country level, there is no substantive division of labour between DG DEVCO and DG RTD. For example, in South Africa, FP7 financed downstream pro-poor public health research projects while DG DEVCO financed much further upstream projects in TB vaccine development and anti-retroviral drug resistance.

In SISS, a grey area was identified, with both DGs financing both capacity building and pure research, with variable degrees of co-ordination. However, little was done operationally to implement the high-level shared vision of complementary roles.

6.4.2 While co-operation has been ad hoc, no examples of wasteful duplication have been found (JC 42)

While no wasteful overlap and duplication has been found, the co-ordination that has occurred has been ad hoc, opportunistic, and under-strategised.

As described in assessing JC 41, while there is broad agreement on the division of labour between DG DEVCO and DG RTD, this has not been strictly respected. DG RTD has engaged in a certain amount of capacity building while DG DEVCO financed a certain amount of applied research, both in an ad hoc, opportunistic, and under-strategised fashion. While DG DEVCO and DG RTD have participated in a number of shared fora at HQ level, and there is a reasonable amount of both formal and informal contact and information sharing between the two DGs, they coordinate only informally on an ad hoc basis. This results in a personality-driven style of co-ordination, resulting in variations between sectors and regions. The failure to strategically divide up the R&I pie has not resulted in wasteful duplication of effort – this was confirmed repeatedly in country field missions – but it has led to a gap between the reach of the two DGs. Neither DG DEVCO, whose instruments are unsuited for long-term institution building, not DG RTD, with its orientation to scientific excellence and the call-for-proposals approach, can provide the sustained effort needed to strengthen partner country R&I institutions. At field level, the examples cited in the EUD survey of efforts undertaken to ensure effective co-ordination of DG DEVCO and DG RTD support were rather trivial. By contrast, actions taken to ensure effective co-ordination of support from other EU institutions like the European Investment Bank (EIB) and Member States, mostly information sharing, were judged to have been largely successful.

Brussels interviews painted a mixed picture on capacity for HQ-level co-ordination in the two DGs. Field missions found that the two ingredients needed for effective co-ordination are an S&T Counsellor and a DG DEVCO staff member tasked with following R&I.

Brussels interview evidence yielded a mixed picture on whether both DGs have adequate capacity to identify R&I needs properly. They suffer from limited numbers, but in different ways. In DG RTD, numbers appear to have been adequate over the period evaluated but the issue is the proportion of staff time allocated to international co-operation and the limited capacity for outreach to all countries and regions. There are incentive issues, with thematic desk staff preferring to allocate time to countries that are scientific powerhouses. In DG DEVCO, the issue is the number, interest/expertise in research and permanence of staff working on R&I. Staff numbers dedicated to R&I have been limited, they move around regularly and they do not all have the same expertise on research. Few have experience in both DGs. At field level, the extent of co-ordination and complementarity depends on capacity issues, namely the presence of a S&T Counsellor and the presence of an EUD programme officer identified as the focal point for R&I. In some sectors in some delegations, sector experts will have interest in R&I and the time necessary to play an active role in co-ordination, but this merely leads to great variation across EUDs and across sectors within EUDs.

High-level successes and failures of co-ordination have been identified, but in all sectors, there is little co-ordination at field level.

In FSNA, an example of successful co-ordination is RTD-financed EIARD, which has functioned as a platform for various DGs and Member States to coordinate a common position promoting pro-poor reform of CGIAR. Field missions concluded that systematic alignment with country R&I needs would require stronger co-ordination between the DGs country level, which in turn would require greater capacity. In SISS, there has been ad hoc co-ordination between the two DGs but field missions found that it varies greatly from country to country and region to region. The opportunity was missed, for example, to tailor the ACP S&TP more to capacity building rather than research. In health, both DG DEVCO and DG RTD have adequate Brussels

capacity for current purposes, but the shortage of health sector specialised capacity in EUDs, and the negative impact on policy dialogue, has been the theme of many country strategy evaluations as well as the Global Thematic Evaluation of support for health. In EnvCC, DG DEVCO HQ understanding and interest in R&I was found to be patchy and, while country visits found that the division of labour was respected, actual operational co-operation between DG RTD and DG DEVCO was limited.

6.4.3 Each DG has benefited from actions of the other (JC 43)

Each DG has benefited from actions of the other, but usually these benefits are better considered externalities, not strategically planned results.

DG DEVCO has benefited from RTD-financed FP7 projects, but this was not the result of planned complementarity. The two sets of activities frequently involved the same pool of researchers and research organisations. The increase in scientific capacity among researchers who participated in FP7 consortia had knock-on effects not only for DG DEVCO actions in the area of R&I, but for DG DEVCO's bilateral programmes more generally. These represent FP7 external benefits, not strategic results. There was scattered evidence, e.g. from Ukraine, that DEVCO-financed programmes to spread awareness of and capacity to participate in FP7 had positive results. Erasmus Mundus played an important role as an identifier of potential FP7 participants. DG RTD also benefited from DEVCO-financed projects to install high-speed internet connections and promote data exchange (including earth observation data). Again, these are best considered external benefits of DG DEVCO actions.

About half of 19 EUDs responding to the EUD survey question had undertaken actions – information events, workshops organised by specific FP7 projects, etc. – designed to raise awareness of FP7.

Examples were identified in each sector of general benefits that each sector enjoyed from the activities of the other, but no concrete cases of FP7 projects building on DG DEVCO actions or DG DEVCO projects being designed on the basis of FP7 results.

In FSNA, linkages were found between DG DEVCO instruments and FP7 funding in the sector; for example, in the framework of the CAADP, and the general DG DEVCO benefit from RTD-funded EIARD was mentioned above. However, no examples have been found of DG DEVCO interventions feeding back into FP7 projects or the design of FP7 calls. In health, field mission evidence affirmed that FP7 research projects generally contributed to development policies and programmes but no concrete examples of FP7 research-result-to-DEVCO project translation were found. Examples of DG RTD projects that had overall benefits for DG DEVCO health support were programmes in Neglected Infectious Diseases, EDCTP (European and Developing Countries Clinical Trials Platform), the Go4Health programme to involve developing-country (specifically, African) experts in developing the health SDGs. While direct mention of DG DEVCO projects using FP7 results is never found in EnvCC project documents, there is strong thematic overlap; for example, in carbon capture and storage and clean carbon technologies. As in health, researchers involved in DG DEVCO projects did not specifically identified FP7 results that had fed into their projects and there were no examples of FP7 projects having substantively benefited from DG DEVCO interventions. In SISS, it was found that DEVCO-financed data infrastructure and internet networks had benefited FP7 research, but no concrete examples of FP7 projects benefiting DG DEVCO were identified.

6.4.4 Both DGs have made efforts to ensure PCD in R&I (JC 44)

There has been progress on PCD, but DG RTD remains a scientific agency, not a development one, and its priority setting is influenced only to a limited extent by the development agenda.

The basic document here is SEC(2008) 434 on PCD in research, which does not cover all sectors but sets out the main axes for policies that should be supportive of development. Progress is monitored, with R&I covered regularly by EU PCD Reports issued by DG DEVCO in 2009, 2011, and 2013. The 2013 Report calls for ex ante assessments, but no evidence was found that these are being implemented. The fact that FP7 has been opened up to partner country researchers is a major step forward for PCD. An example is the Africa Call, which saw a substantial number of Africa research institutes leading international consortia. However, DG RTD's mandate is to promote European S&T, wellbeing, and competitiveness by cooperating with Third Countries when it would be beneficial and particularly on problems of global scope. FP7 operates as a scientific competition, and the main criterion for gaining support is scientific excellence. Thus, DG RTD priority setting is influenced only to limited extent by the development agenda. Calls do not reflect are not specifically designed to address development problems nor do they reflect a dialogue process with partner countries.

Within DG RTD, the INCO unit and the thematic desks have differing perspectives. There are extensive field-level consultations between DG RTD S&T Counsellors and DG DEVCO staff in EUDs where the former are in post.

There are inter-service consultations on all FP7 Calls for Proposals before they are issued, which has encouraged PCD. Within DG RTD, the establishment of an INCO unit has led to greater debate over priorities. Calls are preceded by discussion between thematic desks and the INCO unit, which gives the latter an opportunity to advocate for greater inclusion of developing country priorities. However, no examples of ex-ante assessments have been found, and HQ interviews suggest that the two parties have very different perspectives. At country level, field missions found that, there is a good deal of co-operation between S&T Counsellors and DG DEVCO staff, but there are very few Counsellors (and their number is being cut).

Despite overall coherence, no evidence was found of concrete mechanisms and processes at sector level to promote PCD.

In FSNA, while DG RTD projects were clearly relevant to EU development objectives, no evidence of concrete mechanisms for achieving coherence has been found. However, the S&T Counsellor in Addis reached an agreement for intensified dialogue with the African Union that resulted in improved alignment of DG RTD programmes with regional needs. The field mission did not yield any evidence of mechanisms to promote PCD. In health, while the sector is not specifically highlighted in SEC(2008) 434 on PCD, many of the issues mentioned, such as brain drain and intellectual property rights, are relevant. There is overall coherence in health as both DG DEVCO and DG RTD are aligning to the same policy commitments. According to HQ interviews, PCD is not viewed as a major issue in general terms, but more could be done at operational level to promote it. In EnvCC and SISS, there are consultations between the two DGs at various points in the programme and project cycles, but these depend on the desk officers and it is not clear that they all cover PCD.

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

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?

Rationale and coverage of the question

A key result to be obtained from support to R&I is that the results of research feed through into development processes that work in the direction of EU development objectives. This includes the outcomes from Research and Innovation directly supported by DG DEVCO but also the development-relevant outcomes of RTD-financed research and their uptake by policy makers, researchers and practitioners in developing countries. Various EU policy documents such as *The Agenda for Change*[25] underline the importance of using research results in development processes. Although the evaluation of impact is always difficult, this EQ is intended to collect examples of the links between R&I outcomes and development on the ground. The approach involves looking at some of the key stages in the process of creating new knowledge and putting it into use to assess whether they are conducive to this process of knowledge transfer.

This question is articulated through four judgement criteria and a number of indicators, with detailed reporting in Volume 2.

Summary answer to the evaluation question

DG DEVCO support to R&I has led to some transfer of results into development processes and contributed to the progress against EU development objectives but the full extent of uptake cannot be measured. There is evidence of lessons learning taking place and there are examples of development processes making use of research results. Inevitably however, there is also evidence that some processes do not go as far as hoped and of obstacles that have not been overcome. One area that has not been systematically thought through is how and when to engage with partner governments on the formulation of national R&I or S&T policies.

Routes to impact have generally been thought through at a higher level but also in more varied ways at lower levels. Support has been provided for processes and infrastructure that encourage knowledge exchange and dissemination, as well as to networks promoting knowledge exchange. Actual uptake of R&I results is harder to ascertain from the documentary evidence but emerged strongly from the field missions.

There is good evidence that DG DEVCO has generally worked out a coherent and logical approach on how best to support the uptake of R&I results for development in the four different thematic sectors covered, at least at a higher level. The approach does vary from sector to sector, but there are common features. Providing support to the creation and maintenance of research networks for the exchange of knowledge and dissemination of results has been a regular feature in all four sectors. This has not only been through support to networking organisations and seminars and conference, but also through extensive support in the SISS sector to the funding of high-speed ICT infrastructure across all the different regions. Capacity building both at the individual and the institutional level is another important element. Investment in capitalisation has however been inadequate.

[25] (COM(2011) 637)

Key points:

- In Health and FSNA, DG DEVCO has focussed support to R&I around existing institutions with global reach both in terms of research and in terms of dialogue on results, the WHO and CGIAR. These partners have helped ensure that lessons are shared and that DG DEVCO support in these sectors is aligned with global priorities and has greater impact.
- Information on internal lesson learning within the EU system is patchy and systems for this seem better at country level than higher up the system. Yet, there are positive examples notably in Health, FSNA and SISS.
- There is more evidence on external lesson learning particularly as this is where DG DEVCO support to networks and infrastructure for knowledge exchange plays an important role.
- Examples of uptake of R&I results have been found in all sectors. This is particularly so in FSNA where a variety of instances have been identified partly because the uptake of research results is currently a major area of debate in the CGIAR, but also because a continuous process of research, innovation and extension is a long standing tradition in agricultural development work.
- A fair amount of evidence has emerged that suggests DEVCO-supported networks play a valuable role in sharing results of R&I and transferring them to development processes. This evidence is particularly strong in the two sectors with clear links to MDG achievement, Health and FSNA. In both sectors there are examples of projects and programmes where R&I results are used in the field and which show impact at the level of end users and farmers in the case of FSNA. On the other hand the capitalisation of results was often to be inadequately funded at project level.
- For EnvCC, the link between networks and sharing results is more ambiguous as projects in this sector do also aim to help the poorest and more vulnerable, yet many of the innovations supported are at a different level. Programmes such as SWITCH Asia have played an important role in demonstrating how production processes can be greened but actual impact is still limited. For SISS, the link was also often more indirect: S&T is clearly important for development and the support to ICT infrastructure mentioned above is a valuable tool for knowledge transfer and communication. At the same time, a number of SISS projects focusing on promoting innovation in the private sector have had some effect on economic growth and job creation.

6.5.1 At sector level clear and logical thinking on how DG DEVCO support could ultimately lead through to research results being used in development processes is apparent but could have been stronger (JC 51)

Clear and logical thinking on DG DEVCO support to R&I takes place primarily at sector level.

In two of the sectors, a global level forum has provided a clear focus for strategic thinking and dialogue on R&I. Thus, in FSNA, DG DEVCO's contribution to R&I is dominated by support to the CGIAR where the Commission has in fact been one of the CGIAR donors pushing for more strategic thinking. Similarly, in the Health sector, by aligning much of its R&I support with the WHO Global Strategy and Plan of Action, DG DEVCO has ensured that research results will be coherent with the global agenda as well as the EU's own commitments in the 2010 Health Communication. On the other hand, in the EnvCC and SISS sectors, there is no such institutional focal point and thus the strategic approaches taken become more diversified.

In FSNA there is a mismatch between the impact pathway of support to R&I for development and the expected iterative and practical impact on commercial, policy and institutional processes.

In the FSNA sector, strategy papers are forward-looking and take into account new insights in the area of agricultural research for development (AR4D). DG DEVCO's main partner is the CGIAR which has gone through many institutional changes to incorporate uptake of research outcomes. As for the regional programmes, significant differences exist in the way theories of change have been elaborated. ASARECA and IssAndes have well described impact pathways (see Box 10 below for IssAndes), while Technology Transfer for Food Security and ACP Sugar Research Programme lack adequate analysis of paths for research uptake. Equally, in CSPs, clear descriptions of how investing in AR4D leads to development outcomes are scarce.

At the programme level, support to R&I is mostly part of an integrated food security approach that varies from programme to programme. Although some examples exist for programmes in Burkina Faso, Kenya and Ethiopia of how research results are to be used in development processes this is not carefully thought through.

DG DEVCO and DG RTD financing modalities lack systematic thought on how they can support the interlocking research, innovation and development processes that go beyond the research project itself, with the aim to influence policy, or institutional and practical change. These modalities are not designed to 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 is a mismatch between the impact pathway of support to R&I to development processes and the expected widespread, iterative and practical impact on commercial, policy and institutional processes.

Box 10 IssAndes – Matching impact pathways with funding cycles

IssAndes is a regional project managed by the EU Delegation in Lima (Peru) to support pro-poor agricultural innovation for food security in the Andes.

One of the key strengths of the IssAndes project is its strong design, linking agricultural development to nutrition and health. The impact pathway methodology, integrating nutritional objectives and indicators in food security initiatives were key to ensure that interventions had a positive impact on health and nutrition of families. In Ecuador and Bolivia case studies and a guide about the implementation of the methodology of impact pathways have been developed. Impact pathways in the IssAndes project are well defined by the International Potato Centre (CIP) to guide the multi-stakeholder process. The project is inclusive in design and implementation and shows a clear understanding of the impact of new technologies on development processes as well as policy, and vice versa. The need for capacity building and enabling policies is accounted for in both design and implementation. The project builds on a previous regional research and innovation project (*Papa Andina*), which has contributed significantly to its success.

However, the evaluation found there was limited scope in DEVCO for supporting such an initiative during its different phases along the projects' envisaged innovation impact pathway. Subsequent project cycles could not be funded, and the need to search for alternative financial sources caused discontinuities. This, in turn, risked the watering down of the policy and institutional impacts that the project had carefully built up over its initial period. Especially in projects like IssAndes that aim to contribute to both national implementation and policy change in four different countries, the normal four-year cycle for project funding is inadequate and makes the sustainability of the research and innovation programme difficult to attain.

Lessons learnt from the IssAndes project were shared with DG DEVCO and a wider public. Communication strategies were an integrated part of the programme, but funding to document, share and capitalise upon the lessons learned was mobilised separately thanks to the efforts of individual researchers. Due to this additional funding, four communication products (Story of the Week, video, case study from Peru and a policy brief) were produced and used during the European Month of Food security.

In Health, the strong focus on achieving the MDGs meant R&I was not explicitly taken into account.

DG DEVCO health sector policy, and the country sector policies that it supports only implicitly, not explicitly, took R&I potential into account. At HQ, there is not universal acceptance among DG DEVCO staff that R&I is a key sector for economic development. In some cases, the same is true at EUD level among sector experts. At the same time, there is no shortage of DG DEVCO support to solid science, mostly in the field of medicines and treatments (and mostly concerned with HIV, TB, and malaria). The underlying assumption is that these will be applicable to achieving broader development goals.

At the country level, the strategic logic and clarity is not always clear.

Moving downstream to more detailed levels of strategy, the picture in Health is more varied in terms of clarity and logic of the thinking. While country-level health sector support programmes examined paid attention to the latest international good practice, they were not found to be closely in tune with cutting edge of R&I, except in a few cases such as South Africa where R&I was mainstreamed in sector dialogue.

In the EnvCC sector, there is a strong emphasis on knowledge generation projects and innovation.

In the EnvCC sector, the evidence suggests that DG DEVCO support has taken into account global R&I development and trends. Strategically, it did so in four interrelated ways:

1. Strategies aimed to support R&I interventions that can measure and assess the impact of interventions on the environment. This included research on impacts, vulnerabilities and risks of mitigation and adaptation strategies, but it also comprised interventions that aimed to test, prototype and demonstrate possible solutions.
2. EU R&I interventions sought to tap into and support areas of environmental policy where knowledge was growing. The strategy documents analysed for the fields of biodiversity, climate change and sustainable development, all stress the need to build on and extend current trajectories of knowledge generation.
3. Closely related to the previous point, strategy documents point to the gaps in policy-relevant knowledge and articulate the intention to address these gaps in terms of R&I programming, in particular via FP7.
4. Finally the strategy documents identify potential linkages and synergies between different sectors both in terms of exploring new research fields and in terms of deploying knowledge for environmental policy-making.

A spectrum of projects exists in the EnvCC sector including some that focus on Small and Medium Enterprises (SMEs) but evidence of real impact is limited.

In EnvCC, while the overall logic of supporting certain areas of work was found to be clear, the detail of how this is to be done in practice was sketchy. For instance, the evaluation found little indication of how actors are to find sufficient real opportunities for deploying innovation for development.

Perhaps as a result of this, the spectrum of interventions ranges from foreseeing a direct and active role of the private sector, to more indirect and remote ways in which the private sector contributes to R&I in EnvCC (see Box 14 below). At the more active end of the spectrum, programmes, notably SWITCH Asia, did address and directly involve the private sector – both at SME and at corporate levels – in the research, development, testing and diffusion of sustainable innovations. Of most interest for encouraging impact and sustainability, are several ‘multiplier’ type projects which support teams including SMEs in assisting other private businesses in the adoption of energy and resource efficient technologies and practices or transformations towards greener business models.

Box 11 SWITCH Asia – The role of the private sector in applied innovation

There is a strong emphasis in the SWITCH Asia programme on applied innovation. The central principle of the grant component of the programme is to encourage uptake of SCP practices and technologies amongst local project partners with a focus on SMEs. By the end of 2013, 86 projects had been contracted in 15 Asian countries in greening supply chains, marketing of eco-products, green public procurement, cleaner production, eco-labelling and greener products for the poor. Multiplier-type projects have particular potential in spreading innovations. These are grant projects whose aim is to assist large numbers of SMEs in adopting resource and energy efficient technologies and practices. Two examples are MEET-BIS and SPIN-VCL.

MEET-BIS promotes sustainable production in urban-based SMEs in Vietnam by developing markets for affordable water and energy efficiency technologies. The project helped private sector suppliers to develop business innovation packages for SMEs comprising tailor-made technical innovations linked to investment options. It has led to significant energy savings in companies.

SPIN-VCL assisted over 500 SMEs in Vietnam, Laos and Cambodia in developing green products and business models using a sustainable product innovation approach. Activities included assisting SMEs in identifying markets, and in project branding and marketing. 11 % of the assisted companies were successful in capturing a market for their products.

Despite successes both multiplier projects have been hindered by external and internal obstacles. The external obstacles include a lack of strong price signals in energy and resource prices to adequately rewarded efficiency improvements, and a lack of national standards to support sustainable consumption and production practices. This is a weakness of bottom-up approaches when not supported by top-down activities. SWITCH Asia does include a top-down policy component in four countries that aim to create better framework conditions in the long term. A key internal obstacle was the three to four year timescales of SWITCH Asia projects. While technology adoption is fairly straightforward, the fundamental transformation of a company's business model aimed at by SPIN-VCL and MEET-BIS often require longer-term support.

For innovation to thrive and spread, entrepreneurs are needed who can recognise opportunities and are willing to take risks. This is strongly influenced by the research culture in a country. In particular, it requires a strong overlap and mutual relationship between business and research. The leader of the Vietnamese research institution leading the SPIN-VCL project actively encouraged his team to develop spin-off private businesses. Several successful green SMEs developed as a result. This is an untypical attitude amongst academic leaders in Vietnam and could perhaps be actively encouraged in future DEVCO projects.

The main aspects of SISS are well anchored in clear strategic thinking.

While the SISS sector does not have an identifiable and distinct 'sector policy', DG DEVCO strategy in this area is anchored in wider EU R&I policy. Two of its three aspects are featured as priorities in the overall Commission strategy document[26] for international R&I including: making S&T available for development, improving research infrastructure and capacity building for research. In each of these areas and indeed in the third area of space, field visits also confirm clear and logical strategic thinking at the programme level.

SISS programmes are also well thought through, though the final link with development processes on the ground is not always clearly addressed.

At the level of implementation in the SISS sector, a lot of emphasis has been put on the development of ICT networks for high-speed internet connectivity in all the regions (@lis, CAREN, TEIN, ACP Connect, etc.). The thinking on how this infrastructure for knowledge exchange will improve R&I has been straightforward and logical and builds on a number of positive evaluations.

Another approach has been to support to higher education more generally and particularly institutional development, including capacity building for research. The evaluation identified various good examples of researchers, funded under the ACP S&T Programme or the Africa Research Grants scheme, working on topics that should have a positive impact on development. However, the link from the R&I community down to practice on the ground has often remained unclear, though, at least in Tunisia, the specific problem of links between researchers and industry is one the PASRI project addressed directly with some success (see the text box below).

[26] (COM(2008) 588) on A strategic European framework for S&T co-operation

Box 12 PASRI – National innovation systems and the private sector

The PASRI (*Programme d'Appui au Système de Recherche et de l'Innovation)* in Tunisia aimed to provide solutions to problems identified in the innovation chain and support the strengthening of links between research institutions and the private sector. It further aimed to support capacity building of research institutes, boost their participation in national, regional and international research and develop innovation job profiles in companies. PASRI ran from 2012 to 2015.

Tunisia faces considerable challenges with competitiveness and youth unemployment, especially since the 2011 revolution. While there is much research activity, funding is scarce and many PhD graduates are unemployed because their skills do not correspond to industry needs. Tunisian research does lead to articles in peer-reviewed journals, but it only rarely results in patents. Linkages between the academic world and industry are weak, as academic priorities are not aligned with the demands from the private sector, thus inhibiting innovation. At the governmental level, there is a lack of dialogue between ministries and no overarching strategy for R&I. Legal frameworks also constrain improved synergies between the industry and research worlds.

To address this the PASRI consisted of three axes:

1. *Governance:* strengthening the governance of the national innovation system (NIS).
2. *Interfacing:* dynamising the research and economic environments and the interfaces between them both to build better synergies between actors.
3. *Networking:* at national and international level to strengthen the capacity of Tunisia to participate in research programmes such as FP7.

The PASRI was managed by different actors, of which the main ones were the ANPR (*Agence nationale de promotion de la recherche*) and GIZ[27]. The programme covered two types of activities: 'structural' and 'priming' activities. The Structural Activities were intended to build up the NIS and included various diagnostic studies and training elements as well as seeking to create networks of NIS actors. The Priming Activities consisted of pilot projects focused on catalysing collaboration between NIS actors. A key element was the 100 mobility grants (MOBIDOCs) for PhD and post-doc researchers to carry out research in companies (EUR 2.2 million). These grants were to encourage research on topics for innovation in business and build synergies between research and industry and proved to be one of the most successful initiatives of the PASRI.

The diagnostic study on the national R&I system was extremely useful to increase understanding of R&I governance in Tunisia and the main challenges to be addressed, as this is recognised as a major inhibiting factor. There is a need to address the lack of an R&I vision and strategic orientation at government level.

DEVCO funding of PASRI is complementary to RTD funding as it contributes to strengthening the capacities of the national R&I system and ROs to participate in FP7 consortia. The PASRI programme represents a serious attempt to address the R&I continuum with a number of notable successes in challenging circumstances. At the same time, sustainability remains a question mark and a longer term commitment is needed to consolidate results that are still fragile.

Engaging the private sector is often mentioned but not taken as a strategic theme.

While engaging the private sector is often mentioned to the point where it could be seen as a cross-cutting issue, overall it has not been drawn out as a major theme at the strategic level. For the health sector, the lack of full private sector involvement was brought out in both the South Africa R&I SBS evaluation and in the Mid-term Review of EDCTP. Equally, in some of the EnvCC programmatic and strategic documents analysed (e.g. the GCCA at global level or the ICARE project at national level), the involvement of the private sector is mentioned as desirable, but with few concrete proposals for bringing this about or managing this involvement. However, in practice, a good number of projects focus on green business. In SISS, several projects specifically addressed the need to encourage innovation in industry and private sector involvement (e.g. Ukraine Innovation Programme, PASRI in Tunisia, EBTC in India, etc.). In FSNA on the other hand the private sector is the main focus.

[27] GIZ: Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH.

There is no single clear DG DEVCO strategy on whether and how to engage with partner government national R&I policies.

One other more generic issue that comes out under SISS, but has wider strategic implications, is whether DG DEVCO should engage directly with partner governments' efforts to develop a national R&I or S&T policy. This has happened in several countries such as Ukraine, Tunisia and South Africa. In other cases like Ethiopia, even though the government is seeking to develop such a policy, the EU has preferred not to engage but still to work in sectors with a considerable amount of R&I going on (e.g. Coffee sector in Ethiopia). In some cases, the engagement is made by DG RTD (e.g. India) with DG DEVCO not really being involved. In others, both DG RTD and DG DEVCO have some involvement (e.g. South Africa). Finally, there are cases where the government itself does not have a clear R&I strategy and so the EU's efforts remain at the purely sectoral level (e.g. Burkina Faso). The variety of these cases indicates a lack of consistent approach and therefore scope for some clearer strategic thinking.

A clear strategy for both DG DEVCO and DG RTD on how to engage with national R&I policy development would have been an asset.

Of course the impact of an R&I partnership strategy would be conditioned by the existence or non-existence of national R&I policies and a well-functioning innovation system in partner countries (see the discussion in Box 13 and Figure 12 below). Particularly, low income and lower middle-income countries often have no specific R&I strategies or, if they do, their implementation can be expected to be very weak. But an overall strategy that took these various circumstances into account and formulated clear roles and objectives for both DG DEVCO and DG RTD would have been a major asset in further clarifying DEVCO thinking on support to R&I.

Although the four sectors show generally strong strategies a clearer overall strategy would give a stronger sense of direction to DG DEVCO's support to R&I.

In sum, the overall quality of sector strategies in terms of clarity and logic is reasonable in all the four thematic sectors; on the other hand, the manner in which this is done varies a lot between sectors. In two cases, Health and FSNA, global fora – the WHO and CGIAR – provided respective focal points around which the Commission's R&I strategy was articulated. In EnvCC, global trends in R&I are also followed but without any specific institutional focus other than the EU's own GCCA. In SISS, the basis for strategy has been more the Commission's support to international R&I Communication from 2008. At the same time, the detail of the sector strategies is of more variable quality and is not always well worked out. One example of this was the involvement of the private sector which is often mentioned as desirable but generally not problematised. In practice, this lack of detail on R&I strategy for DG DEVCO has resulted in an eclectic diversity of approaches on the ground with many worthwhile projects but few consistent threads. In the absence of an overall strategy, the core thrust of DG DEVCO's support to R&I and how it expects R&I to impact on development processes has remained unclear.

Box 13 Science and society – linking up for development impact

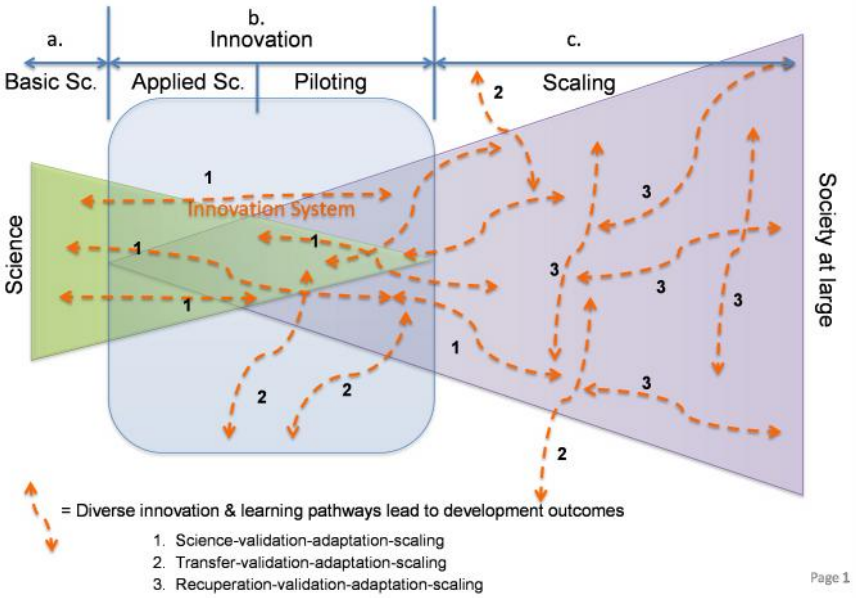
Innovation is where science and society meet. On the one hand the scientific community advances scientific understanding by finding answers to well-defined research questions. On the other, society may or may not incorporate and put to use the propositions springing from scientific research. In between, innovation systems provide spaces where multiple stakeholders, from policy and research institutions, from businesses, advisory and user organisations, meet and interact to specify, pilot and put to use innovations they consider helpful in advancing their objectives. Industrial and developing societies differ greatly in the extent to which they invest in and maintain a well-functioning innovation system. In developing countries, the 'innovation pathway' from research to societal transformation is winding and littered with obstacles and contextual determinants. This is particularly relevant if the aim of research is to contribute to development objectives, which are by nature transformational as expected with

the SDGs.

Moreover, technological innovation generally does not come alone. Social innovation (policy, regulatory, relational and organisational changes by government and private actors) is generally needed to turn it into a success. Therefore, a well-functioning innovation system allows scientists and other knowledge holders to identify potential stakeholders and beneficiaries of their propositions; to meet and collaborate with them in validating and adapting innovations within the practical conditions (markets, infrastructure, logistics, government policy, availability of services and inputs) that prevail in their society. It fosters communication between relevant parties (i.e. knowledge platforms, innovation conferences); it creates opportunities for collaboration (i.e. providing information on, or actually competitive funding for innovation projects), it strengthens intermediary institutions (markets, user organisations, advisory services, NGOs, policy making bodies) to play their role in enabling the widespread use of innovations; it monitors results and impact and, where necessary, it regulates particular interactions (i.e. IP, inclusiveness, taxes/subsidies).

The science-driven 'proposition-validation-adaptation-scaling' pathway (1) is only one of the *possible innovation pathways for development*. Other pathways include, (2) market or migration-driven lateral transfer of ideas, technologies or practices from one country/market where these are well known to other countries/markets where they are relatively 'new', and where they can be validated and adapted for local use. Usually, local adaptive research is still needed to achieve the contextualisation and widespread acceptance of the innovation in the destination country. A third pathway (3) involves the recuperation of propositions from traditional knowledge and practices and their validation and adaptation through exploratory and adaptive research with the communities owning this knowledge.

Figure 12 Innovation system: joining science and society for transformation



Source: Evaluation team with inputs from Practical Action

6.5.2 Internal lessons learning and sharing takes place at the country level but uptake in the EU Institutions, within sectors and at international level is less obvious (JC 52)

There is good evidence of internal lesson learning in EUDs and within some sectors, but less clarity on wider follow-up by HQ.

The evidence of internal EU lesson learning was mixed and varied from sector to sector and indeed from one programme to another. At the country level, EUDs visited during field visits displayed a high level of knowledge of the R&I-related results achieved in their portfolios and put a clear emphasis on communication of such results. This is also corroborated by the examples of specific cases of lesson learning provided by respondents to the EUD survey are given in the table below. However, it was not so evident whether this learning went further with follow-up by headquarters, sectoral desks or other relevant DGs and institutions.

Table 4 EUD survey respondents: examples of internal lessons learning

Programme	Lessons learnt	How they were communicated
National Support Programme to R&I	The governance and strategic aspects of R&I are more important and relevant than those related to specific sectors.	Communication through exchanges with DG RTD.
Research, Development and Innovation Programme	Decentralised programmes provide ownership of the government and ensure its commitment to the programme. However, the implementation might be difficult due to the difference between EU and national procedures.	Lessons not communicated.
Innovation for poverty alleviation	DG DEVCO and DG RTD support should be truly complementary to reinforce each other's objectives.	Lesson communicated through formal meetings and action has already been taken within the framework of the Multi-Annual Indicative Programming.
EU funded co-operation in the area of R&I	Various lessons from an evaluation study in the country.	Results were discussed at a workshop with government participation and the report sent to the Ministry of Education & Science.
Agricultural innovation for food security	The choice of the specific implementer guaranteed the credibility and legitimacy because of its anchorage in the region and high level of professionalism and institutional capacity.	Communication through ROM exercise.
Sugar sector	Research organisations should ensure that they have necessary financial capacity to meet their contribution whenever awarded a grant under any EU programme.	Communication to DG DEVCO (aware of the problem in the specific country).
Energy from coconut oil	Energy production is technically possible, but sustainability is limited by the human factor in management/maintenance.	[no information given on communication]
Health	The research agenda should be coordinated by the Ministry of S&T and line ministries at the national level.	Communication of this lesson through formal meetings and policy dialogue.
Local plants for global market	Involvement of the private sector is crucial to identify research areas.	Communication in stakeholder meetings.

Source: EUD survey

In FSNA lessons were generally shared at the country level with examples of some EUD officials taking a real interest and even finding extra funds for communication work.

In FSNA lessons on AR4D were generally shared and taken up in strategy documents. Evidence suggests that there is no systematic strategy to ensure lessons learnt from CGIAR experiences (e.g. concept of innovation platforms) or best practices are shared at EUD level between sectors, or between European External Action Service (EEAS) and EUD, or even between EUD and Brussels headquarters, and let alone beyond. In-country partners argued there was little space within R&I projects to document and capitalise on experiences gained. As a result, evidence of lessons learnt at country level being fed back to DG DEVCO sector officials was found to be scarce, and dependent on individual initiative. In Kenya, lessons were shared between FSNA and EnvCC sectors within EUD, mostly because a small group of EUD staff was responsible for both sectors. The experience of the EUROPAN programme in Peru has also been extensively documented and published by the EUD with the help of additional non-R&I funds.

Although in Health lesson learning was not always strong, in South Africa various factors combined to make it work well.

From the documentation, solid evidence was neither available for the Health nor the EnvCC sectors on any well-established mechanisms for sharing lessons learned. While in Health communication and consultation between different parts of the EU institutions (DG DEVCO and DG RTD) was found to have been extensive, it was largely ad hoc and its depth often called into question in interviews. Yet, field missions showed that good practice can exist on the ground. Thus, in South Africa, the combination of strong EUD capacity in R&I, a strong government Department with a clear policy vision, and support from the DG RTD S&T Counsellor in Addis has made for an unusually successful sharing of information.

SWITCH Asia includes a Network Facility to encourage lesson sharing across the whole programme.

One positive EnvCC example is SWITCH Asia which was designed as a regional programme with a strong Network Facility component for lesson learning, exchange and communication of results between individual projects. Yet, dissemination of these results remains a challenge, as in many cases there is no structured system of collecting R&I results and making them available publically beyond the levels of project briefs and newsletters. More details on the Network Facility and SWITCH Asia are given in the box below.

Box 14 SWITCH Asia – Transfer of R&I results into development processes

The SWITCH Asia programme includes at its core the transfer of innovative technologies and practices to encourage sustainable growth. SWITCH Asia builds on the Asia Pro Eco Programme's concept of matchmaking European engineers with industry in Asia to achieve a win-win in environmental protection and profitability.

Diffusion of innovation is achieved via a number of channels. The key means is via the grant projects that form the bulk of the programme budget. Many grant projects are focussed on supporting SMEs (and other organisations) in adopting sustainable production technologies and practices. All projects include a European partner and many of the innovations have originated in Europe. However, where possible, projects should also utilise locally produced technology. Along with technologies, innovations include management practices, certification processes and associated audit methodologies.

SWITCH-Asia projects often focus on the production and consumption cluster around a product/service, with the aim of creating functioning markets for innovations. They also endeavour to create the organisational ecologies that can nurture and foster sustainable technological innovation. The project consortia themselves are networks between HEIs, ROs, enterprises and intermediaries in both Asia and Europe. Such institution-building and networking is a direct part of project activities.

For broader dispersion, a SWITCH Asia Network Facility was created with the task of further spreading and scaling up successful pilots tested under grant projects, to new companies, and new regions. This includes networking with policymakers and research facilities and SMEs not directly included in grant projects. Networking takes place via regular regional workshops and network meetings and online forums. The workshops have been reported by researchers as particularly useful for disseminating results and identifying opportunities.

Grant projects have demonstrated significant potential for producing widespread and long-term adoption of innovations. However, obstacles were also identified which hindered their long-term success. First, the typical time length of SWITCH Asia project funding, and DEVCO project funding in general, is considered by implementers to be too short to ensure sustainable transformations in business. Second, even where the adoption of innovations would lead to cost reductions for SMEs, access, or perceived access, to affordable finance for making the necessary investments is lacking. The Network Facility is taking steps to improve such access.

In SISS some major programmes went into 2nd phases with lesson learning from one phase to the other.

In SISS, there was clear evidence of internal lesson learning both within the EU and in the supported partner countries in the several cases of major programmes being renewed into a second phase (e.g. MESA in Africa) and/or replicated in other regions (e.g. high-speed internet networks such as TEIN or ACP Connect).

6.5.3 External lessons learning, sharing and uptake within the sectors supported in partner countries, and at international level is extensive and largely effective (JC 53)

External lessons learning, sharing and uptake varies by sector and project holders find it inadequately supported.

Efforts on external lesson learning, sharing and uptake have been variable across the four thematic sectors being most developed in the FSNA and SISS sectors. On a general level, however, although a communication element is meant to be mainstreamed in all DEVCO-financed R&I programmes, specific evidence on DEVCO-supported partner country stakeholder involvement in international research networks was limited. This underscores the view expressed by many partners during the field visits about the lack of finance and space within R&I programmes to document and capitalise upon experience with multi-stakeholder R&I processes internationally.

Sector policy dialogue can provide a forum for external lesson learning if good participation is ensured.

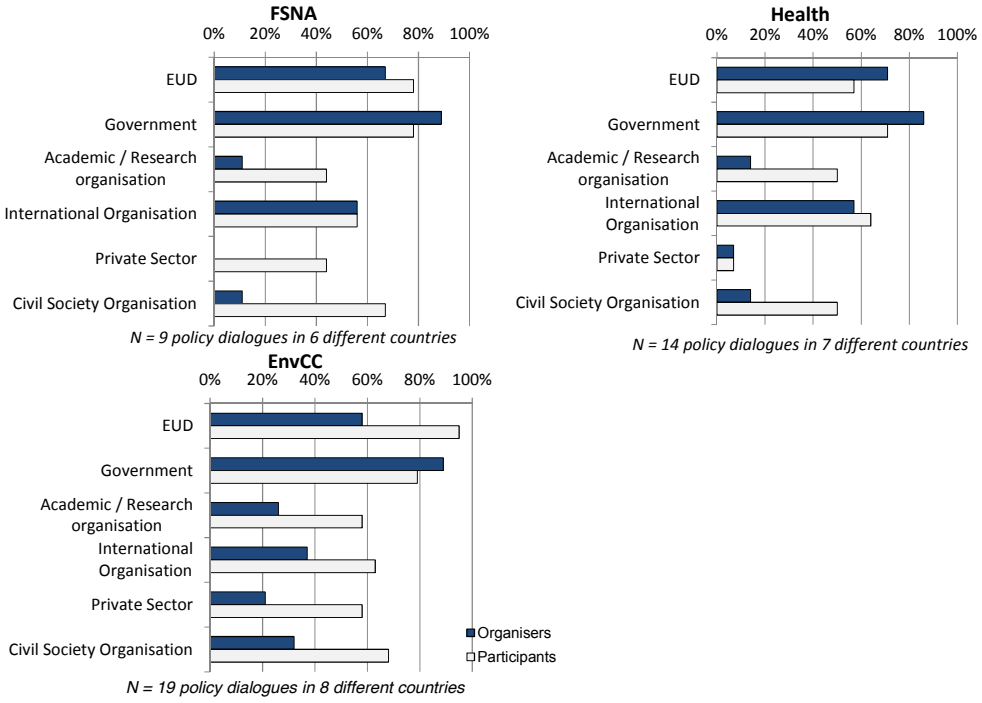
On the other hand the EUD survey showed that, in each sector, at least two thirds of the EUDs in countries with R&I support in that sector also participated in policy dialogue (see table below). Figure 13 further below shows the different group of stakeholders that have acted as organisers of or participants in sector-specific dialogues.

Table 5 EUD survey: participation in sector-specific policy dialogues

	FSNA	Health	EnvCC	SISS
Total no. of EUDs with R&I support in the given sector	12	12	13	5
of which:				
Participated in policy dialogue in the sector	6	7	8	2
Did not participate in policy dialogue in the sector	2	2	3	0
(No information about policy dialogue)	(4)	(3)	(2)	(3)

Source: EUD survey.

Figure 13 EUD survey: participants and organisers of policy dialogues by sector



Note: Multiple organisers and participant groups per policy dialogue possible. The graphs show the % of all policy dialogues in the given sector (i) that were co-organised (dark bars) by the indicated stakeholder group and (ii) in which the indicated stakeholder group participated (light bars). SISS omitted due to low number of responses.
Source: EUD survey.

The government has been a regular participant in most dialogues, whereas academics, research organisations and civil society are somewhat less frequently represented. Private sector participation is more variable and low in Health. This suggests that such dialogues can be good fora for external lesson learning between government and non-government actors but an effort needs to be made to ensure the latter and particularly the private attend.

Lesson learning and uptake is a major topic of international debate in FSNA.

In FSNA, communication is currently a major topic of discussion internationally and especially within the CGIAR, where the process around the adoption of the revised Strategy and Results Framework and its integration in the CGIAR Research Programmes has been closely linked to the uptake and impact discussions. There is no clear strategy, however, on dissemination of CGIAR research results. The reluctance of funders to contribute to core-funding and a demand for low overhead costs was pushing down the budget available for information management and communication strategies.

The FSNA regional programmes examined by and large have well defined strategies on knowledge and information sharing and the dissemination of best practices. The evaluation found a reasonably strong practice of learning, sharing and uptake of lessons from past experiences. However, the role of EUDs has been rather limited in the systematisation and capitalisation of these experiences except for additional funding for communication products.

In Health and EnvCC efforts have been made to encourage lesson sharing but evidence of actual uptake was limited.

As for the Health sector, explicit mechanisms were not found to exist to ensure that results are taken up in sector policy or programme design and evidence of uptake was limited. There are exceptions, however, as in South Africa, where R&I lesson learning is well mainstreamed into Health sector dialogue.

In the EnvCC sector, aside from the survey data, there are few explicit indications that sector policy dialogues include participation of researchers, innovation practitioners and entrepreneurs. That said, policy dialogue is an explicit element of the SWITCH Asia programme both in terms of the so-called Policy Support Component (PSC) as well as at grant-maintained project level. The SWITCH Asia Networking Forum observed in Delhi was well attended by project holders and government officials from around Asia. International organisations were also present, but few private sector participants other than those directly involved in supported projects.

In the SISS sector considerable effort goes into sharing innovations and encouraging uptake.

In SISS, there is a clear general intention to seek out opportunities for lesson learning, sharing and uptake, but it is not evident how to measure the quality of the interactions or what they precisely achieve in terms of uptake and follow-up. There were many levels at which dialogue took place (e.g. In the PASRI project in Tunisia dialogue sessions and multiple seminars took place involving large numbers of participants from both the research community and the private sector) and examples of lessons being learnt and rolled over into new programmes (e.g. MESA is built on the African Monitoring of the Environment for Sustainable Development). Moreover, the prime objective of establishing high-speed internet networks such as CAREN, @lis, TEIN or ACP Connect is the exchange of knowledge and data.

Many examples of such sharing and communication exercises taking place as integral parts of DEVCO-funded programmes (e.g. the MESA Forum in Addis Ababa, or the Ukraine Joint Support Office project) were found during field visits. Most of these tended to involve government and the research

communities but there are also cases of events, such as those organised by the PASRI project in Tunisia or the EBTC in India, that specifically focussed on the private sector and their uptake of innovation.

EU-partner S&T Agreements are a worthwhile tool to foster sustained R&I collaboration and dialogue. They are managed by DG RTD and the role of DG DEVCO is not clearly defined.

The EU's S&T Agreements foster a more established and on-going dialogue between the EU and those few states (e.g. India) with which such Agreements have been concluded. These dialogues involve different groups of actors on a variety of themes that cover both substance of different sectors and co-operation on regulatory matters. The Agreements thus have taken the dialogue between the EU and its partners to another level and the results are thus more systematic and sustained.

The processes around these Agreements are extensively supported by DG RTD and not just DG DEVCO and while the co-operation between them does work well in some instances (e.g. on the JAES) it is more tacit and low level in others (e.g. India) and the role of DG DEVCO in supporting could have been better defined. In India, the Agreement was in place for the entire period covered by this evaluation and has essentially been managed by DG RTD on the European side. It resulted in a series of jointly funded coordinated calls which were well regarded by Indian officials and researchers alike. In the case of the JAES, the role for DG DEVCO has been more substantial as the S&T dialogue was part of a wider continent-to-continent dialogue by EEAS and DG DEVCO.

Networking has been a frequent and valuable element of DG DEVCO support to R&I.

A good deal of effort and support has gone into establishing and supporting international dialogue networks in all four sectors. There is good evidence of active participation of partner country stakeholders including researchers at the international level. DEVCO-supported research networks have also played an important role in supporting development processes. There is evidence of this in all four thematic sectors, though it is clearest in FSNA and Health.

In both the FSNA and Health sectors DG DEVCO supports successful international networks.

In the FSNA sector, GFAR and the regional and sub-regional fora for agricultural research function as effective networks and platforms to promote knowledge sharing and promote uptake of AR4D. ASARECA is also valued by researchers as a good forum for regional exchange and knowledge sharing. Several examples of DG DEVCO external networking activities at country level were also found in the field studies.

In Health, the main network in which DG DEVCO is active is the Global Health Policy Forum. Yet, DG SANCO[28] and, especially, DG RTD, give the appearance of being more active members. A second network, financed by DG RTD but at DG DEVCO request and with significant DG DEVCO involvement, was the Go4Health network of developing-country experts contributing to the design of the health SDGs. A number of DEVCO-financed projects put international networks in place. Of particular importance were ANDI (African Network on Drugs and Diagnostics Innovation) and the network of 125 researchers involved in "Research and development for poverty-related, tropical, and neglected diseases." For both of these, there is solid evidence of active participation of partner country stakeholders.

[28] DG SANCO: European Commission's Directorate General for Health & Consumers

In the EnvCC sector however the level and impact of networking is limited.

For EnvCC, while there is little direct evidence on external lesson learning, programmes and projects have included significant networking activities and increased opportunities for researchers in partner countries to participate in international networks. Two different types of external networking activities have been initiated by DG DEVCO R&I interventions. The first are external networking activities ranging from institutionalised networking approaches (e.g. SWITCH Asia Network Facility and CGIAR centres) to ad-hoc but nonetheless frequent networking events. Second, programme documentation suggests that DG DEVCO staff participated in environmental international fora relevant to R&I. While networking *within* programmes is fairly widespread, no direct evidence was found of networking activities which led to exchanges between DG DEVCO programmes or even more broadly, which allowed exchanges between DG RTD and DG DEVCO. Neither was any concrete evidence found of lessons having been taken up as a result of networking activities.

In SISS networking is well established and effective.

For SISS, while there is evidence of partner country involvement in networking and lesson sharing internationally at the regional level (e.g. the DEVCO-financed AU-MESA project has a regular continental forum) and some with Europe, it is not clear how much this extends to the global level. Yet, just about all the programmes and projects examined do tend to have communication and networking components on a regional as well as national basis. Various examples of international seminars, networks and knowledge exchange exist and some projects have apparently developed specific case studies to demonstrate this knowledge sharing works in practice. The Latin American ICT sector structures appear to be among the more developed institutional partners with whom the EU works in this sector and there is evidence of lesson learning here.

6.5.4 Development processes and outcomes have been built on and used the results of research funded by DG DEVCO or shared through DEVCO-supported research networks (JC 54)

Field missions provided good evidence of development processes benefitting from R&I results.

Particularly during field missions good evidence was collected of development processes that had benefitted from R&I results that were derived from DEVCO-supported projects. The examples are perhaps strongest in FSNA where research and extension work are very much part of the tradition of agriculture development work, but also in Health where public health programmes are generally keen to take up the results of new research on diseases and drugs.

FSNA projects in various countries show impact at the farmer level.

Thus, in FSNA, significant evidence was found that DEVCO-supported R&I and knowledge management and communication have led to improved developmental outcomes. There is evidence of both public and private (farmers) uptake of results. For instance, projects in Peru, Ethiopia (see text box below), Kenya, Tanzania and Jamaica have all shown impact at the farmer level. Some of these also show innovation in locally-owned and sustainable solutions for the poor. In the public sector, local, regional and national governments were effectively engaged and strengthened to improve public sector uptake of R&I, mostly in collaboration with a range of other actors, including non-governmental organisations and the private sector. Programmes such as GPARD, Pro-Poor Innovation, ASARECA, IssAndes, applying similar comprehensive, multi-level and multi-stakeholder approaches on a global

or regional scale, were effective in doing so according to other evaluation reports and field studies.

Box 15 EU support to using R&I results in the Ethiopian coffee sector

During field work in Ethiopia, a variety of independent sources (different ministries, university researchers, a government research centre and EUD staff) confirmed that over some 30 years the EU had supported R&I work in the government's Coffee Improvement Programme (CIP). The CIP was vital to the Ethiopian economy as coffee was such an important export 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 the introduction of new seeds to farmers through extension services. The EU is the only donor at scale that has consistently supported the CIP and is widely recognised for this. The CIP falls under the agriculture support focus of the CSP rather than any explicit commitment to R&I. However, applied Research and Innovation including the transfer of results to 'end users' based on EU funding has been a continuous theme of this work for many years.

In Health DG DEVCO support has encouraged the diffusion of results.

In Health, the link of DEVCO support with development processes is strong and the support has encouraged the diffusion of results through a variety of means. There is also reasonable evidence of public uptake of results. In part because of WHO's long-standing role as a clearinghouse, the dissemination function of many major DEVCO-supported projects has been quite good.

EnvCC projects supported show results in terms of environmental factors but the impact on poverty is less clear.

For EnvCC, the evidence is less clear. There is an intention to support the poorest and most vulnerable but project objectives are often defined more in terms of environmental results. The evidence does suggest the intention for R&I interventions to shape development processes and there is some, albeit limited, monitoring and evaluation evidence to suggest that some of the projects seem to be contributing to development processes. Despite some issues and problems, projects and programmes have achieved a reasonable level of local ownership where this has been an explicit feature of their design. There is also evidence of cases of uptake of R&I results by the private sector (e.g. the ACIDLOOP project in India under SWITCH Asia). This is in part due to the strong emphasis within the SWITCH Asia programme on applied innovation in particular among SMEs. Multiplier type projects and the Network Facility have had particular potential in spreading innovations to a wide number of companies. However, there was no evidence of how successful the Network Facility has been in encouraging growth in the uptake of environmental innovations to wider audiences.

Data from SISS projects in ICT is widely used in development processes.

In SISS, there are various examples of development processes and outcomes that have built on or used the results of research shared through DEVCO-funded networks and processes. One good example is the AU MESA project in Africa which makes earth observation satellite data available to multiple users across the continent. The data is then used for providing services in many areas important for development such as meteorology, environment, water distribution, flood warning, soil fertility, farming, coastal fishing, river navigation, etc. It has also given African universities access to data which they use for their own research projects on local development issues.

DG DEVCO has financed several regional ICT networks to encourage the diffusion and sharing of knowledge between researchers. Potentially this has

greatly improved the infrastructure for R&I and with it the capacity of HEI and other ROs to obtain data and share research results though it is not possible to measure the impact on the uptake of R&I results by the public or private sector. There are both regional projects (e.g. such as the AU's MESA) and national projects (e.g. PASRI in Tunisia) that have created networks through which results and innovation have been disseminated to both public and private sector actors and subsequently used in development processes.

6.6 EQ 6: EU capacities

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?

Rationale and coverage of the question

EQ 2 looks at EU support to capacity development in partner countries. But in order to develop capacity in the field, the EU needs adequate capacity of its own, both at HQ and in EUDs. This EQ looks at the EU capacity in terms of staff and staff time, to formulate and implement R&I support programmes.

This question is articulated through three judgement criteria and a number of indicators, with detailed reporting in Volume 2.

Summary answer to the evaluation question

Broadly speaking, EU HQ capacity to deal effectively with R&I in development, in both DG DEVCO and DG RTD, is stretched, though probably sufficient for current needs, but neither DG has sufficient capacity in the field to deal with R&I as well as the priority assigned to it deserves.

At HQ, the tendency in DG DEVCO is for R&I to be dealt with by sector desks, which is not ideal but has nonetheless permitted the EU to engage in global and regional policy dialogue. In DG RTD, the limited time for dealing with developing countries, the skewed incentive system, and the differing perspectives of INCO and the thematic desks have been addressed in answering EQ 4; however, there is no headcount shortage

In the field, the situation is different. Few EUDs regard themselves as are adequately staffed with employees tasked with following R&I. This leaves the responsibility to sector experts who spend little of their time on it. On the DG RTD side, the paucity of Science Counsellors (and the plan to reduce their number further) impairs the EU's ability to project its priorities and promote its support in R&I for development to the level called for in policy statements.

Nonetheless, the EU has participated effectively in global and regional R&I policy dialogue. Many Delegations report having participated in national policy dialogue, although this is dependent on government interest and self-reported quality of dialogue tends to be either very negative or very positive.

Often underneath the radar, DG DEVCO has done a great deal to facilitate R&I for development, as has DG RTD. High-speed internet networks have been supported, as has networking broadly speaking throughout both DG's R&I engagement. DG DEVCO has supported dissemination of R&I results and has raised awareness of FP7 opportunities. Both DGs, as we have seen in EQ 4, have financed scattered efforts to build capacity to participate effectively in FP7.

Key points:

- More than 60% of EUDs evaluated their capacity for dealing with R&I related tasks as insufficient to carry out necessary R&I tasks.
- Field missions identified cases where DG DEVCO staff were largely unaware of DG RTD's activities. Only 16 EUDs, mostly high- or middle-income countries, have DG RTD Science Counsellors, whose participation in DEVCO work depends on co-ordination, priorities, and available time.
- While in all sectors the EU has been effectively engaged in global and regional policy dialogue, at country level, the quality of dialogue has received a mixed assessment. The existence of an S&T Agreement has a major factor encouraging effective dialogue.

- About half of EUDs responding gave support to disseminate the results of research financed by the EU. Everywhere in their support to R&I, both DG DEVCO and DG RTD promoted international networks. A major contribution in this respect was DG DEVCO support to the development of high-speed ICT networks.

6.6.1 EU internal capacity to manage R&I support and conduct policy dialogue is sufficient for current purposes at HQ but lacking in the field (JC 61)

Few EUDs are adequately staffed to deal with R&I as it deserves.

40% of EUDs have no staff dedicated to R&I, and where EUDs do have dedicated staff, approximately 80-90% of these spend less than 50% of their work time on R&I issues and some 60% spend less than one-quarter of their time. These figures were stable over the evaluation period. More than 60% of EUDs evaluated their capacity for dealing with R&I related tasks as insufficient to carry out necessary R&I tasks. This is not so much a problem where the R&I work supported comes under a specific sector programme or indeed a programme specifically dedicated to R&I (e.g. the PASRI in Tunisia). The problem arises more in relation to general national strategies on R&I or S&T. Field missions identified cases where DG DEVCO staff were largely unaware of DG RTD's activities, in part because (as discussed under EQ 4) DG RTD channels of communication often bypass the EUD.

HQ capacity at DG RTD is adequate although time available for developing countries is limited. Staffing is tighter at DG DEVCO; probably sufficient for current purposes but not for increased involvement with R&I.

At DG RTD HQ in Brussels there appear to be adequate levels of staffing though the split between INCO (international co-operation) and thematic units means that not all staff have the same commitment to R&I in developing countries. There is currently one INCO post dedicated to sub-Saharan Africa, essentially South Africa. In 2015, only 16 EUDs have DG RTD Science Counsellors, whose participation in DEVCO-related work depends on co-ordination, priorities, and available time. Most of these Science Counsellors have been posted to high or middle-income countries with whom R&I is a well-developed sector of co-operation.

At DG DEVCO, although there was a small increase in capacity during the evaluation period, in the DG DEVCO B4 Unit (Education, Research, Health & Culture) there is effectively only one post devoted to R&I. As a result, the bulk of the work on R&I must be dealt with through thematic units where R&I is only one concern among many. There is also about one post in EEAS. This suggests that there is insufficient capacity, or at least that, should DG DEVCO wish to increase its involvement in R&I, current capacity would definitely be insufficient.

In three of the four sectors examined – FSNA, Health, and EnvCC – capacity has been sufficient to engage effectively in global and regional policy dialogues.

In FSNA, the effective support to push for reform and align CGIAR research and programmes with European development policies and AR4D good practice suggests that DG DEVCO has adequate capacity. At the country level, there is very limited evidence on the capacity of the available staff to organise the policy dialogue around R&I related to FSNA. In Health, dedicated health programme officers are present in only half the 19 countries where health is a focal sector. In the field visit country where health was a focal sector, South Africa, the situation was deemed satisfactory, but as mentioned at many points, South Africa was an exceptionally strong example of EU R&I co-operation. For current global policy dialogue purposes, e.g. participating in the Global Health Policy Forum, available capacity is sufficient (and there has been a slight increase at HQ over time). The same goes for the ad hoc policy dialogue that occurs on the side-lines of meetings at WHO, at major events such as the launch of EDCTP, etc. In EnvCC, capacity for

conducting policy dialogue and managing R&I aspects of programmes is more in place at regional level than at country level in Africa, but the reverse is true in Latin America.

6.6.2 R&I policy dialogue is operational at all levels, but is lacking in poorer countries (JC 62)

The EU has participated in policy dialogues related to R&I financing and priority setting ensuring that EU-financed R&I results are included in sector dialogues.

In all the major areas considered, the EU has been involved in policy discussions and has paid attention to the importance of involving a range of stakeholders, such as members of the research community (both European and Third Country), policy makers, civil society representatives, and the private sector. The voice of the EU, and that of researchers whose work has been supported by the EU, has been heard in discussions about how R&I is to be carried out and how its results are to be mobilised for sustainable development. However, R&I dialogue with governments and stakeholders in powerhouses such as South Africa, India, and China which takes place at various levels right from the top down, is of a different order to what occurs in poorer developing countries. This results in a gap in EU policy dialogue on R&I.

S&T agreements were a significant factor encouraging R&I policy dialogue.

The existence of an EU S&T Agreement for the country concerned is an indicator of the importance the parties attach to the dialogue though this also varies over time. In India for example the dialogue was very active during the period covered by this evaluation but has slowed down latterly. Dialogue around the EU's formal S&T Agreements has essentially been supported by DG RTD and from two of the cases reviewed (India and African Union) where there is an S&T Counsellor this appears to have worked well. For Ukraine, however, despite the existence of an S&T Agreement there was no counsellor post at the time of the field mission in 2015.

Whether R&I is a part of country policy dialogue depends of the importance Government attaches to it.

At national level, the dialogues follow priorities set by the country and/or development partners. Where R&I is not seen as a priority for national development, as in Burkina Faso, it has not been part of the policy dialogue. Yet, evidence that stakeholder dialogues help matching country and regional needs with appropriate EU programmes for R&I support was found in Burkina Faso where this dialogue was initiated by the project implementers themselves. Where countries attached more priority to R&I, it has been part of policy dialogue and might have required more R&I capacity from the EUD. These latter countries may be those where DG DEVCO programmes may be phasing out (such as Peru).

Assessments of the quality of policy dialogue are variable, with a tendency to cluster at the extremes.

According to the EUD survey, six of 12 EUDs with R&I support to FSNA participated in policy dialogue in the area; in Health, seven of 12, in EnvCC eight of 13 and in SISS two of five. In 85% of all cases, government took the lead or co-lead in organising dialogue. Assessments of the success of policy dialogue were mixed - in FSNA, success was judged low or very low by 75% of EUDs responding; in Health the corresponding statistic was 54%, in EnvCC 58%. However, corresponding figures for success being judged high or very high were 25%, 45%, and 42% for the three sectors, respectively. Among major outcomes identified were consolidation of national R&I policy, identification of long-term research priorities for bilateral EU support, and initiation of the Horizon 2020 Association Membership. Only five of 17 responding EUDs had participated in regional R&I policy dialogue.

In every sector, examples were found of effective policy dialogue at regional and global levels.

In health, the EU supported groundwork for implementing the flagship policy regarding access to medicines in poor countries, the WHO Global Strategy and Plan of Action for Public Health, Innovation, and Intellectual Property. Health priority setting has taken, place, in addition, at major international meetings such as those of the Global Health Research Forum, Ministerial Summits such as that in Bamako in 2008, and specialist international scientific conferences and congresses. In Southeast Asia, the Regional Asia Dialogue Instrument funded by DEVCO-financed, among other things, discussions on human and animal health and infectious disease surveillance and control. At country level, the EU did not generally engage in policy dialogue on health R&I because few countries where the EU provides substantial support have such a policy. For South Africa, where there is a DEVCO-financed Dialogue Facility (see Box 16 further below), the field mission confirmed that R&I had been successfully integrated into all policy dialogues.

in SISS, the actual frequency and quality of the dialogue varies from one country to another. Policy dialogue is more frequent at the sector level than at the overall national level where the EU is not always involved (e.g. Ethiopia). At the sector level where the EU invests in support to SISS it generally also ensures it is equipped to handle the policy dialogue, including any dialogue on R&I that is relevant to the sector.

In FSNA, global and regional programmes such as GFAR, ASARECA and Pro-Poor Innovation actively aim to strengthen spaces for dialogue and actively participate in these. Global and regional policy dialogues of relevance to the CG system (GFAR) directly influence how DG DEVCO R&I funding is spent by the CG Research Programmes.

In EnvCC, the outputs of R&I related projects have been reflected in policy dialogue at global, regional and country level. Programme and project designs have explicitly aimed to inform environmental policy dialogues with R&I outputs. Examples at global level are GCCA; at regional level, SWITCH Asia; at national level, Sector Budget Support in Ukraine and South Africa, the Environmentally & Socially Responsible Tourism Capacity Development Programme in Vietnam and the *Caficultura Sostenible* project in Peru. For the projects at national level mentioned, policy dialogue has been carried out via the project team with little involvement of EUDs. While programmes and projects at all levels created institutional entry points, few direct indications were found that sector policy dialogue had led to either a formulation of country and regional needs or that these needs were matched to appropriate EU R&I programmes.

Box 16 TDCA Dialogue Facility – R&I policy dialogue in South Africa

A number of "dialogue support projects" in the key areas of co-operation were identified in the sector support with the Department of Science and Technology financed via the "TDCA Dialogue Facility." The Dialogue Facility was used to finance several projects (especially 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 South Africa). For instance, the Dialogue facility financed the elaboration of a "Research Infrastructure Road Map" (130,000 EUR, with DST on the South African side and DG RTD on the EU side).

Generally, R&I is a strong cross-cutting dimension in the whole EU portfolio in South Africa and informs many areas of EU-South Africa dialogue. Dialogue support projects covered environment and sustainable development, health, green growth sustainable energy and more. DG DEVCO was directly involved in support to policy dialogue on national health insurance. Dialogue has been particularly influenced by the clear priorities of the South African government, which is 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 gov-

ernment 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, good EUD capacity, and the support of the Science Counsellor in Addis. Areas of mutually reinforcing interest were, on the South African 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 South Africa, geographic advantage in specific areas such as astronomy, and South Africa's interest in being a regional promoter of S&T.

6.6.3 DG DEVCO actions have facilitated R&I activities (JC 63)

While there were a scattering of FP7 projects specifically aimed at increasing participation, the most consistent role was played by DG RTD Science and Technology Counsellors.

S&T Counsellors play an important role in facilitating R&I by information dissemination in the few countries they are based, but the decision has been taken to reduce their numbers. Activities under FP7 helped to inform researchers of opportunities and increase their capacity to apply and administer – examples are EECA_LINK in Eastern Europe and Central Asia, BILAT, and ERA-NET. The latter two also encouraged dialogue between researchers and other stakeholders, another form of facilitation. There are also a few projects (e.g. Ukraine Joint Support Office, Tunisia PASRI) specifically aimed at providing practical support to researchers seeking to access wider EU research funds, but there were few projects with this as a key objective. In South Africa, FP7-financed projects successfully increased awareness of FP7 funding opportunities and offered concrete assistance in working through the process. DG RTD also helped to publicise the 2010 Africa call using INCO CAAST-NET. Both region- and country-level programmes contributed, albeit not everywhere. Moreover, it is difficult to assess the actual availability of information in the research community. Here, a range of FP7 assessments have found barriers to Third Country researcher participation in the form of low awareness and high barriers to entry. FP7 funding has a reputation of being difficult to obtain and demanding to administer.

Significant efforts were made to advertise opportunities and share information on funding and academic mobility and scholarships.

Half of 19 EUDs responding to the question had provided information actions related to FP7 and 37% had provided information about DEVCO-financed research. These actions involved dissemination of information on thematic programme calls for proposals through EU Delegation websites, but also information fairs and events. A few projects in countries such as Ukraine, Tunisia and Georgia specifically aimed to encourage national researchers to participate in EU-supported R&I initiatives. A handful of responding EUDs had provided direct assistance in the form of workshops and written advice. As confirmed by field missions, EUDs also provided to support to external stakeholders (e.g. researchers) who had been involved in DEVCO-financed research; this support took the form of financing workshops, logistic support for conferences, etc.

DG DEVCO only rarely funded dissemination activities related to R&I results.

EUDs sometimes funds additional dissemination activities for results from DEVCO-funded projects. However, such funding is not an automatic part of DG DEVCO projects and not the norm. EUDs that do carry out such funding assist with practical advice on format of dissemination activities. EUDs consider that funding of workshops, to which policy makers at national and/or local level are invited, and publications are the most effective means of dissemination support, The EU had some dedicated communication channels for informing stakeholders in countries of international opportunities for research under FP7 and other DG RTD programmes. An example is the South East Asia and European Union Network Facilitator (SEA-EU-NET), an access point for research institutions to engage in FP7 projects. However, in-

formation exchanges on R&I opportunities within sector development areas are less obvious though channels were identified in India and South Africa and at regional level in Africa.

EU-financed ICT infrastructure facilitated information and knowledge exchange as well as formation of networks.

EU-supported high-speed ICT infrastructure encouraged and facilitated information and knowledge exchange. Researcher networks have been encouraged or even built around these internet connections, leading to knowledge exchange and collaborations. In some cases, EU-sponsored networks encouraged the sharing of knowledge; in others such as health, some EU (DEVCO) financed projects were able to disseminate and share information using the WHO websites or information networks developed by WHO. In all areas, the EU encouraged the formation of international networks. Networking of R&I stakeholders in the field of the Environment and Climate Change has taken place both in an institutionalised form (e.g. in the SWITCH Asia Network Facility) as well as project driven.

In each sector examined, DG DEVCO and FP7 projects led to the formation of international networks.

In FSNA, networking, visibility and dissemination of research results is central to the strategy of national and regional programmes (e.g. the Chile and Mauritius, Technology Transfer Action Fiche, Pro-Poor Innovation programme proposal). Practical support has been given in some of the countries by the EUD though quite some limitations in terms of reach and efforts to coordinate and communicate are noted. GFAR and ASARECA serve as a facilitator of global and regional research co-operation and creating partnerships between institutions and sectors.

In Health, DG DEVCO and FP7 initiatives served as the basis for network formation and informing national researchers of opportunities. Some of this occurs, as well, in the context of participation in DEVCO-financed regional and global networks such as ANDI, the WHO co-ordinated network under Global R&D into poverty-related diseases, and additional WHO-implemented, network-based projects in community health public health interventions and promoting R&I and technology transfer. In Africa, the Counsellor in Addis has successfully identified local researchers in the context of EDCTP. In EnvCC, networking of R&I stakeholders has been successfully taking place both in an institutionalised form (e.g. in the SWITCH Asia Network Facility) as well as at project level. SISS network activities took the form of financing the high speed internet networks described above.

7 Overall assessment

This Overall Assessment is built up using the framework of the OECD evaluation criteria and based on the responses to the EQs. The additional criteria of complementarity, policy coherence and visibility asked for in the ToR are covered with specific Conclusions in the next section (Section 8).

Based on the OECD DAC evaluation criteria, as detailed below, the overall assessment is two-sided. DG DEVCO support to R&I is certainly relevant but the assessment against the other DAC criteria is far more mixed. At one level there are many individual projects and programmes with a worthwhile R&I component that have benefitted from DG DEVCO support. The majority of these can also be seen to contribute to EU development objectives and the MDGs. On the other hand these efforts have not achieved critical mass nor a substantial overall result that might have left real improvements in the R&I institutional framework across partner countries.

Relevance – DG DEVCO support to R&I is relevant in different ways at both policy and practical levels.

DG DEVCO's support to R&I for development is relevant at several levels. First, it is relevant as a contribution to achieving the EU's development objectives and the MDGs (EQ 1). Research and Innovation are important inputs to development processes in terms of encouraging economies to become more dynamic and to resolve constraints (see text box below). Innovation is particularly essential for resolving problems in development, such as the need to adapt to climate change, with locally appropriate solutions. As the new 2030 Agenda makes clear (SDG 17, Targets 17.6-8), R&I will also continue to be a very relevant input to development processes. Second, DG DEVCO support for R&I has been relevant in relation to complementarity with the work of DG RTD which is not in a position to support R&I in developing countries to the extent and in the manner that it would be needed. Third, it is also relevant at the local level where the results of many individual R&I projects feed into local development efforts (EQ 5). Fourth, DG DEVCO support for R&I is seen as very relevant by research communities in partner countries (EQ 2) not least because it represents an important source of research funding in countries with little or no resources for R&I. Finally, DG DEVCO support to R&I is relevant in terms of the types of support DG DEVCO has provided: support to networking, capacity development at individual and institutional levels, dialogue on policy development and actual financing of research (EQ 5).

Effectiveness – The assessment of the effectiveness of DG DEVCO support to R&I is mixed.

Effectiveness of DG DEVCO support to R&I for development is more mixed. At the individual project level, the support has in many cases been effective in producing results and achieving objectives or for instance in getting some partner country researchers involved in international research work (EQ 2). Equally, the support to networks has proven an effective way of sharing knowledge (EQ 5). Overall, however, the support is largely ineffective because it suffers from the lack of an overall strategy.

Specific indicators of the overall lack of effectiveness include:

- Judged simply on the basis of whether DG DEVCO support to building up research capacity in partner countries to make their research communities better able to participate in DG RTD framework programme calls, the programme is not effective. DG RTD data shows some limited progress in this direction, but in most countries the capacity building task involved is too great and a much more concerted effort, stronger partnerships with other donors and a clearer strategy and stronger com-

mitment would be required (EQ 2).

- For instance, the EU's different mobility schemes may be an effective means of individual capacity building, but as they are largely administered in a manner that is not coordinated with wider R&I support they are not an effective input to institutional development (EQ 2).
- The modalities used are not always effective in terms of the needs of end users. There has been a good deal of funding via large scale intermediaries and some limited use of Budget Support, but there was also much reliance on project funding and calls for proposals which are problematic for individual project holders (EQ 3).
- The EU has used a wide diversity of different actors (channels) for support to R&I (EQ 3). While this indicates an open approach and a willingness to explore possibilities there is no overall strategy and decisions have therefore been essentially opportunistic. The effectiveness of different actors can therefore only be assessed on a case by case basis.
- The dissemination and uptake of results is largely ineffective except perhaps at the most local level. Effectiveness in this area is particularly affected by the widespread lack of attention paid to establishing conducive institutional frameworks for innovation.
- While the EU has the capacity to participate effectively in policy dialogue on R&I at the global and regional levels, it generally did not have the capacity to do so effectively at the national level (EQ 6).
- Despite an overall entente and some good examples in certain EUDs, co-ordination with DG RTD is not as effective as it could be.

Efficiency – DG DEVCO support to R&I is often efficient at the local level in individual projects but overall does not up to a cost effective way to develop national R&I systems.

The support provided to R&I is again often efficient at the individual project level but inefficient as an overall contribution to R&I. The support has been very dispersed at three geographical levels (global, regional and national) and with multiple different actors (EQ 3). While this is certainly commendable as an open and exploratory approach the efficiency involved is very variable (EQ 3). The lack of an overall strategic approach undermines the DG DEVCO's ability to guide choices and focus action on the most efficient approaches. In particular, insufficient attention has been paid to supporting national R&I or S&T strategies and the establishment of institutional frameworks for innovation which would have greatly increased the efficiency of the R&I system at the national level.

Many of the elements of the support provided can make an efficient contribution at the local level but, overall, without a coherent overall strategy they do not add up to an efficient contribution. Equally, support to individual capacity building has also been inefficient in terms of its overall contribution to the EU's R&I for development effort though it helped individuals. Co-ordination between DG DEVCO and DG RTD has not been as efficient as it could be (EQ 4).

Impact – The overall impact of DG DEVCO support to R&I is limited.

Again impact can be seen at the local level in the way many individual DEVCO-supported R&I efforts fed results into local development processes (EQ 5). The overall impact has however been limited. An assessment can be made against the objectives

by using the reconstructed intervention logic for DG DEVCO support to R&I which suggests five specific impacts. Considering each in turn the impact achieved can be seen to be limited:

1. More innovative development solutions to development problems and global challenges – The impact here is limited. As indicated the impact of individual projects can be seen at the local level in many cases (EQ 5) but the overall progress against this result is not evident.
2. Policy makers more attuned to using and dispersing development results – Again examples of this can be found in relation to a good number of the projects supported, but an overall impact of this nature across all developing countries cannot be demonstrated.
3. R&I in developing countries adjusted to their needs – There is no evidence that this has been achieved on any meaningful scale, though individual projects show impact in this respect.
4. More effective mobilisation of European expertise for addressing global challenges – European expertise on global challenges has been mobilised on a limited scale through the various joint research consortia and the global research programmes of organisations such as CGIAR and WHO.
5. More EU funded research conducted in developing countries – The inventory shows that the volume of EU funded R&I in developing countries is substantial and has increased with respect to the previous funding cycle (pre-2007).

Sustainability – DG DEVCO was not able to build sustainable solutions for its partners on funding R&I in the longer term.

Various issues with sustainability were identified during the evaluation, giving rise to an overall negative assessment. The essential problem was that in providing support DG DEVCO was not able to build up sustainable solutions for its partners to funding R&I beyond the term of the DG DEVCO funding. Thus, while the projects and programmes funded were useful in themselves, they often depended on continuing EU support (EQ 2). The project funding modality used in many cases is also problematic for individual researchers or low capacity research organisations, from a sustainability point of view (EQ 3). In most partner countries, there was little or no institutional support for R&I, both in terms of institutional infrastructure for R&I and in terms of research funding. Many researchers were therefore operating on minimal resources unless they could join international research consortia funded by the EU or other donors.

As with effectiveness, finding sustainable solutions for supporting R&I for development in partner countries will thus require a much more concerted and strategically thought through approach, which DG DEVCO and DG RTD could be a part of, but is likely to also require wider partnerships.

8 Conclusions

Four clusters of conclusions.

The conclusions are grouped under four headings:

1. Policy and strategic focus: conclusions 1 to 4.
2. Operational approach: conclusions 5 to 7.
3. Complementarity with other EU services: conclusions 8 and 9.
4. Results: conclusions 10 to 13.

8.1 Policy and strategic focus

8.1.1 Conclusion 1: DEVCO's sectoral approach to R&I has been effective but has limitations

DG DEVCO's sectoral approach to support R&I has been broadly effective within the parameters set for each sector. However, this approach limits DEVCO's ability to have a major impact on the use of R&I as a tool to foster development and economic transformation in a world characterised by increasingly rapid scientific and technological change.

DG DEVCO's support to R&I for development was conducted in a dispersed manner as part of individual sectoral programmes and the regional pan-African programme under the JAES. While this was valuable at sector level it has not created a wider momentum that could have a more strategic impact on establishing conducive environments and a stronger overall drive for promoting R&I. As a result, the economic transformation that would result from a clear overall commitment to R&I for development, including support to national innovation systems as well as sectoral work, was not achieved.

This conclusion is based mainly on EQ 1.

DG DEVCO's support to R&I for development has been conducted at a sector level. This has generally worked well and in each sector examined a more or less effective strategy was developed that aligned well with EU development policy objectives. The scale of funding from one sector to another, however, varied considerably with FSNA accounting for 45% of the total identified.

Of the four sectors examined, FSNA was found to be the one with the best developed, and indeed widely respected, policy on agricultural research for development (AR4D) with a consensus on strategy that encompasses not just the Commission but also EU Member States. In Health, there was also a wider European consensus around the WHO Global Agenda which has been the prime basis of DEVCO support for R&I in this sector. In EnvCC, the approach revolved more around EU designed programmes (e.g. GCCA, SWITCH-Asia), and in SISS the emphasis has been on support to regional bodies (e.g. ACP and AU/pan-African JAES) interested in developing science and technology and on the building up of regional ICT infrastructure.

However, what does not emerge from the evidence is any strong commitment to supporting R&I or S&T in a systematic way in partner countries, despite the growing importance these have for economic transformation at a time when scientific and technological change is occurring rapidly and developing countries are in increasing danger of being left behind (see following Text Box).

Box 17 The importance of S&T for development

The World Bank has regularly argued that S&T policies are important for development and with the rapid pace of advancement of scientific knowledge, this is becoming ever more true. Most developing countries are ill-prepared for the rate of change in S&T which places them at a serious disadvantage in development terms.[29] The Bank has also advocated building up what it calls the four pillars of the knowledge economy: (i) the policy and institutional

[29] Watson R, M Crawford and S Farley, *Strategic Approaches to Science and Technology in Development,* World Bank Policy Research Working Paper 3026, Washington DC, April 2003

framework, (ii) innovation systems, (iii) education and lifelong learning, and (iv) information technology infrastructure and electronic development.[30]

The Bank's Guide for developing countries on Innovation Policy[31] takes this further and stresses the importance of technological innovation for developing countries and their need to tap into fast changing technologies in fields such as IT, biotechnology and nanotechnology. This can be supported by appropriate government policy. *"Innovation depends significantly on overall conditions in the economy, governance, education and infrastructure. Such framework conditions are particularly problematic in developing countries, but experience shows not only that proactive innovation policies are possible and effective but also that they help create an environment for broader reforms."* The Guide emphasises the value of 'innovation systems' involving multiple private and public actors and outlines the role of governments in facilitating them, by:

- Supporting innovators through appropriate incentives and mechanisms;
- Removing obstacles to innovative industries;
- Establishing responsive research structures:
- Forming a creative and receptive population through appropriate educational systems.

The innovation systems approach is also seen by researchers at UNU-MERIT[32] as a valuable tool to explain the reasons behind varying economic performance in developing countries. OECD[33] notes on innovation also outline a similar list of five key areas for government action:

1. Effective skills strategies;
2. Sound, open and competitive business environment;
3. Sustained public investment in an efficient system of knowledge creation and diffusion;
4. Increased access and participation in the digital economy;
5. Sound governance and implementation.

The UNCTAD Technology and Innovation Report[34] underlines the importance of innovation policies for industrial development in developing countries.

8.1.2 Conclusion 2: R&I contribution to EU development objectives is poorly understood

The lack of a clear overall strategy (beyond sector strategies) for DEVCO support to R&I for development means the valuable role this support plays in achieving EU development objectives is poorly understood and not recognised.

As a result of the lack of a clear overall strategic approach in DG DEVCO's support to R&I, the extensive and often well-targeted support DG DEVCO provided to R&I within individual sectors was hidden, poorly understood and not widely recognised, neither internally nor externally. Internally, this has undermined the ability of staff to work together in a coordinated fashion that can achieve higher impact. Externally, a lack of recognition of DEVCO as a major actor in R&I is likely to weaken demand from partners.

This conclusion is based mainly on EQ 1.

While DG DEVCO acknowledged the potential contribution of R&I to development and the achievement of the MDGs and there was recognition that it had a different role to play than DG RTD, there was no clearly formulated strategy or policy statement recognised across the DG or by other DGs. As a result, the importance attached to R&I has varied both by sector and by country or region. In addition, the guidance of the Agenda for Change for EU support to focus on two or three sectors per country militated against support to R&I as the latter was hardly ever seen as a priority 'sector' in its own right. As a consequence, much of DG DEVCO's support to R&I was below the radar, hidden in sectoral support programmes where its true extent and value was neither recognised nor capitalised on more widely.

[30] Goel VK, E Koryukin, M Bhatia and P Agarwal, *Innovation Systems: World Bank Support of Science and Technology Development*, World Bank Working Paper 32, 2004
[31] World Bank, *Innovation Policy: Guide for developing countries*, Washington DC, 2010
[32] Lizuka, Michiko, *Innovation systems framework: still useful in the new global context?,* UNU-MERIT Working Paper Series 2013-005, Maastricht, 2013
[33] OECD, *The innovation imperative: Contributing to productivity, Growth and Wellbeing*, STI Policy Note, October 2015
[34] UNCTAD, *Technology and Innovation Report 2015: Fostering Innovation Policies for Industrial Development*, UN, Geneva, 2015

In various places and contexts, DG DEVCO policy documents and officials spelt out the link between R&I and the development objectives in clear and convincing terms. The overall picture of the approach that could be built up from these statements was logical and coherent (see IL diagram in Figure 2). What was lacking, however, was a single statement of intent on R&I for development and a clearly articulated commitment to its implementation. The Commission-wide policy statements on R&I that did exist spelt out the role of DG RTD and did not distinguish a particular complementary role for DG DEVCO support to R&I for development.

8.1.3 Conclusion 3: Possible pillars for a structured strategy

Despite the lack of an overall policy and strategy, many of the individual projects with R&I components supported by DEVCO showed potential as examples of good practice on which to build a wider structured strategy that can also be adapted to the varying circumstances of countries at different stages of development.

DEVCO funded projects showed a wide variety of effective practices in support of R&I. These include, inter alia, examples related to supporting research networks for knowledge exchange and capacity development, encouraging innovation uptake in the private sector, developing institutional capacity, providing infrastructure for research, as well as funding actual research and supporting the establishment of national innovation systems. The manner in which these approaches are deployed and combined vary by sector and by level (global, regional, national) according to the availability of appropriate partners (see Conclusion 4) and by the level of development reached in each country. Lessons from experience at the national level provide solid building blocks from which to derive a typology of differentiated approaches for R&I support in different circumstances (see Recommendation 2).

This conclusion is based mainly on EQs 2, 5 and 6.

Among the initiatives funded by DEVCO a number stand out as providing examples of good practice that can be a replicated or provide a source for inspiration in future support to R&I and should be integrated in future strategies.

1. Research networks such as ASARECA (see Box 6 in Section 6.2.4) provided researchers with useful support for knowledge exchange and capacity development. A number of supported projects also included a networking element (see SWITCH-Asia or the MESA project under the JAES – Box 14 and Box 5 in Sections 6.5.1 and 6.1.2 respectively) which produced useful exchanges among researchers and with other stakeholders
2. Encouraging innovation uptake in the private sector was not extensively represented in the sample of projects studied. However a few examples did stand out: (i) The European Business Technology Centre in India or EBTC (see India Country Note, Volume 4, Box 2) which facilitates the introduction and adaptation of technologies in use in Europe to the Indian market; (ii) the PASRI project in Tunisia (Box 12 in Section 6.5.1) which sought to encourage innovation in the private sector by encouraging the academic community to research into the needs of industry; and (iii) the SWITCH-Asia programme (Box 11 in Section 6.5.1) which sponsored the introduction of innovative green technologies to the private sector (see also India and Vietnam Country Notes in Volume 4).
3. Developing institutional capacity: In South Africa, DEVCO has supported the government's Department of Science and Technology (DST) (Box 7 in Section 6.3.1) to develop its capacity to support R&I in the country. Similarly, in Tunisia the DEVCO funded PASRI programme (Box 12 in Section 6.5.1) has helped the government develop a national S&T policy.
4. Providing infrastructure for research: One of the major areas of DEVCO support in collaboration with DG CONNECT has been to fund the establishment of high-speed internet networks for data and knowledge exchange between researchers in different regions (e.g. TEIN, @lis, ACP Connect).
5. Funding actual research: While much of DEVCO support has been for capacity development the DG also responded to the dearth of research finance in developing countries by funding actual research through different routes. For instance, this occurred as part of sectoral support programmes

(e.g. Coffee Improvement Programme in Ethiopia – Box 15 in Section 6.5.4) or through global research organisations such as CGIAR (Box 8 in Section 6.3.2) or even by helping regional organisations such as the AU to establish the Africa Research Grants programme (Box 5 in Section 6.1.2 on JAES). Equally, DEVCO has worked with RTD to help design a dedicated research call, the FP7 Africa Call which was widely welcomed in Africa. RTD has also done dedicated Calls for other developing countries such as the India FP7 Co-ordinated Calls, but usually its FP7 calls were global in nature which means they tended to be less relevant for developing country needs and competition is global.

6. Supporting the establishment of national innovation systems. The importance for development of establishing such systems has regularly been spelt out by the World Bank and others (see Box 17 above). The value of these systems was noted in a few cases where DEVCO support has been provided to efforts to promote such initiatives (e.g. DST, South Africa and the PASRI programme in Tunisia – Box 7 and Box 12 in Sections 6.3.1 and 6.5.1 respectively). Equally, the lack of such conducive environments for R&I was sorely felt in other countries (e.g. Burkina Faso Country Note) visited. Where opportunities exist and partner country governments are interested, this is an area of major potential for DEVCO support to R&I.

8.1.4 Conclusion 4: Partnerships at different geographic levels are effective

Well-chosen partnerships at different geographical levels have allowed DG DEVCO to support different types of effective R&I initiatives.

DG DEVCO has effectively supported R&I actors at multiple levels – global, regional and national. While practice varies somewhat from sector to sector, some commonalities emerge. Thus, each level has its own value and logic, and, where opportunities in terms of effective partnerships exist, all three can be usefully combined to provide a range of specific types of support within an overall strategy.

This conclusion is based mainly on EQs 2, 3 and 6.

DEVCO worked at all three geographical levels – global, regional and national – with varying degrees of effectiveness depending on the opportunities and partnerships available. The alignment of the DG DEVCO support with identified R&I needs has been good at the global and regional levels though more variable at national level (EQ 2).

At the global level, the EU has been an active participant and strong supporter of international fora that identify priorities and conduct research (e.g. WHO in the health sector, CGIAR/GFAR for agriculture). Involvement in policy dialogue on research priorities and methods has proved to be vital for these partnerships to work well for effective R&I for development (e.g. Box 8 in Section 6.3.2 on CGIAR). At the regional level, the EU sought to engage with and use regional partners as a vehicle for supporting research programmes with some promising results (e.g. Box 8 in Section 6.3.2 on CGIAR), but the extent to which this has been possible was limited by a general lack of relevant actors in different regions.

At country level, the importance attached to R&I was found to be largely dependent on EUD capacity (EQ 6) and whether or not the country had a clear R&I policy (EQ 2). Where partner country governments had a clear stated policy and interest in developing R&I this was occasionally, though not always, taken up as a good entry point for providing EU support, sometimes even through Budget Support (EQ 3). The approach was, however, largely ad hoc, country by country, and no apparent effort has been made to think through an overall strategy for the different types of support for R&I that partner countries might need at different stages of their development. Where R&I support was framed by a sector policy, it has tended to be invisible, though in some sectors (e.g. agriculture) it often constituted an important element of the work the EU supported.

The lessons from these experiences do however suggest that all three levels can provide appropriate and useful opportunities for specific types support of R&I for development. These lessons can be characterised as follows:

- Partnerships with global organisations such as the CGIAR in FSNA and the WHO in Health have given the EU the opportunity to effectively influence and support global research agendas tackling global challenges in these areas. While global in design, these programmes also contribute to R&I results that impact on development outcomes at the national and even local levels.
- Working with regional organisations such as the African Union (JAES) has allowed DEVCO to support initiatives that build up the R&I 'infrastructure' (strategies, funding for research, access to data and physical ICT infrastructure) across multiple countries, helping both regional organisations and governments. The regional level has also been very important in terms of encouraging knowledge exchange, learning and capacity development through support to regional networks of researchers such as ASARECA in FSNA or around the DEVCO's own regional initiatives such as SWITCH-Asia in the EnvCC sector. In due course these networks provide the building blocks for future participation in wider international networks and consortia.
- Finally, national level partnerships have been more about support to individual R&I projects and sector programmes. But equally and very significantly, as a couple of examples show (PASRI Tunisia, DST South Africa), action at this level can be about supporting government initiatives to establish national frameworks for R&I with elements such as a well formulated S&T policy, a conducive regulatory framework for R&I and a national innovation system that brings together government, research and private sector actors in a common endeavour to encourage collaborative work and mutual cross-fertilisation.

8.2 Operational approach

8.2.1 Conclusion 5: Main elements of support to R&I need to be supplemented

The basic logic of DG DEVCO's support to R&I is similar from one sector to another and is generally solid, but it has not been deployed in a consistent fashion and could be further developed.

The overall logic to DG DEVCO's sectoral support to R&I for development is generally solid and consists of five principal elements: support to networks, capacity building, careful selection of partner institutions at different levels, policy dialogue and some actual funding of research. However, the capitalisation of results (covered in Conclusion 12) is not well catered for and little attention has been paid to establishing national or regional environments that are conducive to R&I or specific innovation systems (Conclusion 11). Moreover, the package has not been deployed in a consistent or even well-argued manner, but has rather been used as a menu of elements to be drawn on in a piecemeal fashion.

This conclusion is based mainly on EQs 2 and 3.

Many examples of all these five inputs, which are all reflected in the reconstructed intervention logic, were found and were regularly present in different programmes. The one item of the intervention logic that is largely missing, however, is the promotion of innovation, societal uptake and use of research results. The five inputs can thus be seen to constitute the basic features of a DG DEVCO approach to R&I for development. However, they were not all used everywhere and the evaluation could not identify convincing arguments why certain elements were present in some cases and not others. Their use therefore seems opportunistic, ad hoc, and personality-driven and there is little sense that this package was seen as whole to be strategically deployed and systematically adapted to each situation or set of circumstances.

1. *Support to networks:* The mainstreaming in all DG DEVCO R&I actions of support to networking and international scientific networks was found to be one of the most valuable contributions of support to R&I (EQ 2). The practice of support to networking was also found in cases of DG RTD support and the networking between DG DEVCO and DG RTD supported research projects often intermeshed. Networks provided a framework on which to build Research and Innovation efforts by underpinning capacity building, knowledge and data exchange, collaborative work and dissem-

ination of results.

2. *Capacity Building:* Support to capacity building was interpreted in a broad manner and provided for individual and institutional development, the latter both at the level of individual research organisations and at the national/regional institutional levels.
    a) One effect of supporting networks was to build individual-level capacity though this also tended to create the basis for effective institutional collaborations necessary for future research. Extensive and growing use has been made of Erasmus Mundus and other mobility programmes to develop research capacity (doctoral and post-doc levels). Although these essentially supported individual capacity building rather than that of institutions, down the line these individual grants played a significant role because it was often through them that partner country researchers were first integrated into international networks and research consortia that would later be important for future R&I development.
    b) Although DG DEVCO did provide some support for *institutional capacity* building, the simple hypothetical model whereby DG DEVCO would finance the institutional strengthening of research organisations with the result that there would be greater participation in DG RTD's FP7 was found to be too simplistic (EQs 2 and 4). Two main reasons for this were identified. First, the level of excellence in both science and research management required to take the lead in FP7 (now Horizon 2020) or other international consortia successfully is very high. Years of sustained, predictable institutional support would be necessary to bring most institutions in poorer countries up to this level. But DG DEVCO's modalities and systems are not well suited to provide such long-term support (EQ 3). Equally, the evaluation found no concerted or coordinated approach to promote FP7, although some efforts have been made to do so in a few instances and networks supported turned out to be particularly helpful for this (EQ 6 and EQ 2). Second, even in better-off Low and Middle-Income Countries (LMICs) where institutions are capable, or close to it, of leading international research consortia, the heavy administrative management responsibilities of FP7 reduced its attractiveness (EQ 2); so too, for institutions without a solid track record, does the relatively high risk of being turned down after investing considerable efforts. However, FP7 funding has been recognised by project holders as valuable for international research collaboration, capacity building, institutional development (EQ 2) and as a source of research results and data. All in all, the evaluation found a strong incentive for partner country institutions to 'free-ride' off the management capacity of major European universities and there is quite some way to go therefore to build up institutional capacity of developing country ROs to the point where they would easily take on the leadership of DG RTD framework programme projects.
    c) In certain cases DG DEVCO support to institutional capacity building went beyond individual ROs to work on establishing more conducive environments for research. Thus, a few programmes focused on supporting the development of national or regional policy and regulatory frameworks. Some even took this to the level of supporting the development of a national system of innovation. Where partner governments were open to such collaboration, this support proved an extremely promising approach. DG DEVCO also enhanced the physical working environment for R&I by supporting infrastructure development for instance with extensive funding of high-speed regional internet networks for the exchange of data and knowledge for research.
3. *Suitable partners:* DG DEVCO worked with a wide range of partners on R&I at national, regional and global levels. These included universities, research institutes, government departments, NGOs, private sector organisations and aid agencies as well as regional and global organisations such as the ACP Group, the AU Commission, CGIAR and WHO. Overall, the choice of partners was well reasoned and appropriate (see Conclusion 3) in each case and adequate steps were taken to make the selection. The evaluation found no systematic efforts to choose one type of partner or another, nor did one type emerge as particularly appropriate overall. That said some partners, depending on their capacities, had difficulties with some of the modalities and proce-

dures used by the Commission (see below). In sum, DG DEVCO was open to supporting research wherever it was being done and considered all options in terms of actors, though it was not always able to adapt its modalities to suit the capacities of partners.

4. *Policy dialogue:* Considerable emphasis has been put on policy dialogue on R&I and, in many cases sufficient resources were made available for this work at all levels, though not in countries with weakly developed R&I infrastructure and institutions. At the same time instances of the EU engaging the government in a dialogue on overall national (rather than sectoral) R&I or S&T policy were rare. In answering EQ 6, the evaluation found that the EU has been involved in a full range of policy dialogue processes and generally has the capacity to do this at global and regional levels but not at national level (see Conclusion 1). As a result, the content and quality of this dialogue also varied hugely. Effective regional authorities with whom to engage on R&I do not always exist. Nor are all partner country governments in a position to institute a national R&I policy or indeed follow it through with clear implementation programmes even with external support. However, where they are, a few cases showed this was a valuable opening the EU could exploit, and did not (e.g. Ethiopia). In many cases the policy dialogue remained at the sectoral level and did not expand beyond that.
5. *Research funding:* While actual funding of research is the core remit of DG RTD, rather than of DG DEVCO, it emerged from many interviews and examples that there is an also a strong case for DG DEVCO to be involved in the direct funding of R&I for development. First, because actually doing research and engaging in innovation processes with multiple stakeholders is crucial to organisations and institutions in developing countries 'learning-by-doing' research for development. Second because of the dire need for applied and operational research as a core contribution in effective development programmes. DG DEVCO financing of actual research is already occurring in many ways through sector projects and programmes that involve an R&I element (common in the agriculture sector), through funding the internationally negotiated research programmes of global organisations such as the WHO and CGIAR and even through a couple of research grant schemes such as the ACP S&T Programme or the AU Research Grants which are run on a call for proposals basis akin to that used by DG RTD in FP7. There is a dearth of funding for research in many developing countries and these limited grant schemes have been welcomed locally as filling a gap, though the longer term sustainability of these promising initiatives remains in doubt.

8.2.2 Conclusion 6: Use of instruments and modalities not strategic

The use of instruments and modalities has shown little strategic thought and created issues regarding flexibility and matching funds with the longer cycles required for research and for innovations to achieve impact.

DG DEVCO used its full range of instruments and modalities to fund R&I programmes yet with little apparent strategic thought on how these might affect the conduct of research. Research and innovation often follow unpredictable paths and some DEVCO modalities are not as flexible as would be desirable. Equally, R&I often operates in longer cycles than are possible with DG DEVCO procedures. Sustainability is therefore a serious issue.

This conclusion is based mainly on EQ 3.

DG DEVCO flexibly used a variety of channels to support R&I including appropriate global channels such as WHO and CGIAR or regional channels such as the AU or the GCCA. Civil society organisations, NGOs, research organisations and universities with appropriate expertise were well represented. The matching of channels to needs was generally good and comparative advantage was taken into account. However, the limited use of Budget Support is striking. The obvious explanation for this (see also Conclusion 3) is that relatively few countries where Budget Support is in use have sector or overall national R&I or S&T policies.

However, also missing was the use of Budget Support funds particularly to encourage nascent efforts to formulate national research policies and priorities, either at the sector (e.g. Peru nutrition policy) or

national (e.g. South Africa) levels. Such efforts to establish national S&T policies and frameworks were found to be underway in some countries studied (e.g. South Africa, Tunisia, Peru and Ethiopia), but the relevant EUDs were not always engaging with them (e.g. Ethiopia and initially Peru).

While considerable programme or project funding has been channelled through government entities or international organisations which by and large are well equipped to work with EU procedures, difficulties did arise in matching the three to four year cycles of EU with the longer cycles required for research (e.g. research on livestock typically requires a minimum of seven to ten years). Equally, building up institutional research capacity requires sustained funding over at least a decade. Sustainability is therefore a serious issue with DG DEVCO procedures.

Moreover, project funding with Non-State Actors or universities using calls for proposals raised a whole series of issues for grantees (e.g. high transaction costs, unworkable procedures, costs that could not be financed, lack of sustainability) which meant that dealing directly with the Commission was often not an attractive or viable option.

Thus overall, the full range of available instruments was used, but, judging from strategic documents and interviews, the choices between them were largely ad hoc. Moreover not all modalities suited the needs and constraints of beneficiaries even though they were appropriate in Commission terms.

8.2.3 Conclusion 7: Inadequate capacity

DG DEVCO capacity dedicated to R&I has been inadequate, particularly in EU Delegations.

DG DEVCO capacity dedicated to R&I has been inadequate for a domain so important for economic development. This reflects the lack of strategic priority attached to it in DG DEVCO. Yet R&I is important for economic transformation in all developing countries and as countries develop and move towards LMIC status, demand for support and capacity in R&I will grow. If DEVCO wants to be part of the response to this demand then it needs to invest in the necessary capacity.

This conclusion is based mainly on EQ 6.

Throughout the period under evaluation, DG DEVCO capacity for supporting R&I as a sector in its own right at the national level has remained inadequate in EUDs, though better when R&I was covered within sectoral programmes. Experience in sectors such as FSNA demonstrate the importance of investing in R&I even in poorer countries and DG DEVCO has, by and large, responded to this with expertise at the sector rather than national level. At HQ, capacity also remained limited and has also been organised mostly on a sectoral basis with little central capacity to guide overall strategic thinking. Capacities to support regional and global policy dialogue and programmes have been stronger particularly when supported from HQ by sectoral desks.

The extent of resources allocated to support R&I for development managed by DG DEVCO is hard to ascertain with any degree of precision. But over EUR 1 billion's worth of contracts which included some element of support to R&I were identified, indicating substantial support. In some sectors such as health and agriculture the importance of R&I is well recognised and better catered for, but even these efforts would benefit from a more concerted overall strategic approach to supporting R&I for development.

8.3 Complementarity with other EU services

8.3.1 Conclusion 8: Division of labour could be strengthened

Greater impact could be achieved by a stronger and more consistent effort by DGs DEVCO and RTD to work together.

While there is a high-level understanding on a division of labour between DG DEVCO and DG RTD, in practice it is only loosely respected. Both DGs do venture into the grey areas between their respective remits without undue problems emerging and although the loose modus vivendi currently in place generally operated without incident, more could have been done to improve understanding, coordinate efforts and ultimately develop a joint strategic approach. Only in a very few specific cases, where both DGs invested in capacity, particularly in EUDs, were a higher level of co-operation and more systematic outcomes achieved. Such effects could be much more widespread with clear and conscious joint policy making and implementation.

This conclusion is based mainly on EQ 4.

While it is often argued that DG RTD should focus on funding research and DG DEVCO on capacity development, instances were found of DG DEVCO supporting pure research and DG RTD supporting capacity building (specifically, scattered FP7 projects to improve countries' ability to participate). Yet, no instances of clear overlap between DG RTD and DG DEVCO have been found in any one place.

At HQ level, there has been a reasonable amount of information sharing between DG RTD and DG DEVCO. For instance the latter has participated in the process of defining RTD calls for proposals. These exchanges appear to have been largely ad hoc, however, and not helped by the two DGs having very different missions and institutional cultures. There is a fair bit of mutual incomprehension – DG RTD not appreciating the complexity of the development process and DG DEVCO underestimating the development relevance of much work done by DG RTD, including highly applied and operational research. Some of this reflects not only the absence of regular co-ordination mechanisms at the top, but also patchy capacity on both sides at the field level (EQ 6) – one element being that there are only few S&T Counsellors in the field (and the number is being cut). Moreover, these tend to be in countries where DG DEVCO support has been limited during the period under evaluation, e.g. China and India. Few EUDs have a staff member tasked with following R&I and sector managers were often found to be too busy with project and programme management to be able to follow R&I systematically let alone systematise the lessons learnt. Consequently, there is very little "trickle up" of information, lessons learnt, and emerging opportunities, for better collaboration on international development in either DG (EQ 5). However, the ideal conditions for DEVCO-RTD complementarity emerged in a couple of cases at the field level with (i) an S&T Counsellor present, (ii) an EUD staff member tasked with following R&I, and (iii) a government R&I policy backed up by a strong agency (EQ 4).

DG RTD has been somewhat responsive to DG DEVCO requests and to the critique that the topics of FP7 calls tend to be Eurocentric (EQ 4), for instance with one specific FP7 Africa Call. However, it is clear there is considerable demand for more financing among partner country researchers and that inadequate co-ordination between the two DGs undermines the scope to further increase the relevance of calls for proposals (EQ 4). While capacity at DG RTD HQ has been adequate, the amount of staff time devoted to international co-operation was found to be limited and tended to be focused on scientific powerhouses like Japan and the United States. Within DG RTD itself, the INCO unit and thematic desks do not share common priorities.

Overall, complementarity between DG DEVCO's support to R&I and the work of other EU services, institutions and agencies has been good, for instance, DG CONNECT being directly involved in the implementation of the regional high speed internet networks for research data transfer, the JRC and EUMETSAT collaborating on one of the regional projects on satellite earth observation in Africa, and the EIB investing in one of the industrial Research and Innovation poles in Tunisia.

8.3.2 Conclusion 9: Policy coherence for development has been well understood

Policy coherence for development has been well understood.

Policy coherence for development is clearly understood as an important concern in both DGs DEVCO and RTD. Efforts have been made to promote PCD by different EU actors involved in support to R&I. In so much as no cases of policy incoherence affecting development were identified these efforts are meeting with some degree of success. That said, there is never room for complacency in promoting policy coherence as it is an on-going process.

This conclusion is based mainly on EQ 4.

The biennial EU PCD Reports detail various efforts made in a series of different fields where support to R&I address development issues. This includes in climate change, energy, low-carbon technologies, food security, information society and the EU's DG RTD framework programmes all areas where DG DEVCO support to R&I was prominent.

On the input side DG RTD officials are well aware of the importance of PCD and make a concerted effort to address coherence issues including by engaging with DG DEVCO's PCD monitoring process. As always with PCD measurement of progress on outcomes is not straightforward. However, one positive indication was that the evaluation identified no cases of work by DG RTD that was contrary to PCD.

8.4 Results

8.4.1 Conclusion 10: Results achieved but largely ad-hoc and localised

R&I efforts supported by DG DEVCO have contributed to development outcomes but largely in an ad-hoc and localised manner that did not promote systematic and sustainable progress on creating conducive conditions for R&I.

DG DEVCO has supported many R&I efforts that contribute to development outcomes. Yet, the lack of a transversal strategic framework for support or any core policy commitment to R&I means these contributions are too dispersed and ad-hoc to be able to demonstrate any serious sustainable effect where the full value of R&I results can be exploited and a more conducive environment for R&I is created.

This conclusion is based mainly on EQs 2, 3 and 5.

Individually and at the local level many of the R&I for development projects and programmes that DG DEVCO has supported in all four sectors show results that contribute to development processes (EQ 5). Yet the process of ensuring these results have occurred and are then taken up by relevant stakeholders to be translated through into sustainable development outcomes has been largely left to individual project holders. Wider uptake and more sustainable development effects are therefore not present. In practice therefore too little investment has gone into ensuring these latter stages of the uptake process occur.

This has also been undermined by the absence of a clear core strategy for DG DEVCO support to R&I for development. As indicated above (Conclusions 1 and 2) the overall approach to supporting R&I and capacity development for research has by and large been piecemeal without any strategic focus or overall sense of direction. In particular no emphasis, except in a very few cases, has been put on creating the institutions for national innovation systems that would encourage that R&I results are picked up and passed on to users to create sustainable development outcomes at a more aggregate level.

That being said various efforts have been made to promote the process of achieving results and encouraging uptake. There has generally been consideration of routes to impact, at higher levels in project design and in the implementation of individual projects. DG DEVCO has also taken some steps to encourage dissemination of results with, for instance, considerable emphasis on networking so as to

encourage researchers to share results and lessons learnt. Some institutional and infrastructural development support has also been provided. One important contribution to this has been DG DEVCO's support to knowledge and data exchange infrastructure, (e.g. high-speed internet), which promotes networking (EQ 2), with positive implications for dissemination of results and for sustainability.

DG RTD's FP7 projects have also included developing country researchers thereby integrating them into international networks that keep them on the cutting edge of scientific progress and help them share knowledge and results. Developing country partners in FP7 projects were also regularly found to have taken steps to ensure that results would be disseminated to policy makers.

Institutional development has also been hampered by inadequate resources particularly in the poorest countries visited for field missions. Neither DG DEVCO nor DG RTD is individually in a strong position to ensure sustainability of support and tackle the longer-term funding needs of research organisations and institutions in partner country where Research and Innovation funding is limited or non-existent. Interest in R&I at DG DEVCO is variable at every level (EQ 2) and DG DEVCO's instruments are not suited to giving the long-term support necessary to supporting research institutions (EQ 3). On the DG RTD side, FP7's call for proposals cycles are also not well suited to promoting sustainability. The extent to which partner country institutions have been strengthened to a level that they can reliably participate in European projects has thus generally remained limited. In many developing countries there remains a long path ahead to build sustainable high-quality capacity for R&I.

8.4.2 Conclusion 11: Societal uptake of results has been limited

Innovation and societal uptake of R&I results from DG DEVCO support have been scarce due to inadequate investment in national institutional frameworks for innovation.

DG DEVCO has largely failed to ensure wide-spread innovation and societal uptake of R&I results in a systematic fashion. While recognizing the importance of supporting learning and dissemination at the individual programme or even sector level, it has rarely felt able to support national institutional frameworks for innovation. This has meant that the impact of this R&I work has often been limited because the institutional environment is not conducive to encouraging societal uptake of the results achieved.

This conclusion is based mainly on EQ 5.

The transfer of R&I results to end users has worked better in countries where national innovation systems are well developed and where advisory services, financial institutions, private companies, user organisations and government policymakers work together to drive wide-spread innovation. For instance in sectors such as agriculture the transfer of results of R&I to end users has clearly worked better because research and extension work on new technologies is very much part of a well-developed best practice organised around government or non-government extension services. Equally, in the health sector new drugs and other innovations are continually being fed into public health care systems. However, in other areas such as innovations for Environment or Climate Change or new technology for industrial production, the transfer of results from DEVCO-funded R&I projects was found to be much more tentative and ad-hoc.

Thus while, overall, project design generally took transfer issues into account in a limited fashion, often considerably more resources would have been needed to create stronger effects. Networking has clearly been an important vehicle for sharing results and learning with other researchers and institutional users and as such a valuable component of many EU supported R&I projects.

In a very few instances, such as the PASRI project in Tunisia, DG DEVCO has however engaged with the government, researchers and end users, including the private sector, to support the development of a national system for innovation. This work in Tunisia is far from complete but it shows promising signs of a much more systemic approach to helping to build a conducive environment for Research and Innovation.

Box 18 Supporting innovation and the private sector

"Innovation should be understood as the dissemination of something new in a given context, not as something new in absolute terms."[35]

If innovation is seen as societal uptake the link between researchers and the private sector where a new idea can be scaled up through commercialisation (see Box 13 in Section 6.5.1) is vital. Although this did not emerge as a major achievement of DEVCO's R&I, a variety of projects reviewed in the evaluation do good examples of how this can be done that can be built on in the future.

The Coffee Improvement Programme in Ethiopia (see Box 15 in Section 6.5.4), for instance, provides an example of dissemination among farmers. In the industrial sector both EBTC in India (see Volume 4, Box 2) and several of the SWITCH-Asia projects (see Box 11 in Section 6.5.1) are examples of researchers from academic and civil society settings working with SMEs to test existing technologies and see how they can be adapted to local market conditions so as to permit scaling up. The PASRI project in Tunisia (see Box 12 in Section 6.5.1) went a step further with its MOBIDOC scheme to facilitate researchers working in commercial firms. It also sought to train private sector actors in ways of encouraging innovation inside their companies.

8.4.3 Conclusion 12: Capitalisation of results has been inadequate

R&I results have not been capitalised on and hence their potential impact has not reached beyond the specific programmes or immediate researcher networks involved.

DG DEVCO has made no real effort to systematise and capitalise on the results of the R&I it has supported. Research results are therefore by and large used in the programmes where they have been developed or used in the immediate networks of the researchers involved rather than shared further afield. Grantees have not been supported in taking these results further to wider audiences or in getting them included in widely accessible repositories where they can be used by others.

This conclusion is based mainly on EQ 5.

The evaluation found a virtual complete lack of support to this 'capitalisation' (from French), or 'systematisation' (from Spanish) work, that is systematic documentation of project/programme activities, experiences and the results produced so that these can be analysed and shared with others, lessons can be learned and consequently practice may be improved. This issue is clearly not a priority for DG DEVCO, not even during evaluations and project budgets frequently did not allow such expenditure. Some examples were, however, found of EUD staff who took the initiative to mobilise additional funds for this purpose or researchers themselves raised complementary funds from other sources including from non-EU donors.

8.4.4 Conclusion 13: DEVCO's is not seen as an agent of R&I for development

DG DEVCO is not perceived as an agent for R&I for development, and few efforts have been made to create such an image for improved visibility.

The overall visibility of DG DEVCO's support to R&I for development is minimal, the exception being in some particular projects and programmes or international fora where DG DEVCO funds represent an important share of the funding. This would seem largely due to a lack of clear policy commitment and framework to support R&I for development. In particular, DG DEVCO is not perceived as an agent for R&I for development and no real efforts have been made to create and enhance such an image. This, in turn, affects the level of demand from potential future partners.

This conclusion is based mainly on EQs 5 and 6.

The EU has been extensively involved, and visible, in policy dialogue related to R&I (EQ 6), but more consistently at global and regional level than at national level, where in many countries either R&I is a low government priority or EU capacity is lacking. EU visibility was, to some extent, hampered by the fact that there have been no concerted and coordinated efforts devoted to promoting developing-

[35] World Bank, *Innovation Policy: Guide for developing countries*, Washington DC, 2010, p. 2.

country participation in FP7 despite a few scattered interventions.

DG DEVCO has taken some steps to encourage researchers to disseminate of results, but this has not been a major preoccupation (see Conclusion 11 and 12). At the same time, the scientific incentive system also ensures this happens on its own to some extent as researchers are keen to advertise their own work. Visibility has also been increased by the success of networking activities. There is also an issue of whether DG DEVCO can or even should have a separate and distinct image from DG RTD in R&I if the EU policy is promote a unified image.

Internal visibility of R&I in the Commission is often low because of insufficient internal sharing of lessons learned and success stories. This is a widespread problem in DG DEVCO but is particularly worrying in R&I where the objective is precisely to develop knowledge and encourage innovation. In contrast, on the DG RTD side, FP7 projects studied had usually taken steps to encourage outreach and the inclusion of policymakers.

9 Recommendations

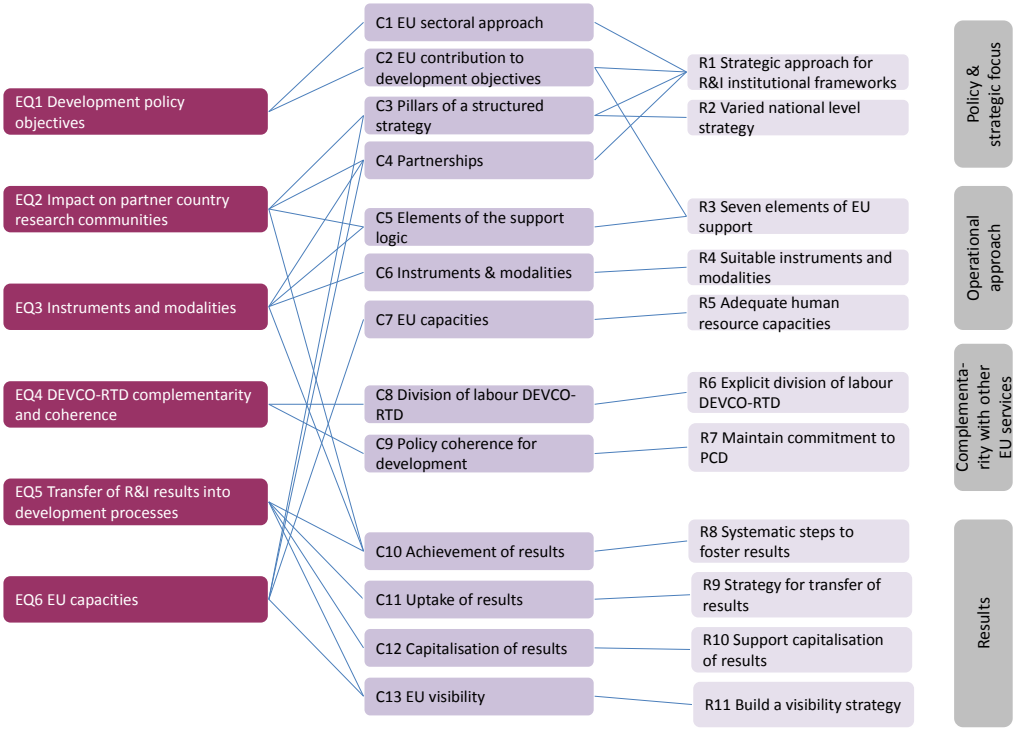
Four sets of recommendations to strengthen EU support.

Following on from the Conclusions a number of recommendations can be proposed under the same headings:

- Policy and strategic focus: recommendations 1 and 2;
- Operational approach: recommendations 3 to 5;
- Complementarity with other EU services: recommendations 6 and 7;
- Results: recommendations 8 to 11.

The linkages between EQs (findings), conclusions and recommendations are illustrated in the following figure.

Figure 14 Major links between EQs, conclusions and recommendations



Source: Particip

Prioritising recommendations.

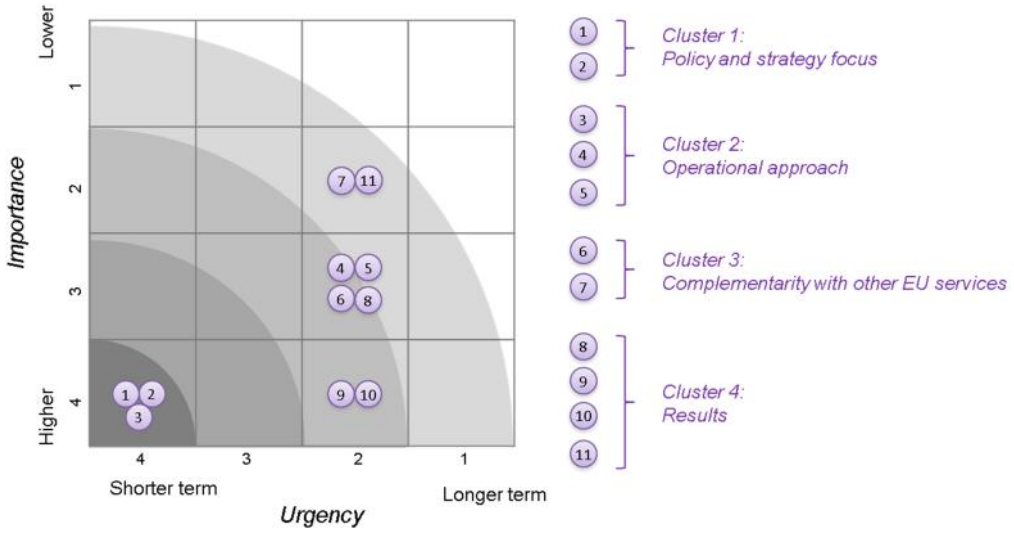
The table below provides an overview of the level of priority in terms of importance of the recommendations and the urgency of their realisation. The first recommendation is key as one of the main conclusions of the evaluation is the need for a clear DG DEVCO strategy to support R&I for development. Implementation of the other recommendations is to some extent dependent on this strategy. Formulating such a strategy will take time however. In the meantime, it should be possible to proceed with a number of the other recommendations as indicated below. This information is also provided schematically in the figure below. Addressing these priorities requires actions by different actors. Therefore, each recommendation includes suggestions for operational steps to put it into practice, and proposes implementation responsibilities.

Table 6 Prioritisation of recommendations

No.	Issue	Importance*	Urgency*
1	Formulate a strategic approach	4	4
2	National level strategies should be adapted to levels of development	4	4
3	DG DEVCO support should focus on seven principal elements	4	4
4	Employ instruments and modalities that are suited to the actors chosen and the needs of R&I	3	2
5	Ensure adequate human resource capacities for support R&I	3	2
6	Consolidate and implement an explicit division of labour with DG RTD	3	2
7	Maintain the political and practical commitment to promoting PCD	2	2
8	Take more deliberate and systematic steps to foster results	3	2
9	Develop a clear strategy for the transfer of results	4	2
10	Provide explicit support to the capitalisation of results	4	2
11	Build a visibility strategy on a stated commitment to R&I	2	2

** 1 = low, 4 = high*

Figure 15 Prioritisation of recommendations, schematic overview



9.1 Policy and strategy focus

9.1.1 Recommendation 1: Formulate a strategic approach with a focus on establishing institutional frameworks for R&I

Considering the rapid pace of change of science, technology and innovation and its importance for economic transformation DG DEVCO should formulate its own R&I for development policy within the overall EU policy on international co-operation in R&I and also better implement a division of labour with DG RTD. This should be clearly set in the context of the overall contribution of R&I to sustainable development and the achievement of the SDGs. The strategy should draw on DEVCO's past experience of the last decade of support to R&I in different sectors and in particular the positive lessons from working at different geographical levels (global, regional and national). While at the global level the strategy should continue to support research agendas on global challenges, a key focus for the strategy should be on establishing institutional frameworks for R&I at regional and national levels. At the national level, this should involve a differentiated approach providing different types of support for partner countries at different stages of development (see also Recommendation 2).

This recommendation is linked to Conclusions 1 to 4 related to policy and strategic focus.

Main implementation responsibility: DG DEVCO, DG RTD, EEAS

The implementation of this recommendation would involve:

- Having formulated such a policy, DG DEVCO should state it clearly in a Commission Communication. This will require discussions with DG RTD (and EEAS, in the context of science diplomacy) and must include specific commitments to implementing the generally agreed division of labour. A Staff Working Paper with a more detailed strategy should also be prepared.
- Building on past experience the strategy should include work at all three geographic levels (global, regional and national). At the global level, the objective should be to support international research agendas related to global challenges in relevant sectors.
- The strategic focus of the DG DEVCO contribution should be to assist regional authorities and national governments to develop appropriate regional and national R&I strategies and institutional frameworks to support their development processes and plans.
- While sectoral R&I strategies will be important elements of these regional and national strategies, the focus should be on establishing overall regional and national institutional frameworks for R&I. The national level approach is developed further in the next recommendation.

9.1.2 Recommendation 2: At national level, develop a strategy for R&I that adapts the support provided to the needs and level of development of partner countries

For supporting partner countries at the national level, DG DEVCO should develop a strategy for R&I that differentiates between partner countries at various stages of development and provides adapted support, based on the examples of positive experiences with supported projects reviewed in this evaluation.

This recommendation is linked to Conclusion 3 on the strategic approach.

Main implementation responsibility: DG DEVCO, EEAS, DG RTD

The implementation of this recommendation would involve drafting a strategy around a range of positive past experiences of supported projects which provide a basis for a rough typology of three stages of different types of support for more or less developed countries ranging from:

1. Laying the foundations with poorer countries (individual capacity development, institutional development with sectoral research institutes and government support to R&I) and funding to sectoral R&I; then moving on to
2. Building up the infrastructure with somewhat advanced countries (targeted individual capacity

linked to ROs, developing a national S&T policy, building up national innovation systems and funding of research through national agencies such as research councils); to lastly

3. Supporting international co-operation in R&I where DGs RTD and DEVCO would work more jointly but DEVCO would still have a clear complementary role.

More detail is provided in the following table.

Table 7 A varied strategy adapted to different needs and levels of development

Type of partner country	*R&I Strategy Components*
Poor developing countries	**Laying the Foundations for R&I:** • Individual capacity building for researchers; • Institutional development with sectoral research institutes; • Funding of R&I as part of sector support programmes; • Policy dialogue with governments on extending support to R&I; • EUDs designate a person with responsibility for identifying opportunities to support R&I.
More advanced developing countries	**Building up the Infrastructure for R&I:** • Targeted individual capacity development linked to research organisations; • Developing a national S&T policy; • Establishing national innovation systems and institutional framework; • Funding of research through national agencies such as research councils; • Develop support to capitalisation with DG RTD; • EUD person with responsibility for R&I policy dialogue with government.
Graduating countries (Fully graduated countries would normally be the responsibility of DG RTD)	**Supporting International co-operation in R&I:** • DEVCO support for institutional capacity development; • Encouraging uptake of DG RTD calls; • Further support to national S&T policy development; • Strengthening national innovation systems and support to capitalisation; • Close DEVCO-RTD co-operation and joint programming; • EUD DEVCO staff for R&I and established link with an RTD S&T Counsellor.

9.2 Operational approach

9.2.1 Recommendation 3: DG DEVCO support should focus on seven principal elements

The DG DEVCO approach to R&I for development should continue to consist of the five principal elements of past support and supplement this with two further priorities: (i) support to networks, (ii) capacity development, (iii) careful selection of partner institutions, (iv) policy dialogue (v) actual funding of research for development, (vi) the capitalisation of results and (vii) support to the establishment and strengthening of national innovation systems:

This recommendation is linked to Conclusion 5 on the support logic of DG DEVCO support.

Main implementation responsibility: DG DEVCO and EUDs

The five common elements that have been identified in past DEVCO support to R&I can continue to be improved in parallel with the preparation of the new DG DEVCO policy on R&I. To these should be added two further elements where past experience has not been so strong.

All seven elements can also be developed in more detail as part of the new policy. In the meantime implementable steps include:

- *Networks:* Support to networking should continue as this is a good multi-purpose vehicle for strengthening R&I. DG DEVCO should strengthen its ties with major regional and global research institutions in thematic areas, which will have implications for HQ capacity.

- *Capacity development* should continue at various appropriate levels: individual, institutional (both in ROs and in society) and infrastructural. Individual capacity building for research should continue to be supported through Erasmus Mundus and other mobility programmes, but the implementation of these programmes should be coordinated with EUDs and ideally also with government R&I institutions and ROs in order to enable greater institutional benefits. For institutional development DG DEVCO should investigate innovative approaches – perhaps through Budget Support to national research organisations or networks – through which it can fill the gap for long-term, consistent, predictable institution strengthening that is not being met by project support (whether from DG DEVCO or DG RTD). DG DEVCO should continue to assess needs and support where necessary the data, information and infrastructure needs for R&I.
- *Partners:* DG DEVCO should continue to be open to supporting a range of actors in R&I for development chosen in terms of their effectiveness. This should continue at all three levels – global, regional and national – as all three levels are effective routes for supporting R&I. In order to strengthen innovation and take up, DG DEVCO should increase the attention paid to the private sector in partner countries. This will have implications for EUD capacity.
- *Policy dialogue:* To further strengthen policy dialogue at national level on overall R&I needs and priorities, i.e. in setting national (or regional) R&I strategies and institutional frameworks, DG DEVCO should act in concert with DG RTD. Staff capacity at national level (EUDs) should be increased in order to make this possible. DG RTD should reconsider its intention to reduce the number of S&T Counsellors and should coordinate their deployment in developing countries closely with DG DEVCO and EEAS to ensure maximum synergies.
- *Actual funding of research:* The EU should recognise the actual funding of research for development as an important part of DG DEVCO's remit. As partner countries develop, this remit should continue until such time as other national or regional sources effectively take up the task and/or DG RTD funding is adequately accessible for partner research communities. In the context of DG DEVCO's graduation policy for middle income countries, the remit will normally be transferred from DG DEVCO to DG RTD and the DGs should work closely together to ensure a smooth transition. DG DEVCO should fund appropriate global, regional and national organisations as intermediaries for funding actual research (e.g. WHO, CGIAR, AUC, national research councils) in partner countries. Where needed, the capacity and institutional development needs of these organisations to function as effective conduits for research funding should also be supported.
- *Capitalisation of Results* (see also Recommendation 10 below): The evaluation identified this as an area that had had insufficient attention in the past and needed to be strengthened. This is also an area where closer DEVCO co-operation with RTD and its CORDIS research database would be useful (Recommendation 6).
- *National Innovation systems* are widely recognised in the literature (see Box 17 under Conclusion 1) as a valuable concept for developing countries to pursue and that can be promoted by government policy. DEVCO has some very limited experience of supporting the establishment of such a system in Tunisia (see Box 12 in Section 6.5.1 on PASRI). This type of support should become more widespread in the future wherever opportunities exist and partner countries express interest.

9.2.2 Recommendation 4: Employ instruments and modalities that suit the needs of R&I

DG DEVCO should recognise that R&I needs to be built up over the longer term and should explicitly address sustainability issues in the support it offers. It should examine the overall strategic thinking about the mix of instruments and modalities it uses. In particular it should review these tools so as to design approaches that recognise the long time frames involved in scientific research, in the research-to-uptake pipeline, and in R&I institution strengthening.

This recommendation is linked to Conclusion 6 on instruments and modalities.

Main implementation responsibility: DG DEVCO and co-ordination with DG RTD

The implementation of this recommendation would involve:

- Where a strong government department for S&T exists DG DEVCO should consider supporting these with Budget Support (inter alia as a way to tackle sustainability).
- Where there is no national R&I policy but there is government interest, DG DEVCO should find suitable means of supporting policy dialogue on developing such a policy to respond to R&I priorities for national needs (see Box 16 on policy dialogue in South Africa and Box 12 on PASRI Tunisia).
- DG DEVCO should look for modalities, including perhaps longer term programme type support to a national science council organisation, to strengthen capacity at research organisations. DG DEVCO should recognise that in many respects R&I needs to be built up over the longer term and should explicitly address sustainability issues in the support it offers.
- DG DEVCO should consider using project support, either stand-alone or linked to major research efforts, to finance research administration and management units at major partner country research institutions. This could be done, for example, with the specific goal of increasing Horizon 2020 participation.
- DG DEVCO should analyse which actors have difficulties with the calls for proposals approach for funding research and find themselves effectively excluded. They should then proactively find ways round this either by simplifying procedures in specific cases or by working through intermediary organisations.

9.2.3 Recommendation 5: Ensure adequate human resource capacities for support to R&I

DG DEVCO's commitment to R&I for development will mean little if there are no improvements in staff capacity. At HQ, greater involvement would require more resources. In the field, R&I capacity should also be strengthened if the EU wants to become/remain a relevant partner in this area. For DG RTD to function adequately with regard to developing countries, staff capacity constraints also need addressing.

This recommendation is linked to Conclusion 7 on EU capacity.

Main implementation responsibility: DG DEVCO, DG RTD, EEAS

The implementation of this recommendation would involve:

- In order to engage with R&I as an overall theme rather than as a bundle of sector priorities, DG DEVCO HQ will need more staff assigned to handle R&I overall and not just sector staff.
- DG DEVCO and DG RTD should ensure the presence of adequate staff capacity at HQ to coordinate R&I support between them and with EUDs and S&T Counsellors.
- In the field, at each EUD, DG DEVCO and EEAS should ensure that there is one staff member tasked with following the R&I sector (although this need not be a full-time position).
- DG RTD should re-evaluate current plans to reduce the number of S&T Counsellors, whose presence has been found to serve a crucial role of co-ordination between DG DEVCO and DG RTD.

9.3 Complementarity with other EU services

9.3.1 Recommendation 6: Consolidate and implement an explicit division of labour with DG RTD

DG DEVCO and DG RTD should work out a clearer division of labour between their respective roles in international co-operation for R&I and ensure it is followed through at all levels. In particular they should coordinate more closely on the design of framework programme calls so that they also cover developing country needs, on staffing in EUDs and on the capitalisation of results of research.

This recommendation is linked to Conclusion 8 on an explicit division of labour with DG RTD.

Main implementation responsibility: DG DEVCO and DG RTD

The implementation of this recommendation would involve:

- Promulgating guidelines on the division of labour and ensuring that all DG DEVCO staff with R&I responsibilities should have clearly designated lines of communication with appropriate counterparts and focal points in DG RTD.
- For each partner country government, clearly designate which DG takes the lead in policy dialogue and the role of each DG in providing support.
- The two DGs should systematically review proposals for DG RTD Calls for Proposals in terms of their appropriateness for developing country R&I needs and consider how this might be improved in a majority of Calls.
- The deployment of DG RTD S&T Counsellors should be carefully coordinated between the two DGs, the EEAS and the EUDs to ensure maximum synergies are achieved between their work and that of the EUDs in R&I both at national level and within individual focal sectors.
- DEVCO and RTD should devise common systems for the capitalisation of the results of research so that DEVCO funded researchers can also make use of and benefit from RTD's CORDIS system established for storing information on RTD's framework programme projects and their results.

9.3.2 Recommendation 7: Maintain the political and practical commitment to promoting PCD

PCD on R&I for development should continue to be a major concern for DG RTD and other EU services and institutions supporting R&I directly or indirectly, for instance through the provision of financing for infrastructure or institutional development. This is particularly important in the new context of the UN Global Goals and the value they attach to PCSD[36] as a means of implementation and a vital component of global partnership.

This recommendation is linked to Conclusion 9 on PCD.

Main implementation responsibility: DG DEVCO, DG RTD, EEAS and other DGs, Secretariat General

The implementation of this recommendation would involve:

- The EU should continue to use its existing tools for promoting PCD in particular: the biennial EU PCD report, inter-service consultation processes and ex-ante impact assessments with R&I for development tackled both at a sectoral and a generic level.
- DG DEVCO should focus on increasing PCD by deepening its policy dialogue on R&I with partner countries, focusing not on sectors, but on overall priorities and institutional needs.
- At DG RTD HQ, examine incentive structures which have, to date, tended to dampen thematic desk enthusiasm for R&I in poor countries. Ensure adequate lines of communication between INCO and thematic desks.

[36] PCSD: Policy coherence for sustainable development – see SDG17

9.4 Results

9.4.1 Recommendation 8: Take more deliberate and systematic steps to foster results

DG DEVCO should focus and coordinate its support to R&I more carefully so that it is more likely to create critical mass within the national or regional context. Having a clear approach to support for national and regional R&I frameworks and support for the establishment of national innovation systems will assist this focusing of efforts. Support for R&I inside specific sectors should continue to play a role, but wherever possible this should be linked to the national and/or regional R&I policy context.

This recommendation is linked to Conclusion 10 on achieving more systemic results.

Main implementation responsibility: DG DEVCO

The implementation of this recommendation would involve:

- DG DEVCO and its implementing partners should regularly review the intervention logic and theories of change for each project or programme to maximise the orientation for achieving R&I results.
- DG DEVCO should seek to increase the incentives for researchers with good performance on R&I results by facilitating follow-up funding for successful projects.
- DG RTD should consider setting up a system to reward researchers with good performance on R&I by explicitly taking account of their performance record on previous EU funded projects in the award of new grants to research consortia proposals in which they are involved.

9.4.2 Recommendation 9: Develop a clear strategy for the transfer of results

DG DEVCO should develop a clear strategy for the transfer and dissemination of results and ensure it is systematically taken up by EUDs and project implementers.

This recommendation is linked to Conclusion 11 on the transfer of results.

Main implementation responsibility: DG DEVCO

The implementation of this recommendation would involve:

- DG DEVCO should adopt promoting innovation for development as its principal objective in supporting R&I.
- DG DEVCO should support the establishment of institutional frameworks along the lines of Science and Technology Councils bringing together government, research institutions, and the private sector for innovation at national and regional levels.
- Support to networking among research communities and with potential users and stakeholders such as the private sector should remain another important element of DEVCO's approach to the transfer of results.
- Build on the examples of good practice of working with the private sector on innovation and social uptake to be found in the PASRI-Tunisia, SWITCH-Asia and EBTC-India (see Box 2 in Section 8.4).

9.4.3 Recommendation 10: Provide explicit support to the capitalisation of results

DG DEVCO should develop a strategy and provide explicit support for the systematisation or 'capitalisation' of results of R&I. This could be done in conjunction with DG RTD and would be built around the broader institutional development that DG DEVCO already supports (e.g. high-speed internet networks) and further support to institutional frameworks for innovation.

This recommendation is linked to Conclusion 12 on the capitalisation of results.

Main implementation responsibility: DG DEVCO, DG RTD

The implementation of this recommendation would involve:

- DG DEVCO should have supplementary funds available for R&I funded projects for use on the capitalisation of results once it is clear what the results have been and the potential for use is clear.
- DG DEVCO should consider working establishing a system for the collection of results so that they can be retrieved and used more systematically. This could probably be done most easily with DG RTD using their CORDIS database.
- DG DEVCO should consider supporting projects specifically aimed at encouraging the capitalisation and use of results at the national level by funding national institutional frameworks for innovation.
- DG DEVCO should maintain guidelines for EUDs on the capitalisation of R&I results.
- Individual and institutional capacity building should include practical aspects of capacity for promoting the capitalisation and uptake of research results, including aspects such as intellectual property rights, raising venture capital, marketing, etc.

9.4.4 Recommendation 11: Build a visibility strategy on a stated commitment to R&I support

DG DEVCO should publically state the important role it attaches to R&I in the achievement of EU development objectives and the UN Global Goals for sustainable development as well as the role it sees itself as playing in promoting R&I for development. Such a clear statement will then also provide a foundation on which to build a communication and visibility strategy.

This recommendation is linked to Conclusion 13 on the capitalisation of results.

Main implementation responsibility: DG DEVCO and supported by DG RTD and EEAS

The implementation of this recommendation would involve:

- Once a clear statement of intent has been agreed it should be well publicised so as to provide the foundation for a communication and visibility strategy.
- The statement should be closely coordinated with DG RTD and EEAS and make clear their respective roles. It should explain the complementary role envisaged for DG RTD's framework programmes in supporting R&I in developing countries and it should detail the links with the EEAS policy on science diplomacy.
- Building on this DG DEVCO should develop a communication strategy for its support to R&I for development and ensure it is implemented at HQ and by EUDs.