

SCAR / EIARD / ERA ARD Task force.

Improving the contribution of European Agricultural Research to Agricultural Research for Development.¹

ABSTRACT

Over the coming decades, world agriculture will be challenged by dwindling natural resources, the effects of climate change and the need to provide a sustainable, safe and secure food supply, as well as fibres and biomass, for a growing (and more wealthy) global population of 10 Billion. Balance between supply and demand for food is already critical today and the food price crisis of 2008 has put agriculture back on the development agenda. G8 and G20 summits since 2011 have confirmed the international commitment to address food security and highlighted the need to increase investments in agricultural research to address these challenges.

Two types of agricultural research receive public funding in Europe: (1) Agricultural Research *sensu stricto* (AR), focussing on national needs within Europe, and Agricultural Research for Development (AR4D) dedicated to collaboration with and in developing countries working towards the MDGs. Poor coordination between investments in AR and in AR4D has been often observed and attributed more to administrative and institutional constraints than to scientific divergences.

Public investment in AR by EU member states has been estimated at around €3 billion per year. Agricultural research has been also funded at the EU level through the 7th Framework Programme for Research and Innovation, with an additional €276 M per year. Therefore, the total public investment for agricultural research in Europe amounts in 2012 to about €3.3 billion, representing almost twice the investment of the USA and four times that of Japan.

Total European public investment into AR4D is more difficult to estimate since it is not tracked specifically but instead often embedded within Overseas Development Aid (ODA) programmes and channelled through a wide range of mechanisms. Data collected by ERA-ARD and EIARD members suggest that the annual European investment into AR4D through institutions such as the CGIAR, FARA, ASARECA, the various national agricultural systems (NARS) of developing countries and some CSOs is around €350 M per year.

In addition to this funding flowing directly "outside" Europe, EU Members states also fund European based research institutions to conduct research activities in (and generally with) developing countries. Some of these institutions, such as CIRAD in France, are specialised on AR4D. Others (such as WUR in the Netherlands or SLU in Sweden) are not, but include significant AR4D "related" programmes in their portfolio. This second type of investment can be estimated to another 350 M€.

¹ This text has been prepared by Philippe Petithuguenin, EIARD Executive Secretary until October 2012, with inputs and comments from several members of SCAR, ERAARD and EIARD delegates. It has been finalised at the end of 2012 by Jürgen Anthonfer, EIARD Executive Secretary since November 2012.

Examples from EIARD member states show evidence that the former “silos” separating AR and AR4D have evolved, and that collaboration is growing. The main instruments to enhance synergies between AR and AR4D observed in recent years are (1) funding mechanisms, especially joint calls and thematic coverage of AR4D issues by AR programs, (2) institutional policy dialogue, and (3) coordination and alliances between AR and AR4D institutions and scientists.

AR has been increasingly expanded its scope beyond Europe to accommodate global challenges such as climate change. Likewise, the traditional AR4D beneficiary countries in the South have become more heterogeneous and the focus on "aid for developing countries" is increasingly being challenged by other approaches such as the "trade not aid". Furthermore, the surge of the emerging economy countries (BRICS) and the astonishing growth of the African continent, compared to the lasting crisis (even recession) affecting many OCDE countries (especially from Europe) have profoundly modified the GDP ranking of countries and, in many cases, put “upside down” the relationship between donor countries and aid receiving countries.

Another change affecting the traditional divide between AR and AR4D is the growing interrogation by European tax payers and decision makers about investing in agricultural research if this research is “only” targeting the production of scientific excellence. Impact, contribution to innovation and to social and economic development are key words nowadays. Agricultural Research in Europe is being asked to be more “finalized” like Agricultural research for development.

Based on these observations and considering the growing challenges and expectations in Europe and globally, the SCAR / EIARD / ERA ARD Task Force recommends

- (1) to facilitate the inter-European learning process on AR/AR4D linkages and its applied instruments,
- (2) to extend the review of the European Commission’s instruments supporting AR and AR4D,
- (3) to set up a SCAR strategic working group on linkages between AR and AR4D,
- (4) to initiate a dialogue mechanism between SCAR, the Standing Committee on Agricultural Research managed by DG AGRI and DG R&I, and the HEADS, meetings of the Heads of Agriculture and Rural Development managed by DG DEVCO, and
- (5) to revisit the existing paradigms of AR and AR4D.

Box 1:

Recommendation 4 of the Interagency Report to the Mexican G20 Presidency "Sustainable agricultural productivity growth and bridging the gap for small family farms".

"Mindful of the benefits of multilateral cooperation in Agricultural Innovation Systems (encompassing education, science and extension), G20 governments should... consider ways in which to further facilitate international collaboration and information exchange on sustainable agricultural innovation and growth, including identifying ways to better integrate research on transnational and transboundary issues into agricultural production research, and ways to leverage most effectively existing research funding."

1/ Agricultural Research: the International and European context

The G20 call to "invest in Agricultural Research"

Over the coming decades, world agriculture (in the broad sense, including livestock production, aquaculture and forestry) will be challenged by dwindling natural resources, the effects of climate change and the need to provide a sustainable, safe and secure food supply, as well as fibres and biomass, for a growing global population.

This agricultural challenge is widely recognised, by national and international, public and private, research and non-research institutions. Similarly, the role of Agricultural research to in addressing this challenge has been highlighted by numerous reports (UK foresight on the future of food and farming, Agrimonde report, SCAR 3rd foresight, FAO "Save and Grow"...).

Indeed, while the mobilisation of existing knowledge may provide a partial response to this challenge, new knowledge is required as former solutions, such as the "green revolution" show their limits (reduction in the rates of yield increases) and their inadequacies within the new economic (e.g. increased energy prices, high job unemployment in towns), social (e.g. growing concerns about rural exodus and about social differentiation) and environmental (e.g. resource scarcities, climate change...) context.

In the final declaration of the G20 2011 summit, heads of states and governments have indicated their decision "to invest in agricultural research". And very recently, the G20 Meeting of Agricultural Chief Scientists (MACS, September 2012, Mexico) has recognized "*the urgency of taking actions to tackle both current and long term R&D agriculture challenges, as the world will need to increase the availability of food, feed, fuel, and fiber by 70% by the year 2050 in order to satisfy the growing global demand. The required supply increases need to take place within sustainable agricultural systems that respect the environment, improve the livelihoods of the global farm community and provide healthy diets through improved access for all. Science has to make major contributions to overcome the short term challenges and to realize long term sustainable intensification of agriculture*".

Investing in agricultural R&D has proven to be an effective investment. Available literature shows that annual internal rates of return on such investments fluctuate between 20% and

80% (Alston, 2010)². In the case of developing countries, R&D investments will generate a direct increase of 6 to 12% in the value of agricultural production (Fan et al., 2008³.)

Agricultural Research (AR) versus Agricultural Research for Development (AR4D)

This declaration by the G20 to "invest in agricultural research" is mirrored by calls from UN organisations such as the FAO and is addressed to decision makers globally, from the public and private sectors, and from developed and developing countries alike.

Among developing countries, it is worth noting the commitment made by African governments to invest 10 % of their budget into supporting their Agriculture, including research, extension and innovation (the 4th pillar of CAADP). In 2005, it was estimated that 2775 M USD were invested in agricultural research, extension and innovation in Africa (1250 M USD being funded by local governments). The objective of CAADP is to increase this funding to 4000 M USD.⁴ Within emerging economy countries, the case of Brazil's large (and successful!) investment in its federal agricultural research institution, Embrapa, is well documented. And it is also necessary to mention that the private sector and civil society organisations (NGOs, farmers' organisations...) do also contribute significantly to agricultural research.

But the purpose of the present document is to focus on agricultural research funded by European governments, as this investment is generally spread over two types of Agricultural Research:

- Agricultural Research *sensu stricto* (AR), focussed on national needs (competitive and sustainable agriculture, food safety, Climate Change adaptation and mitigation, protection of the environment, rural livelihoods...); AR is increasingly connected to research teams and research facilities established in other countries,
- and Agricultural Research for Development (AR4D), dedicated to collaboration with developing countries and focussed on contributing to the MDGs.

Insufficient coordination between investments in AR and in AR4D has been previously highlighted, though some progress has been made, in particular with the organisation of the 1st GCARD conference⁵, in April 2010, which resulted in the elaboration by the Global Forum on Agricultural Research (GFAR) of a "Road map for transforming agricultural research for development systems for global impact".⁶

In September 2011, the G20 conference on Agricultural Research for Development - gathering representatives of the Agricultural Research Systems of the G20 countries and of various international organisations like the CGIAR, FAO, GFAR, and WB – acknowledged in its presidency summary⁷ that "the G20 Agricultural Research Systems are an important powerhouse of agricultural innovation" and that "they have the capacity to contribute decisively to the improvement of food security (...) via improved coherence and coordination, stronger and equal partnerships and better knowledge sharing". The participants also called

² Alston, J. (2010), "The Benefits from Agricultural Research and Development, Innovation, and Productivity Growth", OECD Food, Agriculture and Fisheries Working Papers, No. 31. doi: 10.1787/5km91nfsnkwg-en

³ Fan, S., B. Yu, and A. Saurkar (2008), "Public spending in developing countries: Trends, determination and impact", In: Fan, S. (editor) Public expenditures, growth and poverty. Baltimore: John Hopkins University Press.

⁴ See pages 21 and 22 of FARA's "Cadre pour la productivité agricole en Afrique / Framework for African Agricultural Productivity" published in 2006. Available at

http://www.fara-africa.org/media/uploads/library/docs/fara_publications/06100265_french_pap_lr.pdf

⁵ See <http://www.egfar.org/gcard>

⁶ See <http://www.egfar.org/content/gcard-road-map-transforming-agricultural-research-development-systems-global-impact>

⁷ See http://www.agropolis.org/pdf/g20/110913_Presidency_Summary.pdf

for "Agricultural Research for Development (...) to be mainstreamed into food security and development strategies and plans" and for giving "specific attention to improving coherence, coordination".

In 2008, the previous document prepared by the SCAR EIARD ERA ARD Task force⁸ had already identified the need to develop synergies between AR and AR4D, including recommendations⁹ for a better coordination between the different "components" – institutions, instruments, policies- of International Agricultural Research¹⁰.

Since 2008, some progress has been made in Europe to improve this coordination between the publicly funded AR and AR4D and in particular to test *ad hoc* solutions to what is often seen as the main obstacle, *i.e.* the existence of separate sets of policies, instruments and institutions (including ministries): one set for AR and another set for AR4D.

The purpose of the present document is to review and draw lessons from these efforts, at a time when the need to improve synergies between AR and AR4D is becoming greater, not only to respond to the recommendation of the G20 but also to more efficiently use constrained public financial resources.

2/ Public European Funding for Agricultural Research (AR)

Publicly funded Agricultural Research¹¹ exists in all the European states. According to a study published in 2012 by DG AGRI¹² and to EUROSTAT data, this European public investment in agricultural research amounts to around 3 billion euros per year (from €2.8 billion in 2005 in the EU-27 to €3.1 billion in 2009). This is almost double the investment of the USA (1.8 billion €) and four times that of Japan (800 million €, see table 1).

Six Member States (France, Germany, Italy, the Netherlands, Spain and the United Kingdom) provided 77% of this research effort in the period 2007-2009.

⁸ "Fostering complementarities & synergies between European Agricultural Research for Europe and for Developing & Emerging Economy Countries". Report from a SCAR, EIARD & ERA-ARD Task Force. October 2008

⁹ See Recommendation 4 for the EC level, and Recommendation 5 for the national level in the October 2008 SCAR EIARD ERA ARD Task force Report.

¹⁰ In the October 2008 Task Force report, International Agricultural Research (IAR) is issued for the combination of AR4D and of the part of AR opened to international collaboration.

¹¹ Limited data are available for private funded agricultural research. A study of public and private spending on Agricultural R&D has been recently presented (see "Global and US trends in agricultural R&D in a global food security setting". Philip G. Pardey and Julian M. Alston. OECD (2012), Improving Agricultural Knowledge and Innovation Systems: OECD Conference Proceedings, OECD Publishing) These authors have established that, in 2000, "95% of the private Agricultural R&D was performed in developed countries, where some 55% of total agricultural R&D was private".

Additional information on private investments in agricultural research are presented in box 2.

¹² European Commission, Directorate General for Agriculture and Rural Development. "CAP towards 2020 Impact Assessment"; Annex 7: Research and Innovation. Brussels. December 2011. See at : http://ec.europa.eu/agriculture/analysis/perspec/cap-2020/index_en.htm

Table 1

Government Budget Appropriations or Outlays on Research and Development (GBAORD) 2007, Mio. €			
	EU	US	Japan
Agriculture	3.190	1.803	800
Total	83.258	103.532	21.775
% of total in agriculture	3,8%	1,7%	3,7%

(source: European Commission, Directorate General for Agriculture and Rural Development. "CAP towards 2020 Impact Assessment"; Annex 7: Research and Innovation; Brussels, December 2011)

As a percentage of total public research budget, the EU allocated twice as much (3.8%) to "agriculture" as the US (1.7%), while this share in Japan is similar (3.7%).

On average in 2007-2009, Member State public expenses on agricultural research amounted to 2.3% of the gross value added of the agricultural sector for the EU-27 (with 2.5% in the case of the EU-15 and 1.0% for the EU-12).

Apart from the Member States budgets, agricultural research is also funded at the EU level through the 7th Framework Programme for Research and Innovation. For the whole duration of FP 7, a budget of € 1 900 M € (out of a total of over 50.000 million €) has been earmarked to the "food, agriculture and biotechnology" thematic priority (including research on fisheries). This amounts to around 276 M € on average per year.

The total public investment in agricultural research by European Member states, for the main part (92 %) through their national research systems and for the rest (8%)¹³ through their funding of the 7th EU Framework Programme for Research and Innovation, can therefore be estimated at **around 3,3 billion euros per year**.¹⁴

3/ Public European Funding for Agricultural Research for Development (AR4D)

Public funding for AR4D is considered as a component of the Overseas Development Aid (ODA) and as such most often administered by Ministries for Foreign Affairs or Ministries for International Cooperation (and their dedicated agencies).

The total amount of funding dedicated to AR4D in Europe and globally is not known precisely as this support is not "tracked" by the existing aid systems (like the OECD DAC general aid statistics www.oecd.org/dac/stats/data, AidData <http://www.aiddata.org/home/index> or ASTI, the Agricultural Sciences and Technology Indicator project <http://www.asti.cqiar.org/>).

¹³ However, it has to be kept in mind that the Member State spending includes not only research project direct costs but also overheads, personnel and infrastructure costs.

¹⁴ European governments and the EU (through the common agricultural policy and the structural funds) also invest very significantly in agricultural extension services. These supports are not included in this estimate of 3 300 million € dedicated to research.

Furthermore, AR4D funding is often channelled through many diverse mechanisms, from specific research projects selected through competitive calls (example of the European Framework programme FP7), to budget support (example of support to national poverty reduction strategy plans or of debt cancellation programmes), and also various bi-lateral or multi-lateral rural development programmes.

Although the precise information is lacking, it is generally considered that:

1/ Europe provides the majority of total public donor AR4D funding, worldwide, through bilateral and multilateral channels. **For example, the constituency of European donors represented, in 2011, over 35% of the total funding to the CGIAR¹⁵.** Europe also provides in-kind contribution to the international ARD systems through its research and academic organisations.¹⁶

2/ In spite of this favourable position in the global AR4D scene, budgets dedicated to AR4D by European governments and by the European Commission remain much smaller than European public investment in Agricultural Research (AR).

Based on data collected by ERA ARD and EIARD members, European funding for AR4D programmes channelled through institutions such as the CGIAR, FARA, ASARECA, the various national agricultural systems of developing countries, some CSOs, etc can be estimated at **around 350 M€** per year. This amounts to only around **10% of the 3.3 Billion € invested every year in agricultural research** by the European Commission and the Member States.

EU Members states also fund European agricultural research institutions to conduct research activities in (and generally with) developing countries. Some of these institutions, such as CIRAD in France, are specialised on AR4D. Others (such as WUR in the Netherlands or SLU in Sweden) are not, but include significant AR4D "related" programmes in their portfolio. This support to European-based institutions conducting AR4D activities is channelled through a large number of diverse mechanisms, from various ministries, and is therefore difficult to capture. EIARD and ERA ARD estimate that the total budget dedicated to European Agricultural Research conducted in or with partners from developing countries can be evaluated to another 350 M€.¹⁷

The total European public investment in AR4D, channelled through partner institutions in developing countries and international organisation or channelled through

¹⁵ and 60% of the funding going into the CGIAR Fund.

¹⁶ At the same time Europe is a beneficiary of international agricultural research for development for the so-called one-world issues, such as climate change adaptation and mitigation, plant & animal diseases and pandemics, globalisation, increasing demand for food and change in consumption and dietary patterns, energy security, growing pressure on environment and natural resources due to growing population.

¹⁷ The totals summed up from 16 country profiles available on the EIARD and ERA ARD websites (see <http://www.era-ard.org/country-profiles> and www.eiard.org), are: funding flowing through partner institutions like CGIAR, NARS, FARA: Total 1: 252 M €; funding flowing through European institutions for their AR4D activities (like Cirad, WUR, SLU..): Total 2: 288 M € (note that the French funding to Cirad, Ird and IRSTEA, for a total of 198 M €, has been included in the second grand total even though the French government counts it as ODA). These totals have been adjusted to account for :

1/ three significant AR4D European donors - Ireland, Norway and Sweden - are not listed in the 16 ERA ARD country profiles and their data (around 45M€ in Total 1 and around 35 M € in Total 2) must be added ;

2/ EC funding (41 M€ in Total 1) must also be added;

3/ the funding going to national institutions having partnership with developing countries is often underestimated as not all the funding streams, especially in the case of universities, are well known by central ministries.

European research institutions, can therefore be estimated to around 700 million € per year.

Box 2:

Public versus private investment in agricultural research for development

*Extract from the Interagency Report to the Mexican G20 Presidency
"Sustainable agricultural productivity growth and bridging the gap for
small family farms". June 2012*

"While public expenditure is the main source of funding for agricultural R&D, private sector investment has increased but is generally focused on high value and market-oriented production systems. Greater protection of intellectual property, rapid progress in molecular biology, and the integration of global output and input markets have generated strong incentives for the private sector to invest in R&D. At the same time, the record of private research in natural resource management and in maintaining biodiversity is limited, with the exception of a few public-private partnership initiatives.

Investments by the private sector in the developing world remain small and agricultural research continues to be mostly funded by governments (Beintema and Stads, 2008). The evidence suggests that, on average, government allocations have accounted for 81% of funding since 2000, and only 7% of funding was derived through donor contributions. These latter contributions have been in the form of both loans and grants, and mostly attributed to countries in Sub-Saharan Africa and a few low-income countries in Asia and Latin America (Etcheverría and Beintema, 2009).

International R&D, in particular by CGIAR, has in many instances successfully led to the development of technologies well-suited to smallholder production systems. In the 1990s, more centres were added to the CGIAR and although total funding continued to grow, average spending levels per centre declined. Since 2000, overall funding to the 15 centres of the CGIAR has increased, but a larger portion of this funding is support for specific projects and programmes of research involving different centres and non-CGIAR research organisations (Beintema and Elliott, 2009)."

4/ Institutional innovations to enhance the synergies between AR and AR4D support mechanisms: examples of recent changes in some European countries

The EIARD, SCAR or ERA ARD delegates for Cyprus, France, Germany, Spain, Sweden, Switzerland, The Netherlands and the United Kingdom have, on a voluntary basis, provided information about the situation of Agricultural Research for Development in their countries or more specifically on efforts to better connect their AR and AR4D national investments.

The information provided by these delegates is **annexed** to this main text. This information shows that three main types of approaches are being implemented to better link AR and AR4D: funding mechanisms (especially joint calls); inter-institutional dialogue; networks, alliances and joint research teams.

1/ Funding mechanisms

- Joint calls

Joint AR/AR4D calls have been implemented in Germany (by BMBF¹⁸ and BMZ¹⁹), Sweden (by FORMAS²⁰ and Sida²¹), France (by ANR²² and AIRD²³), Portugal and Spain (by CYTED²⁴) Switzerland (by SDC²⁵ and SNSF²⁶) and UK. In UK, these calls associate BBSRC²⁷ and DFID²⁸. In one case, the call also gathers resources from a non UK governmental institution (the Government of India) and a non-governmental organisation (the B&M Gates Foundation).

One common characteristic between these joint calls is that they are all between institutions in charge of science (or research) and institutions in charge of foreign affairs (or cooperation, or development).

The advantages (increased visibility, potential leveraging effect) and constraints (complexity of project's evaluation, selection, and grant contracting) of joint calls are well known. Though each national situation has its specificities, there is ample scope for mutual learning on efficient joint calls. For instance, in the case of the UK calls launched by BBSRC and DFID, it is of interest to note that

- the evaluation of proposal was based equally on the scientific quality and on the development relevance, and followed a two stage selection process: first selection on the basis of concept note, final selection on the basis of full proposals.
- one institution (in this case BBSRC) managed the peer review and assessment on behalf of all the funding partners, and also took charge of the administrative supervision of the funded projects.

- AR funding mechanisms being extended to cover AR4D issues

Institutions funding "national" agriculture research have realised that it may also be in their interest to support some AR4D activities, without the establishment of a "joint call" with a development oriented institution.

This is, for instance, the case of the Ministry of Agriculture (BMELV²⁹) in Germany (funding a programme on animal zoonoses in Africa) or the Ministry of Research in Spain (in 2011, the Vice-Presidency for International Relations of the Spanish *Consejo Superior de Investigaciones Científicas* launched its first "CSIC for Development" call).

¹⁸ Federal Ministry of Education and Research, Government of Germany

¹⁹ Federal Ministry for Economic Cooperation and Development, Government of Germany

²⁰ Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning

²¹ Swedish International Development Cooperation Agency

²² French National Research Agency

²³ French "Agence inter-établissements de recherche pour le développement"

²⁴ CYTED is the Ibero-American Science and Technology for Development Program, involving 19 Latin American countries plus Spain and Portugal.

²⁵ Swiss Agency for Development and Cooperation

²⁶ Swiss National Science Foundation

²⁷ British Biotechnology and Biological Sciences Research Council

²⁸ Department For International Development, UK government

²⁹ Federal Ministry for Food, Agriculture and Consumer Protection, Government of Germany

Similar cases of Ministries of Agriculture funding AR4D activities have also been observed in Ireland³⁰ (on capacity development and on foresight) and in Sweden (core funding to the CGIAR in 2010).

- Funding of national AR researchers (non AR4D specialists) to get involved in AR4D activities, in particular in the CGIAR programmes

Some European governments implement specific funding mechanisms to ensure that all their national institutions, and not only the ones familiar with AR4D funding schemes, have the possibility of being involved in large scale international initiatives. These mechanisms are usually competitive calls restricted to the donor country national research institutions, and often target adding value to an existing AR4D institution or programme (for instance the CGIAR Consortium Research Programmes).

In some countries this mechanism is not considered as "aid" funding, as it benefits the national research organisations of the donor country, but it can have added value for both sides. For the donor country, it is a way to promote the existing national expertise and also to facilitate its exposure to international competition. For the "recipient" AR4D programme (or institution), it broadens the possibility of partnership to all the existing expertise in the donor country, beyond the "usual" AR4D partners.

Sweden and Germany have such competitive calls to push their national researchers to collaborate with the CGIAR Centres and the CGIAR Programmes. Similar funding schemes also exist in other European countries like Switzerland and Norway. In France, the Agropolis Foundation has a scheme for the benefit of its members in the Languedoc-Roussillon area to facilitate knowledge exchange and international partnerships. In this case, it is not limited to joint actions with the CGIAR but open to all international initiatives.

2/ Institutional policy dialogue

The French government has established a mechanism for inter-institutional policy dialogue on international agricultural research, including AR4D, since 1978: the CRAI (*commission de la recherche agricole internationale*). It gathers representatives of three Ministries (Ministry for Agriculture, Food, Fisheries, Rural Affairs and Land Use Planning; Ministry of Foreign and European Affairs; Ministry of Higher Education) and 5 French research institutions (CIRAD, INRA, IRD, IRSTEA, Agreenium). It has a consultative role in the definition of the French policy regarding international agricultural research. Beyond policy dialogue, CRAI also helps in the coordination of actions between its members.

The French Administration seems to be the only one in Europe with this long standing mechanism, but other European countries have more recently seen the need to strengthen their national inter-institutional policy dialogue on International agricultural research.

In Germany, each of the ministries BMBF (Research), BMELV (Agriculture) and BMZ (Cooperation) have established its own administrative unit in charge of food security. The ministries are using these thematic units to stimulate their bi-lateral or tri-lateral policy dialogues to better coordinate the various aspects of the Food Security challenges.

³⁰ Personal communication from Frank Flood (IrishAid), June 2012: IrishAid and Teagasc, the ministry of agriculture of Ireland, have engaged discussions leading to support by Teagasc to 3 initiatives involving developing countries:

- Funding for NARS in Tanzania
- Support to FARA's foresight academy
- Organisation by Teagasc of the next meeting of the Dublin Initiative, in September 2012 in Dublin.

In The Netherlands, the inter-institutional policy dialogue on agricultural research is influenced by the "Topsector" approach – especially the AGRO & FOOD and the WATER "Topsectors" - and has moved beyond the public sector to integrate private actors as well. Policy dialogue is conducted within each Topsector, and the coordination of actions (and funding) between participants (ministries, agencies, research institutes, companies) are established on the basis of "innovation contracts". As a consequence, Dutch development aid is shifting from a poverty alleviation approach to an economic development approach, at the same time becoming more directly linked to national interest. This policy is expected to facilitate synergies between AR and AR4D investments.

In Norway, the current push is to strengthen the dialogue between AR4D and the general field of "development research". This move is supported by funding mechanisms, like the recently launched Norwegian Programme for Capacity Building in Higher Education and Research for Development (NORHED).³¹

3/ Coordination or alliances between AR and AR4D institutions or scientists

Moving down from the policy level to the implementation level, several European countries have also experimented in mechanisms facilitating joint actions between AR and AR4D institutions or scientists.

Such coordination mechanisms can be national: this is the case of "Agri4D", the Swedish national AR4D network, of "IApD", the Spanish Research Network for Agricultural Development, and of Agreenium, the consortium of French agronomic research and higher education institutions.

The coordination mechanisms can also be local, as is the case of "SLU Global", the network coordinating all AR4D activities (in research and in capacity building, especially with African partners) of the Swedish University of Agricultural Sciences, in Uppsala, Sweden.

In France, such linkages between scientists at local level have gone far beyond mere coordination. Joint research teams have been established, gathering staff from various institutions: French institutions in the case of the "UMR" (*unités mixtes de recherche*), but also French and developing countries' institutions in the case of the "UMI" (*unités mixtes internationales*) or the "DP" (*Dispositif de recherche et d'enseignement en Partenariat*, Platforms in Partnership for Research and Training). These UMIs and DPs are of specific interest because they imply a long term mutual commitment between France and the developing country institutions which have agreed to co-invest (in cash and in kind) in joint scientific agendas, under a common administrative and scientific leadership and with a joint monitoring and evaluation system.

The 3 different approaches can also be combined. This is for instance the case for Germany which has

- I. a national agricultural research strategy, "BioEconomy 2030", that includes an International agricultural research and AR4D agenda, "GlobE";
- II. a joint funding mechanism between BMBF and BMZ, to support AR4D activities in Africa, on food security;
- III. a specific funding mechanism to support the participation of German scientific expertise to the CGIAR research programmes;
- IV. and an inter-ministerial dialogue between the 3 ministries related to the Food Security challenges (BMBF, BMELV and BMZ).

³¹ See <http://www.norad.no/en/support/norhed/call-for-norhed-seed-funding-2012>

The Cyprus case study is turning a spotlight onto the AR/ AR4D "divide". Cyprus has a tradition of investing in agricultural research, including in international research activities, but does not have a specific AR4D mechanism. As the government of Cyprus recently initiated an ODA (Overseas Development Aid) programme (Cyprus has shifted from being an "aid recipient" to being an "aid donor") it is interesting to note that it is avoiding creating specific "AR4D" instruments. Instead, from the outset, the Cyprus ODA programme is making use of the Agricultural Research Institute of Cyprus (to give training courses for partner countries).³²

5/ Conclusions and main recommendations

The main conclusion from this review is that the European situation regarding the AR / AR4D linkages is evolving rapidly. A lot has changed since the publication in 2008 of the previous document prepared by the SCAR EIARD ERA-ARD Task force³³ which recommended a better coordination between the different "components" of International Agricultural Research. Several European countries are experimenting new linkage mechanisms, at the three levels: institutions, funding instruments, and teams of researchers.

As a consequence, the synergies between AR and AR4D public investments in Europe are being strengthened.

Several SCAR, EIARD or ERA-ARD delegates have also indicated that this evolution is still on-going or is only starting in some countries and that they have shown a great interest for mutual learning. To facilitate the possibility of European institutions learning from each other's "experiments" on AR / AR4D linkages, for instance on co-funding practicalities (cf UK) or on partnership instruments between institutions and between researchers (cf France), is an obvious first recommendation.

The second conclusion applies to the European countries without specific AR4D institutions or funding mechanisms. This study has shown that they can develop their International Cooperation in Agricultural Research and bring their scientific contribution to global and development challenges such as Food Security without creating administrative barriers between AR and AR4D as they commonly existed (and generally still exist) in EU-15 countries. Like Cyprus, they can promote an evolution of their national AR system in order to "reach out" to the global challenges of the AR4D field.

As this review has been based only on European Country case studies, the second recommendation would be to extend the review to the European Commission's instruments supporting AR and AR4D. While EU Member states are showing the way for greater synergy between AR and AR4D, this evolution should also happen at EU level, between the various DGs of the EU Commission - RTD, DEVCO and AGRI - and between the Commission and the EU Member States. Together they could, for instance, foster an initiative that would echo the US-led "Borlaug Commemorative Research Initiative" leveraging the expertise and resources of both USAID and USDA....³⁴

³² This is specific to agricultural research. In the other aid domains, as Cyprus does not have an aid "delivery mechanism", its activities and funds are mainly channelled through international organisations (FAO, IFAD..) or through other European aid agencies (for instance IrishAid).

³³ "Fostering complementarities & synergies between European Agricultural Research for Europe and for Developing & Emerging Economy Countries". Report from a SCAR, EIARD & ERA-ARD Task Force. October 2008

³⁴ See <http://www1.usaid.gov/press/releases/2010/pr100616.html>

"Feed the Future research strategy (...) includes a new partnership between the U.S. Agency for International Development (USAID) and the U.S. Department of Agriculture (USDA) (...) to establish the Norman Borlaug Commemorative Research Initiative. The Borlaug Initiative will span the USDA's research agencies, increasing its relevance and impact on problems and opportunities faced by both US farmers and smallholder farm families

The **third recommendation** is to propose setting up a SCAR "strategic working group" on linkages between AR and AR4D. The role of this working group would be to pursue the reflection initiated by the Task Force, and in particular broaden the study to a larger number of countries and address the many issues not sufficiently covered in the present document. This SCAR SWG would also facilitate the exchange of experiences and joint learning between European countries on this issue.³⁵

The **fourth recommendation** is to set up a dialogue mechanism between SCAR - the Standing Committee on Agricultural Research, managed by DG AGRI and DG R&I- and the HARDs -Heads of Agriculture and Rural Development- meetings, managed by DG DEVCO. This mechanism would allow for exchange of information on issues of joint interest and would promote mutual understanding on AR and AR4D policies and instruments, between delegates from member states and associated countries and between Directorates Generals of the European Commission.

The last conclusion and **fifth recommendation**, is to "revisit" the AR and AR4D paradigms:

- because AR is increasingly "internationalised" and sees its societal justification more and more challenged by taxpayers and potential users of new knowledge,
- because the two historical "foundations" of AR4D, the north/south divide and the "aid" paradigm, are shifting. The borders between the various groups of "developing", "emerging" or "advanced" countries are increasingly blurred ; and the notion of "Aid funding" is being challenged by other approaches such as the "trade not aid" discussion (reference could also be made to the recent discussions at the Rio+20 Conference on "green growth" and on the post 2015 Millennium Development Goals indicators).

But does this mean that there is no more justification for differentiating AR4D from International AR? It is the view of the SCAR EIARD ERA-ARD task force that this is not the case, and that if AR4D is "absorbed" in the international dimension of an Agricultural Research dominated by academism and search for scientific excellence, not balanced by a demand-led and impact focused approach, then AR4D will lose its potential to harness knowledge to contribute to sustainable development. And European Agricultural research will miss opportunities to contribute to Europe 2020 strategy, including Europe International commitments.

In the 1970ies and 1980ies, agricultural research in Europe was not much challenged by the European society, as the continent went through a phase of self-sufficiency (and sometimes overproduction) in food, feed and fibre. Scientific excellence was then the main, sometimes unique, research purpose. Nowadays, with Europe having lost its self-sufficiency in agricultural product, with the growth of ethical issues around science, with the threats of climate change and of emerging disease, European society is now expecting agricultural research to go beyond scientific excellence. AR is asked also to generate social, environmental and economic impacts³⁶; and to facilitate innovation processes, in particular

in Africa, Asia and Latin America. This expanded relationship will add to USDA and USAID's partnerships with U.S. universities, the Consultative Group on International Agricultural Research, the private sector, and research organizations in developing countries"

³⁵ As an alternative to a SCAR SWG, these activities on AR / AR4D linkages could also be added to the terms of reference of the existing SCAR Collaborative Working Group on Agricultural Knowledge and Innovation Systems (AKIS).

³⁶ An example of this evolution is the recent change of evaluation criteria of the French Aeres (Agence d'évaluation de la recherche et de l'enseignement supérieur), In May 2012, this agency - in charge of the evaluation of all public research units in France every 4 years – announced that its evaluation will now include a set of criteria linked to the interaction between research and the "socio, economic and cultural environment", in

through better connections between researchers, the private sector and civil society. AR is therefore getting closer to AR4D, as the latter is commonly conducted in partnerships between a broad range of stakeholders (in this case from developed and developing countries), and is characterised as demand-led, inclusive and focussed on delivering impact for society - while at the same time contributing to certified knowledge and scientific excellence. European Agricultural Research and Development can learn a lot from their respective accumulated experience. It is not for AR4D to disappear, but for AR and AR4D to evolve in order to better address societal expectations (more impact and more stakeholders' involvement) while maintaining scientific excellence!

Box 3:

Extract from speech given by Dr Ismail Serageldin, director of the New Library of Alexandria, Egypt, at the "Africa & Europe Partnership Symposium: Science for Economic Development" EuroScience Open Forum (ESOF), July 14, 2012, Dublin, Ireland.

"Europe should not limit its science and technology cooperation with Africa merely to funding". (...) *Instead, it should* "target important research areas in grand challenge approaches for European research institutions to collaborate with developing countries" *and implement* "twinning arrangements that promote real action on the ground in Africa". (...) "There have been many past declarations both in Europe and in Africa, but we must now translate rhetoric into action,"

order to better reflect that the mission of publicly-funded research includes: « the development of knowledge; its transfer and use by firms in all the domains contributing to social progress". See www.aeres-evaluation.fr

Annex: Example of linkages between AR and AR4D in Cyprus, France, Germany, Spain, Sweden, Switzerland, The Netherlands and the United Kingdom.

Case study Cyprus

Agricultural Research and Development Cooperation in Cyprus

(by Dora Chimonidou and Polycarpou Polycarpou, ARI)

Cyprus has recently evolved from being an aid recipient to an aid donor and is at a point where it can share its accumulated experience and knowledge with less developed countries and may participate to world efforts for the eradication of poverty and diseases and for the upgrading of the living conditions of dispossessed people and of their developmental potential. Its development co-operation policy is only six years old – 2006 being the first year of direct involvement – and, indeed, its development assistance mechanism has not been completely set up. Cyprus is among Europe's most recent donors of development assistance. The Planning Bureau of the Cyprus Republic is the administrator of the country's development cooperation through CyprusAid.

CyprusAid is the Development Cooperation Service of the Republic of Cyprus, established in its current form by the Council of Ministers in 2005. CyprusAid functions within the framework of a policy making mechanism that has been put in place in order to steer Cyprus' Official Development Assistance. This policy mechanism is one that retains a high degree of centralisation in the decision making process, while at the same time allows for a more decentralized approach in the aid delivery arrangements. The mechanism comprises of a Coordination Body (CB) headed by the Minister of Foreign Affairs and having the Minister of Finance and the Permanent Secretary of the Planning Bureau as members. The CB is responsible for the setting up of targets (quantitative, territorial and sectoral) on the basis of international obligations, EU policy recommendations and national priorities. The Planning Bureau has policy preparation, administrative and implementation functions for the decisions of the CB while the MFA represents the Republic abroad and is responsible for publicizing the Republic of Cyprus ODA activities. A second body, headed by the Permanent Secretary of the Ministry of Foreign Affairs (MFA) and comprised of representatives of the Ministries of Finance, Commerce, Industry and Tourism, Agriculture, Natural Resources and Environment, Labour and Social Insurance, Education and Culture and the Planning Bureau, as well as representatives of civil society, acts in a consultative capacity to the Coordination Body. The Planning Bureau holds the administrative and implementation functions for the decisions of the Co-ordination Body.

Development Aid Strategy of CyprusAid:

CyprusAid makes grants for micro-projects of Cypriot NGOs, and offers scholarships at academic institutions in Cyprus for applicants from developing countries.

Cyprus does not currently have a mechanism for project implementation on the ground. Thus it implements its projects of bilateral development in collaboration other European development agencies, and with international organizations (i.e., mainly the United Nations agencies) that possess the necessary implementation mechanisms. After the accession of the country to the European Union, Cyprus has sought to align its policy directions with those of the European Union. The focus has thus shifted from an emphasis on creating a favourable environment for bilateral business contacts to the promotion of the Millennium Development Goals, with special emphasis on the elimination of poverty and diseases, the upgrading of living standards and the improvement of social conditions.

The strategy defines the following thematic areas as major priorities:

- Human capital and the services sector (health, HIV / AIDS, education, and tourism)
- **Infrastructure Development (road and dam construction, sewage and irrigation systems, solar energy, health infrastructure)**
- **Agriculture and the environment (agricultural research, forestry, veterinary services, environmental protection and policies, environmental impact assessment, agricultural planning, land-use planning, etc.).**
- **Grant Programs for Agriculture, Energy, Environment, and Natural Resources**

Cyprus has no legal or policy framework to work with the country's civil society for the implementation of development assistance. However, the government is currently working towards that objective. In the long run Cyprus plans to establish its own aid delivery structure which will be set up according to the European guidelines for the selection and implementation of projects using sound and transparent procurement procedures and the project cycle management methodology. In the interim, CyprusAid is able to work with national NGOs on an ad hoc basis to provide small grants.

CyprusAid funds international scholarships for academic studies in Cyprus through the Technical and Development Assistance Scheme. The funding supports degree programs as well as short-term training. Applicants are from the CyprusAid partner countries.

Short term scholarships (4 to 6 weeks courses) are provided for participation in subject-specific courses in the fields of Business Management (i.e. Small and Medium Enterprises, Marketing Management, Entrepreneurship etc.), Hotel Services and Tourism (i.e. Food & Beverage Management, Tourism Planning etc.), Public Administration (i.e. Financing Public Sector Services & infrastructure) **and Agriculture (i.e. Innovative Agricultural Technology and Management).**

Long term scholarships (1 or more years duration) are provided on an ad-hoc basis officially by the Government of the Republic of Cyprus to other Governments. The fields of study include Management, **Forestry** and Hotel and Tourism Operations.

As of 2007, Cyprus Aid has initiated the Master in Business Administration (MBA) scholarship scheme on a pilot basis. Through this scheme, it is possible for individuals from the recipient list of countries to attain a professional MBA title on a full scholarship provided by the Government of the Republic of Cyprus. The universities taking part in the scheme are the University of Cyprus (UCY), the University of Nicosia (UNIC), the European University Cyprus (EUC) and the Cyprus International Institute of Management (CIIM), which also offers the Master in Public Sector Management (MPSM) degree. All the universities mentioned above provide officially accredited high academic standard MBA titles. **MBA Degree Programs often include training at the Agricultural Research Institute of Cyprus (ARI) in the subjects of Post Harvest Handling, Plant Protection, Irrigation Systems and automation, Hydroponic Systems, Protected Cultivation, etc. ARI completes this year its 50th year of successful contribution to agricultural research and can provide an up-to-date profound "training of trainers" in the mentioned areas of expertise as Aid to the partner countries.**

Geographical Distribution of Grant Activities in Developing Countries:

Bilateral Aid:

The preferred bilateral instruments for Cyprus's ODA delivery are delegated implementation through other countries' aid delivery mechanisms (e.g. Irish Aid, DED German Development

Service, Belgian Development Cooperation, etc.), and delivery of assistance through the implementation mechanisms of international organisations (e.g. WFP, IFAD, FAO etc.).

Cyprus directs its bilateral development to “project countries,” and it also recognizes “technical assistance countries.” Priority countries (i.e., the project countries) are marked with asterisks (*) below:

- **Southeast Asia and Pacific Islands:** Indonesia
- **South Asia:** Bangladesh, Pakistan
- **Eurasia and Central Asia:** Armenia, Azerbaijan, Georgia, Iran, Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan
- **Eastern Europe and Russia:** Bosnia and Herzegovina, Moldova
- **Middle East and North Africa:** *Egypt, *Lebanon, *Palestinian Territories, *Yemen
- **Sub-Saharan Africa:** Gambia, *Lesotho, *Mali, Sudan

Multilateral Aid:

Multilateral aid is channelled through contributions to a large number of international organizations. In 2005, Cyprus voluntarily contributed US\$ 1,532,401 to multilateral institutions. The top five recipients were – in decreasing order: the European Bank for Reconstruction and Development, the Commonwealth Fund for Technical Co-operation, the Facility for Euro-Mediterranean Investment and Partnership Trust Fund, the World Health Organization and the World Trade Organization. An effort is being undertaken, however, to streamline these contributions to a smaller number of organizations, focusing particularly on the UNDP, UNIDO, FAO and UNFPA.

Co-operation with NGOs:

Currently, there is no legal framework for cooperation with NGOs. However, it is the will and interest of the Ministry of Foreign Affairs to fully utilise NGOs’ expertise, knowledge and experience, and it aims to co-operate with them. Currently, efforts are in progress to set up an institutional and legal framework that will enable the government to fund NGOs. Although there is no legal co-operation framework with NGOs, Cyprus already frequently works with NGOs on an ad hoc basis. This is possible as a part of the Ministry of Foreign Affairs budget which funds micro-projects. Thus, NGOs can contact the Ministry of Foreign Affairs and submit proposals for microprojects.

Examples of Recent Grants

In 2008, Cyprus spent €27 million on official development assistance.

CyprusAid allocates about €700 thousand per year for scholarships. In 2009-2010, Cyprus provided scholarships to recipients in 15 developing countries.

For the 2008 academic year took place four (4) short term courses offered in two (2) Academic Institutions as follows:

- **Cyprus International Institute of Management (CIIM)**

12.05.2008 – 06.06.2008 Starting your own Business

03.11.2008 – 28.11.2008 Innovative Agricultural Technology and Management

- **Mediterranean Institute of Management (MIM)**

17.06.2008 – 11.07.2008 Marketing Management (for Small and Medium Enterprises)

22.10.2008 – 31.10.2008 General Management (for Small and Medium Enterprises)

Case study France

Mechanisms linking AR and ARD in France

(by Vincent Baron and Sylvie Lewicki-Dhainaut, Cirad)

Over the last two decades, globalisation has gone hand in hand with major economic progress. Hundreds of millions of women and men have thus managed to rise out of poverty in India and China, as well as in the rest of Asia, in Africa and in Latin America. Yet at the same time, food security is still not guaranteed for a billion human beings and the growth of the overall population to 9 billion around 2050 will increase the needs for a more productive agriculture with acute pressure on natural resources (land, water, and biodiversity). Today the collective challenges include managing climate change, biodiversity loss and the spread of infectious diseases.

To tackle these challenges, French agricultural research institutions and universities are mobilizing. The French government reinforced already established policy governance, funding and programmes mechanisms in order to strengthen the national and international scientific partnerships in Agricultural Research and Agricultural Research for Development.

1/ Coordination of the policies and instruments at the national level

The International Agricultural Research Commission (CRAI)

The French government set-up the CRAI (*commission de la recherche agricole internationale* or international agricultural research commission). The Commission groups administrative general directorates (the Foreign and European Affairs Ministry's Globalization General Directorate, the Food, Agriculture, and Fishing Ministry's Education and Research General Directorate, and the University Education and Research Ministry's European, International, and Cooperation Department) as well as the relevant research institutes (CIRAD³⁷, INRA³⁸, IRD³⁹, IRSTEA⁴⁰, and the CNRS⁴¹) to define France's strategy regarding international agricultural research and coordinate the French approach to this issue.

The Funding agencies ANR and AIRD

Two governmental agencies manage several mechanisms dedicated to reinforce research efficiency and develop international partnerships:

- ANR⁴² the French research-funding organisation develops bi-national or multilateral partnerships on topics of common interest and deemed strategic by the partners. In 2010, 160 internationally co-funded projects received € 48 million of funding representing 11,6% of all funded projects and 7,6% of ANR's call budget.
- The AIRD⁴³ is in charge of the definition and management of R4D (research for development) programmes and projects. The Agency acts through programs of research, training, innovation and dissemination of knowledge to the South. It deals with all of the scientific themes involving the Southern countries. With six founding members (Cirad, CNRS, Inserm, IRD, Institut Pasteur, conference of University

³⁷ CIRAD International Cooperation Center in Agricultural Research for Development

³⁸ INRA Institut National de la Recherche Agricole or National Agricultural Research Institute

³⁹ IRD Institut de Recherche pour le Développement or Research Institute for Development

⁴⁰ Irstea, National Research Institute of Science and Technology for Environment and Agriculture is in joint supervision with the Ministry of Research and the Ministry of Agriculture and is holder of an agreement with the Ministry of Ecology,

⁴¹ CNRS Centre National de la Recherche Scientifique

⁴² ANR Agence Nationale de la Recherche (French National Research Agency)

⁴³ AIRD Agence Inter-établissements de Recherche pour le Développement

Presidents), the Agency relies on French scientific capacity and their network of partners in the countries of the South to achieve its missions. ANR and AIRD jointly manage specific transnational programmes (like Agrobiosphere) aiming at strengthening partnership between researchers in France and in Southern countries.

AGROBIOSPHERE

a joint ANR and AIRD transnational programme

The “Agrobiosphere” programme (Viability and Adaptation of Productive Ecosystems, Territories and Resources Face to Global Changes) aims to define transitions towards new production systems in a context of adaptation to the future global change. For this, it needs first a better understanding of the ecological functioning of the productive ecosystems. It also leads to enlarge the scope of technological, organizational, economic and social solutions to be mobilized for resolving viability and adaptation problems of productive ecosystems. In other words, it aims to design adaptive trajectories at the scales of production systems and landscapes.

2/ National and Regional consortia of AR and AR4D institutions

a. Agreenium: a nationwide consortium

French agronomic research and higher education institutions are joining forces to face global food and environmental issues. INRA, CIRAD, the graduate agronomic schools (AgroParisTech, AgroCampus Ouest, and Montpellier SupAgro) and the National Polytechnic Institute of Toulouse (INPT) have founded a Consortium, **Agreenium**, with the aim of facilitating access to research and higher education facilities in France. Its purpose is to promote the role of agronomic and veterinary research to meet the challenges of food security and sustainable development. **Agreenium** implements actions and programmes linking research, training and development in agriculture.

EIR-A: a PhD programme of excellence

Agreenium’s International Research School (EIR-A) offers a PhD programme of excellence accredited with the Agreenium label. This programme completes the PhD course provided by the establishment in which the student is enrolled. EIR-A aims to improve the job prospects of doctoral students by raising their awareness of the major challenges facing society at the international level.

EIR-A, dedicated to training students for and through research, tackles global challenges in the field of agricultural sciences, raising the student’s awareness of the major issues facing society and the socio-economic world.

EIR-A seeks to develop the innovative capacities of its PhD students and young researchers in contact with the front line of science. Based on its partnerships with doctoral schools, EIR-A offers a professionalization programme based on European benchmarks/ standards, considering the PhD student as a young professional.

b. Agropolis International: a regional platform dedicated to IAR and AR4D

On the Montpellier site, Agropolis International is a platform opened to the development of the Mediterranean and tropical regions. It gathers a large range of 45 stakeholders and partners involved in economic development, who have chosen to settle in this region,

including universities and higher education establishments (Montpellier SupAgro, the universities of Montpellier, Nîmes, Perpignan, etc.), research organizations (CIRAD, INRA, IRSTEA, IRD, CIHEAM⁴⁴ the USDA's European Biological Control Laboratory, the Australian CSIRO's entomology division, the EMBRAPA's LABEX, etc.), and regional administrative authorities.

The **Agropolis Foundation** is a French scientific foundation established in 2007 to promote and support high-level research and higher education (training-through-research) as well as to broaden international research partnerships in agricultural sciences and sustainable development research. It supports projects with fellowships, doctoral and post-doctoral grants and other awards that enable leading and promising international scientists to work with the Foundation's scientific network in Montpellier thereby facilitating knowledge exchange and international partnerships.

REFUGE (The RicE FUnctional GENomics platform)

REFUGE is an international hosting platform, based in Montpellier, Agropolis campus, opened to the international plant science community.

It offers an access to bioinformatics, biological, and molecular resources and expertise allowing hosted scientists, including non-rice specialists, to use rice as a model system to elucidate gene function through functional genomics strategies. Hosting of the scientists is typically carried out through one to several visits (from one week to 3 months) on the platform, REFUGE taking care of the materials produced between two visits.

REFUGE is funded by Agropolis Foundation (<http://www.agropolis-fondation.fr/>) and set up by the AGAP (<http://umr-agap.cirad.fr/>) and DIADE (<http://www.diade.ird.fr/>) units.

3/ Coordination of scientists from different organisations on programmes or projects

a. Joint Research Units:

The research institutions dedicated to food, agriculture, rural areas, and territorial development are INRA, IRSTEA (ex-Cemagref), CIRAD, and IRD. These four institutions are supervised by the Ministry of Higher Education and Research. The first two are also supervised by the Ministry of Agriculture, while the Foreign and European Affairs Ministry has the same role for the two last. Representatives of these ministries participate to the respective Board meetings.

Since the end of the 1990ies, the French government has incentivized the creation of joint research teams gathering scientists from diverse research and higher education institutions, in particular in order to obtain the critical mass sufficient to handle increasing global issues. Such alliances known as UMRs, *Unités Mixtes de Recherche* or Joint Research Units, are set up for 4 years, and evaluated by an independent national body every 4 years.

⁴⁴ CIHEAM International Centre for Advanced Mediterranean Agronomic Studies

Joint Research Unit (UMR) - AGAP

Genetic Improvement and Adaptation of Mediterranean and Tropical Plants

CIRAD, UM2 (University of Montpellier), INRA, Montpellier Sup-Agro

In a fast-changing global environment, the capacity to produce improved planting material suited to different and changing growing conditions is an absolute priority. Genetic improvement is also a real scientific challenge. Genomics, informatics and mathematical modelling have opened up new possibilities of studying the relations between genetic diversity, agronomic performance and response to breeding. The AGAP unit encompasses a broad range of expertise in this major field, and is a leading platform for applied plant biology and genetics.

Thirteen teams are working on both tropical and Mediterranean species (rice, wheat, sorghum, sugarcane, banana, coconut, oil palm, yam, coffee, rubber, cocoa, cotton, apple, grapevine, olive, forest species, eucalyptus, etc.) that cover a very broad range of biological characteristic.

Joint Research Unit (UMR) – MOISA

Markets, Organizations, Institutions and Operators' Strategies

CIHEAM, IRD, CIRAD, Montpellier SupAgro

The unit includes researchers in economics, management, sociology, anthropology and political science. Its core topic is the governance of sustainable development in the agrifood systems of Mediterranean and tropical countries.

In particular, the unit works on standards as instruments for governing agrifood systems, alternative food supply and demand models, how rural producers may be structured on various levels, and ways of regulating the agricultural and rural sectors. It comprises five teams: Sustainable food consumption; Strategy, governance and performances of firms and production chains; Institutional economics applied to production chains; Governance of resources and territories; and Sociology and political economics of sustainable development.

Joint Research Unit (UMR) – LSTM

Laboratory of Tropical and Mediterranean Symbioses

IRD, CIRAD, Montpellier SupAgro, University of Montpellier 2 (UM2)

LSTM is a Microbiology and Plant Biology unit, specialised in Biodiversity and Functional Mechanisms of symbiotic microorganisms, and the Plant response to microorganisms and environmental extreme conditions.

LSTM fundamental and applied research is mainly dedicated to Mediterranean and Tropical areas in which plant/micro-organisms symbioses can play a crucial role in agronomic production, forestry and in restoration of threatened environments, especially in South countries.

LSTM focuses its researches on rhizobia / legume and plant / mycorrhizal symbioses. The unit's scientific objectives are to characterize, analyse and exploit the range of symbiotic and rhizospheric associations within plant-microorganism relations. On a fundamental level and in terms of training, this means characterizing the molecular mechanisms involved in how these associations function and evolve, on a few microbial and plant models. In terms of applications and commercial development, the aim is to offer methods likely to be of direct interest to firms in the biotechnologies field.

b. International Research and training platforms or Units or Laboratories

Ever more research associations are being set up under the framework of partnerships between these research organizations and university education establishments in Europe, in emerging countries, and in southern countries. IRD, CIRAD and CNRS developed specific instruments in order to set-up and strengthen international partnerships on a long-term basis. The several institutions involved in the partnership provide buildings, equipment and researchers, different names were given to these platforms depending on the institution and the rules of management:

- * *DP (Dispositif de recherche et enseignement en Partenariat) Platforms in Partnership for Research and Training for CIRAD*
- * *UMIs (Unités Mixtes Internationales or Joint International Units) for CNRS*
- * *LMI (Laboratoire Mixte International) for IRD.*

Platform in Partnership for Research and Training

Harare, Zimbabwe

The Research Platform « Production and Conservation in Partnership » (RP-PCP) was formally established in 2007 and renewed in 2010 after an external evaluation conducted by an external experts' panel. The RP-PCP has to contribute to sustainable development, nature conservation and improved rural livelihoods in Southern Africa, through strengthening national research capacities, multidisciplinary approaches and institutional partnerships. The focus is on protected and neighbouring production areas, with the ambition to improve the coexistence of agricultural productions and conservation of natural resources for the benefit of rural communities.

It associates the CIRAD (UMR-MOISA, AMAP, GREEN, AGIR), the National University of Science and Technology (NUST), the University of Zimbabwe (UZ) and the CNRS.

***ESS an International Joint Unit in Western Africa
CNRS, Western Africa Universities***

In 2009, the International Joint Unit called "Environnement, Santé, societies" (ESS, or Environment, health and societies) has been created to build an effective interdisciplinary scientific instrument bringing together researchers from the North and South, in order to answer questions about environmental transformation and its impact on health and society in Western Africa. The agreement to create the International Joint Unit (UMI) was signed by CNRS, the Centre national de la recherche scientifique et technologique (CNRST) in Ouagadougou, Burkina Faso, the Cheikh Anta DIOP University in Dakar (UCAD), Senegal, and the University of Bamako, Mali. The UMI, ESS Unit is aimed at leading to the development of a large-scale interdisciplinary project bringing together the humanities and social sciences and environmental sciences and sustainable development in Western Africa. At CNRS, this unit is under the authority of the Institute for Humanities and Social Sciences (INSHS), but also receives support from the Institute for Ecology and Environment (INEE). Researchers from France, Burkina Faso, Mali and Senegal work for the UMI. The UMI's directors' offices will alternate between UCAD, in Dakar, CNRST in Ouagadougou and the University of Bamako. The UMI is directed by both French and African researchers, with a director who will be assisted by project directors at the four geographical sites Marseille, Ouagadougou, Bamako and Dakar. The agreement creating the UMI is for four years, renewable.

Joint International Laboratory LMI LBMV

Laboratoire de Biotechnologie Microbienne et végétale

*UMR-LSTM and DIADE IRD, CIRAD, CNRS, UM2, Montpellier sup-Agr, INRA),
University Mohamed V Morocco, University Cheik Anta Diop, Senegal*

The microorganisms, nitrogen-fixing bacteria and mycorrhizal fungi that live in symbiosis with plant species play a vital role in increasing and sustaining agricultural and forest production, but also in regenerating tropical and Mediterranean environments. They enable the adoption of strategies aimed at sustainable development and at rehabilitating degraded and threatened ecosystems.

Case study Germany

(by Wolfgang Kasten, GIZ)

Germany as a founding member of the CGIAR supports development oriented agricultural research since the creation of the CGIAR 40 years ago. The support is given by the Federal Ministry for Economic Co-operation and Development (BMZ) and amounts currently at an annual level of 23 Million Euros. Beside these multilateral commitments BMZ gave a significant support for agricultural research for development in its bilateral co-operation with developing countries until the end of the last century. The involvement of German agricultural research capacities was limited mostly to universities only. Huge agricultural research capacities outside the universities focussed their research agendas mostly on German or European research questions only.

Times are changing. Challenges are growing. In times of globalisation with a fast growing population on earth and shrinking resources we need to rethink about the use of research capacities. National agricultural or climate research capacities should be harnessed to address global issues such as hunger, poverty, and climate change. In recent times a dialog started between different federal ministries namely the Federal Ministry of Education and Research (BMBF), The Federal Ministry of Food, Agriculture and Consumer Protection (BMELV), and BMZ to address these issues together. More and more German agricultural and climate change research capacities contribute to solve global issues.

A first example is a joint call for proposals of BMBF and BMZ for agricultural research for development projects in Africa in the frame of [Globe](#). GLOBE is a research initiative in the frame of the National Research Strategy BioEconomy 2030. Securing the global food supply is a central aim of this strategy.

Another example is the support of BMZ to the CGIAR projects in the frame of the so called consortium research programs of the CGIAR. One of these consortium research programs is on "Climate Change, Agriculture and Food Security". One nucleus of this program was the BMZ research priority area on adaptation of African agriculture to climate change which was supported with 10 Million Euros. BMBF, together with ten West African countries, has started the West African Science Service Center on Climate change and Adapted Land Use ([WASCAL](#)). A similar initiative the Southern African Science Service Centre for Climate Change and Adaptive Land Management ([SASSCAL](#)) has recently started. Current commitments are up to 100 Million Euros. It will be a challenge to align these initiatives with the ongoing consortium research program of the CGIAR.

Research institutions of BMELV recently started talks to international agricultural research centres. One result of these talks is for example that a joint project to fight against African swine fever is elaborated.

Case study Spain

Analysis of the current situation of agricultural research for development in Spain

(by Paloma Melgarejo, Inia)

Funding mechanisms

The strategy of the Government of Spain for International Cooperation in the period 2009-2012, is contained in the Master Plan for Spanish Cooperation. This plan establishes the priority areas on which we must pay special attention: health, sanitation, education, food sovereignty and human resources training. Similarly, the National Plan for Research, Development and Innovation 2007-2012, has put forward the priorities in science among which are those of international cooperation.

The Spanish Agency of International Cooperation for Development (AECID) is responsible for funding activities in Agricultural Research for Development, through two non-thematic programs: Inter-university and Scientific Cooperation Programme (PCI) and the Permanent Open Call (CAP). The PCI was initiated in 2003 as an evolution of the former INTERCAMPUS comprising nineteen Latin American countries, Tunisia and Morocco. Later additional countries were added that currently cover four geographic areas (see underlined link for more information): Latin America, Mediterranean, Sub-Saharan Africa and Asia. The PCI includes support for Preparatory Actions and Integrated Actions. CAP Grants are intended to finance projects or activities in cooperation for development, such as economic and social, cultural, technical, scientific, professional, care, awareness and dissemination of international cooperation for development, which may be implemented both in Spain and abroad. In 2011, the first included CAP Program Studies and Research and Development. The purpose of this CAP priority was to help conducting experimental and/or theoretical work in order to gain new scientific or technical knowledge of relevance in the field of cooperation for development.

In the specific area of agriculture, the National Institute for the Agriculture and Food Research and Technology (INIA) is the main Spanish organization that has funding responsibilities and represents Spain in international organizations such as CGIAR and networks of the European Research Area (ERA-Nets). In addition, it belongs to the Regional Fund for Agricultural Technology (FONTAGRO), through which it funds projects in Latin America. It also provides additional aid through a subprogram on "complementary actions".

Some regions also fund research for development through their own agencies, for example, the Andalusian Agency for International Development (AACID), Catalanian Agency for Development Cooperation (ACCD) or Galician Cooperation.

Most universities have offices of cooperation for development with its own programs, generally modest.

In 2011, the Vice-Presidency for International Relations of the Spanish national research council CSIC (Consejo Superior de Investigaciones Cientificas) launched its first call, named "CSIC for Development".

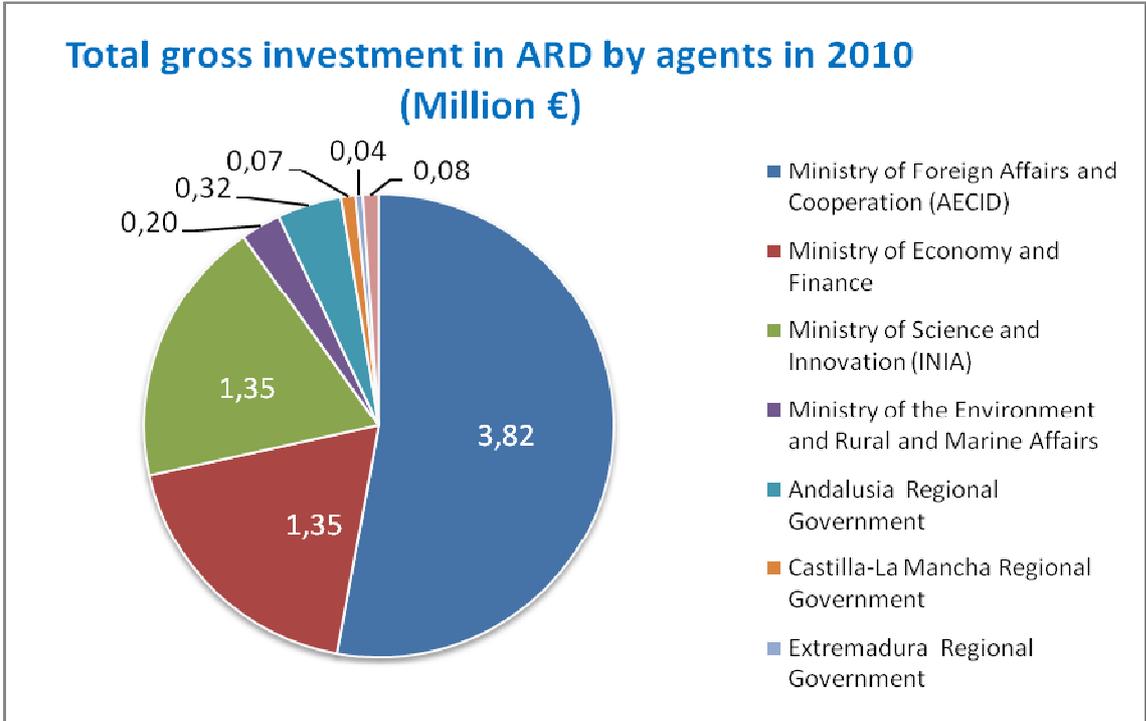
Until recently, INIA and CSIC belonged to the Ministry of Science and Innovation but presently since December 2011, both are within the structure of the Ministry of Economy and Competitiveness (MINECO). In addition, this ministry represents Spain in the Ibero-American Science and Technology for Development Program (CYTED), involving 19 Latin American

countries plus Spain and Portugal, within the Iberoamerican General Secretariat. One of the priorities of this program focuses on food industry. CYTED is defined as an intergovernmental program of multilateral cooperation in Science and Technology, which provides different perspectives and views to promote cooperation in Research and Innovation for the Development of Latin American Region.

ARD funding entity and program

The AECID is the largest financial contributor to ARD by providing 44% of the funds identified, mainly through the PCI program. The amount assigned to ARD through PCI accounted for 18% of the overall PCI budget. Two additional funding organizations are the Ministry of Science and Innovation (now integrated into the Ministry of Economy and Competitiveness) and the Ministry of Economy and Finance (now split between Economy and Competitiveness and Finance and Public Administration).

Figure 1. Spanish ARD funding (amounts contributed in 2010).



Where research is done:

During 2009 and 2010, more than half of funded projects were conducted in collaboration with Latin American countries reaching 62% of the total. North Africa was the next region in terms of number of projects funded (38%) and total funding (27%). The country with the largest number of projects was Tunisia, with 14% of the total, and 8% of funding (Table 4). It should be noted that, other countries got more funding with fewer projects: Cuba with 10% of projects and funding, and Bolivia with half the projects but also the 10% funding. Other countries participating in ARD projects were Morocco, Egypt and Algeria in North Africa, and Chile, Argentina and Ecuador in Latin America.

Table 1. Major countries with which Spain collaborates, number of projects and funding issues addressed, key areas and main counterpart institutions in 2009-2010

Country	Proy.		Funding		Main thematic areas	Main counter- part entities
	Nº	%	€	%		
Tunisia	36	14	765.669	8	Plant production	Institut de L'Oliver
Morocco	28	11	502.930	5	Water, soil and environment	Université Abdel Malek Essaadi
Cuba	25	10	985.727	10	Water, soil and environment; Socio-economy, Rural development and cross cutting issues	Universidad Agraria de la Habana
Chile	22	8	822.783	9	Forestry systems; Socioeconomy, Rural development and cross-cutting issues	Universidad de Concepción
Egypt	18	7	624.370	7	Plant production	National Research Center
Argelia	15	6	617.015	6	Forestry systems	École National D'Agronomie
Bolivia	13	5	905.315	10	Forestry systems	Universidad del Valle
Argentina	9	3	213.420	2	Water, soil and environment	Universidad de Buenos Aires, Universidad Nacional de Luján
Ecuador	7	3	442.330	5	Water, soil and environment	Universidad Técnica Particular de Loja

WHO and WHAT is the focus of ARD

In 2009 and 2010, the CSIC has been the most active entity in terms of number of projects (35), but the University of Córdoba (UCO) got more funding for ARD (Table 5). Other active institutions were the Polytechnic University of Madrid (UPM), the University of Almería (UAL), the Complutense University of Madrid (UCM), the Polytechnic University of Catalonia (UPC), the Research and Technology Agrofood Institute (IRTA) and the Autonomous University of Madrid (UAM).

The subject area with the largest number of shares and funding has been Water, Soil and Environment which highlights the role of the University of Almeria (UAL) that works mainly with Morocco (Table 6). To these thematic areas follow Socioeconomics and Rural Development Cross-cutting issues, led by UAL, and Plant Production, with the CSIC as the main participant. In terms of funding the thematic area "Forestry Systems" led by the CCU should be highlighted.

Aquaculture has been identified in only 2 projects, one led by the Technology Center of the Sea (CETMAR) and another from the University of Cádiz (UCA).

Table 2. ARD leading Spanish entities, number of projects, funding, main partner countries and thematic areas in the 2009-2010 biennium

Entity	Nº Proj.	Funding (€)	Main countries	Thematic area
CSIC	35	1.161.103	Tunisia, Morocco, Costa Rica	Plant production
UCO	20	1.551.343	Chile, Bolivia, Tunissia	Forestry systems
UPM	22	381.009	Argentina, Chile, Tunissia	Plant production
UAL	15	962.538	Argentina, Cuba	Socioeconomy, Rural development, Cross-cutting issues

UCM	14	420.736	Chile	Socioeconomy, Rural Development, Cross-cutting issues
UPC	13	240.276	Egypt, Bolivia, Argelia	Water, soil and environment; Plant production
IRTA	12	109.634	Tunissia, Chile	Plant production
UAM	9	176.350	Cuba, Tunissia	Water, soil and environment

Table 3. Main thematic areas addressed, number of projects, funding, major countries and acting entities 2009-2010.

Thematic	Nº of projects	Funding €	%	Main countries	Main Spanish entities
Water, soil, environment	64	2.540.754	27	Marruecos	UAL
Socioeconomy, Rural development, Cross-cutting issues	61	2.305.722	24	Cuba, Perú	UAL
Plant production	61	1.225.516	13	Túnez	CSIC
Food tech and nutrition	28	709.288	7,5	Marruecos, Túnez	No destaca
Forestry systems	21	1.923.350	20	Chile	UCO
Animal production	18	451.062	4,7	Cuba	INIA
Integrated systems	3	36.000	0,4	Marruecos, Colombia	UPM, IRTA
Tech and engineering	3	80.000	0,8	Costa Rica	Universidad de Alcalá
Aquaculture	2	237.667	13	El Salvador, Cuba.	CETMAR, UCA

Coordination of future activities:

In the present time of budget constraints it is necessary to increase the efficiency of budgetary resources available and working towards aligning the strategies both in the field of international cooperation for development and research.

Since 2008 Spain has created a Research Network for Agriculture Development (IApD) to which most research centers and universities in Spain, working in the agri-food sector, belong. Therefore, this network can be considered as a focal point for coordinating the activities of Agricultural Research for Development to be held in Spain through various public research bodies (State and regional governments) and Universities with the funders, mainly AECID and to a less extent INIA.

There is a willingness to discriminate among research ARD (accounting for most of the funded activities), ARD in training and ARD in knowledge and technology transfer.

As in 2012, the strategies both for International Cooperation for Development and for Research, Development and Innovation will be defined for the upcoming years. Therefore, it is desirable to look for greater coordination and integration of strategies in place to seek greater efficiency investment. In terms of research, it would be desirable not to distinguish between agricultural research and agricultural research for development, which should both be considered as research activities that may have a direct and immediate purpose or another derivative. Therefore mechanisms should be established to develop research

activities integrated into national programs so as to allow access to the participation of third parties in those priorities with a global vision where there is mutual interest.

Case study Sweden

Innovative linkages within ARD and between AR and ARD

(by David Lymer, Sida)

Joint Sida call with FORMAS (The Swedish Research Council, Formas) Formed 2001, Formas supports basic and applied research in the areas of environment, the agriculture/forestry/fisheries industries and societal development. The agencies international activities include research support, strategy and analysis, and research communication within Environment and Nature, Agricultural production, livestock and food and Societal development. The goal with Sida's part in this joint call is to ensure a Swedish presence at centres within the CGIAR system, and to increase the proportion of agriculture-related development research.	3 500 000 SEK/ year
Swedish development research (U-Forsk) For Swedish researchers within the areas of natural resources and the environment, for research of particular relevance to developing countries.	30 000 000 SEK/ year
Support to SLU via SLU Global (UD) (earmarked for capacity building activities within SLU's thematic areas)	15 000 000 (2012 - 2013) 7,5 MSEK/year
Agri4D (SLU coordinated national ARD network)	5 075 170 (2009 – 2013) 1 M SEK/year
Sida financed International TrainingProgramme (ITP) on Genetic Resources and Intellectual Property (Grip)	55 000000 (2003 – 2013) 5,5 M SEK /year
Ministry of Foreign Affairs (UD) 40support to SLU (ARD projects most of which include some aspects of capacity building; Focus on Africa)	40 000 000 (2011 – 2012) 20 M SEK/year
SLU Global: coordinates all SLU ARD activities (research and capacity building) with main focus on Africa.	5 000 000 SEK /year (from SLU core funds ex Ministry of Agriculture)
Grand Total	222,5 M SEK/year

Capacity building in Swedish recipient countries (with main focus on ARD in Africa).	
International Foundation for Sciences	Established in 1972, IFS is a non-profit organisation which works to contribute to developing countries capacity to conduct multi-disciplinary research on the sustainable use of biological resources. This is achieved by supporting young researchers who have

	<p>the potential to be leading within the local scientific community. Capacity development of young and promising researchers in developing countries by a competitive post-doc funding system in which support is given specifically to the natural sciences with focus on research related to the management and sustainable use of biological and water resources.</p>
ICIPE	Capacity development by support to PhD students and post-docs.
<p>Bolivia UMSA- UNIVERSIDAD MAYOR DE SAN ANDRES UMSS- UNIVERSIDAD MAYOR DE SAN SIMON</p>	<p>Increasing the research capacity of Bolivia's largest University. Support mainly to research training within Agriculture, Geology and Biodiversity</p>
Burkina Faso	Supporting PhD and MSc training to increase the national research capacity, particularly within agriculture and forestry.
<p>Ethiopian Addis Ababa University AAU Haramaya University HU</p>	<p>The purpose of Sida's support has been to strengthen the capacity at national, university and research institute levels in order to improve the country's ownership and quality of research and research management. PhD training of personnel and collaboration with Swedish universities according to the sandwich model within natural sciences, informatics, technology and agriculture.</p> <p>The Faculty of Veterinary Medicine and Animal Sciences at SLU is part of an investment to strengthen research training at Addis Ababa University (AAU). Collaboration consists of PhD students within Animal Sciences and Veterinary Medicine Research are trained and supervised locally (at AAU) by researchers from SLU.</p>
<p>Mozambique UEM Eduardo Mondlane University</p>	<p>The long term goal is to support UEM in creating a national research system, strengthen research capacity, increase knowledge and production, and improve technical innovation within, amongst others, veterinary medicinal research (4 PhD's and 2 MSc's) and agriculture (5 PhD's).</p>
<p>Tanzania Tanzanian Council for Science and Technology (COSTECH) University of Dar es Salaam (UDSM) ARDHI University (ARU)</p>	<p>Sida's research collaboration with Tanzania started in 1977 and aims to increase research capacity in amongst others agriculture and food processing</p>

Uganda Makerere University (MU),	Support to build up a sustainable institutional research capacity in Uganda and produce a knowledge base to cope with national problems. Makerere University (MU) is the largest public University in Uganda. Areas include Ecological resource management (including food production and processing), biotechnology and ecosystems, urbanisation, renewable energy, ICT, GIS, water resources, innovation systems, environment and climate change.
Total (approx.)	150 000 000 SEK / year

Case study Switzerland

AR4D as part of a new joint research programme of the 'Swiss Agency for Development and Cooperation (SDC)' and the 'Swiss National Science Foundation (SNSF)'

(by Manfred Kaufmann, SDC)

Geopolitical and economic transformation as well as new global risks and environmental challenges require new approaches for development assistance and emergency aid. Increasingly, international cooperation on global issues is seen as the way forward. Research and innovation are decisive factors for sustainable development and for the solution of global problems. This applies to all development relevant sectors, but particularly to Agricultural Research for Development (AR4D).

A variety of Swiss Institutions with different agendas pursue Agricultural Research for Development. Activities are mainly funded by the Swiss Agency for Development (SDC) and Cooperation and the Swiss National Science Foundation (SNSF).

Core funding (11.6 million €) and bilateral funding (7.5 million €) for the CGIAR will make up more than half of Switzerland's contributions to AR4D in 2012. SDC's core contribution is a medium-term commitment, including the future harvest centers and unrestricted funding to CGIAR system-wide and challenge programmes. Within the international system, SDC also takes a proactive role in the governance mechanisms of the organisations it funds and is influential in the on-going CGIAR reform process.

Swiss Programme for Research on Global Issues for Development

In response to the global challenges mentioned above and in order to provide a more coherent and coordinated funding mechanism, SDC and SNSF have jointly developed a new funding scheme, the "Swiss Programme for Research on Global Issues for Development (r4d.ch)". The main focus of the programme lies on the generation of new insights and innovative approaches, solutions as well as on the application of research results into policy and practice through transnational research partnerships. In the focus of the programme is the reduction of poverty and global risks as well as the provision of public goods. Inter and transdisciplinary research with a problem- and solution orientated approach will be funded.

A total budget of CHF 97.6 million is available for the duration of the entire programme from 2012 to 2022. CHF 72 million are being contributed by the SDC and CHF 25.6 million by the SNSF.

The new funding instrument consists of six modules, five with pre-defined thematic priorities and one for which the project themes can be freely chosen by researchers. CHF 14.1 million are available for each pre-defined theme, and CHF 17.7 million are available for the thematically open calls.

The five predefined topics are:

1. Causes of and solutions to social conflicts in contexts of weak public institutions;
2. Employment in the context of sustainable development;
3. Agricultural production systems and food security;
4. Sustainable use and management of ecosystems;
5. Provision systems and financing mechanisms in the public health sector

AR4D is directly targeted in the topic "Agricultural production systems and food security". The call for this topic will be launched in 2013, and projects will subsequently be implemented over a 6 year period. However, the other topics offer to a various degree also funding opportunities in relation to and relevant for AR4D.

The new programme will substitute a number of previous funding schemes, which will be phased out in the near future. The programme reflects the overall perception of the convergence of IAR and AR4D and will be a concrete example of fostering synergies and collaboration among the two domains.

Case study The Netherlands

The ARD landscape in the Netherlands and new developments (2011-2012)

(by Alexander Van Opstal, EL&I)

Introduction

The Ministry of Foreign Affairs (BuZa-DGIS) funds research and capacity building programmes and provides about €13 million in annual core funding to CGIAR institutes. It also supports international education and fellowship programmes, vital for student researchers in many countries.

The Ministry of Education provides about € 4 million per year for ARD.

Within the Netherlands, most ARD takes place at Wageningen UR. Wageningen UR's total budget from the Ministry of EL&I was €317 million in 2010, half of which went to the university and half to its applied research institutes. The university's research is driven by scientific considerations, while the agendas of the applied research institutes are driven by the Ministry's policies. Net ARD budget can be considered as about € 20 –25 million per annum, both direct and indirect contributions.

New developments

In the period 2011-2012 two major changes in the policies for ODA and ARD are occurring:

Due to the financial crisis, Dutch ODA diminished from 0,8% of BBP to 0,7% of BBP. However, this did not influence ARD budgets significantly: CGIAR budget is stable and even growing.

The second change is that money for R&D is steered nowadays more and more by the entrepreneurs, via the so-called "Topsector" approach. This new approach is also influencing the ARD dimensions in the Netherlands, as two identified topsectors are AGRO & FOOD, and WATER.

The "GOLDEN TRIANGLE" approach, combining research, industries and government is still the basis of innovation in IAR and consequently in ARD. The Golden Triangle approach also includes the concept of "Third Generation Universities".

The "TOPSECTOR" approach

The Cabinet has 9 top sectors identified. These are sectors where the Netherlands is strong worldwide. In so-called Topteams, entrepreneurs, scientists and government work together to build strategies and joint visions in which is indicated what steps (and research and education) are needed to keep the sector innovative and competitive in the global market.

The **topsector Agro & food** is an essential and prominent part of the Dutch economy. This leading international sector includes various (plant and animal) food chains with different links per chain, such as the supply industry, starting materials, primary production, manufacturing (food) industry, auctions of germplasm, commercial, retail and out of home sector and finally the consumer home and abroad. A substantial part is used as input for the processing (food) industry.

The top Agro & food sector is closely linked with other sectors in the economy. Thus the production of Agro & food industry is hardly possible without the supply of raw materials from home and abroad. This involves a wide variety of products and services from all parts of the world. A small selection here are raw materials for feed and food (including corn, cocoa, palm oil), fertilizer (high tech) engineering, logistics, packaging, financial and business services.

The **topsector Horticulture** is a broad sector ranging from vegetables, fruit trees and flowers and well-known bulbs, with the tulip as a symbol. The top sector integrates the cluster Greenport Netherlands, a spatial-economic network of Greenport clusters and regions where the various horticultural chains, services and research institutes in close interaction to ensure a strong competitive position.

The **topsector Water** includes three clusters Water, Delta Technology and Maritime. The Netherlands has one of the strongest and most complete maritime clusters in the world. The Netherlands is a global leader in offshore services and development of complex maritime systems.

Delta Technology makes it possible to live and work in low-lying delta areas, such as the Netherlands, USA-New Orleans, and other low lying areas as Bangladesh. Dutch water professionals play a significant role in major national and international projects. The water technology is able to use clean water of the best quality and lowering the burden on the environment as much as possible. The Dutch knowledge-and technology for drinking and industrial water is used and sold worldwide. This also applies to the knowledge and technology around purifying and re-use of wastewater.

Budget for the topsectors

The government has in 2012 approximately € 1.5 billion for the top sectors. In 2015, it should reach over € 2 billion. This budget will be established on the basis of innovation contracts. The relevant ministries and agencies remain responsible for the budgets. Besides the business-partners, research institutes like NWO, KNAW and the applied research institutes are involved through the focus of a portion of their budget on top sectors. In 2015, their contribution would come to at least € 600 million.

The Golden Triangle

The Netherlands is the world's second largest exporter of agricultural products. The experiences of the former Ministry of Agriculture in cooperation with the golden triangle of industry, knowledge institutes and government in the successful agrofood complex are a source of innovation for the sector. The Dutch agrofood complex (horticulture, agriculture, farming and associated manufacturing and supply companies) is characterized inter alia by high amount of international labourers. Critical success factor is the cooperation between companies, knowledge institutes and the government. Central aspects include the development of a joint vision, and resultant long-term agreements, financial commitment of all parties, the connection of education with business and the close connection of entrepreneurs and their (applied) research. A good example of a result of this approach is the use of greenhouses as energy source. Major breakthroughs are sun-heat storage for winter use, drastic lower energy consumption by new cultivation techniques, use of energy efficient lighting and the growing use of geothermal energy.

Changing policy arrangements and ARD

The Dutch government is shifting the focus for development of poverty reduction to economic development. The accent on self-reliance for developing countries seems in the long run more valuable than donating money alone. In this new approach the Dutch research and industry deliver a solid contribution.

In 2011, total ODA in Africa is estimated at about \$ 50 billion. Investments from entrepreneurs – both African and from “old world” economies - are estimated to have

reached \$ 60 billion dollars in 2011. This is an example of growing economic potential and cooperation.

Closer connection between development and Dutch knowledge and entrepreneurship is a winning point of this policy. Top sectors in which the Netherlands excels include the food sector, the water sector, life sciences, transportation and logistics. As a consequence of this approach these top sectors position themselves internationally.

The approach provides answers to real needs of developing countries by promoting economic growth, as an example through investments in infrastructure and production. This provides new jobs, tax revenues, growing independence from ODA and growing prosperity. Yields can be invested in education, research and health.

Dutch CGIAR budgets are not influenced by the reduction of the BBP % dedicated to public ODA; they are even growing. Via the Third Generation Universities, the Golden Triangle and the Topsector approach, new arrangements are developed and new synergies occur. It is expected that in the long term the focus and the total amounts of money available for research and innovation in IAR (and in ARD) will stay at the same level or will increase. It is expected that this will result in growing ownership in the Netherlands, and in growing partnership with, and impact in Developing and Emerging Countries.

Case study United Kingdom

Partnership between DFID, BBSRC and other donors. **Research for Sustainable Agriculture, Crop and Livestock Production** (by Rachel Lambert, DFID)

RED Agriculture Team fund programmes to promote biotechnology and biological sciences research which addresses the challenges to production and productivity of major crops in developing countries to increase agricultural productivity and food security and improve the lives and livelihoods of poor people in Africa and Asia. These programmes are:

- Sustainable Agriculture Research for International Development (SARID). This programme is jointly funded by DFID and BBSRC. It started in 2008 and will finish in 2013. There are 12 projects which utilise leading edge technologies to develop sustainable agriculture solutions for farmers and communities in the developing world (<http://www.dfid.gov.uk/R4D/Project/60112/Default.aspx>)
- Sustainable Crop Production Research for International Development (SCPRID). This programme is jointly funded by DFID, BBSRC, the Bill and Melinda Gates Foundation (BMGF) and the Government of India (GoI). There are 10 successful projects which will use high-quality basic and strategic biological and biotechnological research to improve the disease-resistance and stress-tolerance of staple crops in Africa and Asia. The grants were awarded in March 2012. (<http://www.bbsrc.ac.uk/funding/opportunities/2011/1103-sustainable-crop-production-international.aspx>).
- Combating Infectious Diseases of Livestock for International development (CIDLID) programme covers a range of animal diseases. The programme is jointly funded by DFID, BBSRC and the Scottish Government. It was initiated in January 2010 and funds 16 projects. (<http://www.bbsrc.ac.uk/funding/opportunities/2008/combating-infectious-diseases-livestock.aspx>)
- Planned support for the 'Zoonoses programme' which is expected to start in mid 2012. This programme is jointly funded by DFID, BBSRC, Medical Research Council, Natural Environment Research Council and the Economic and Social Research Council. (Website is not yet available).

What programmes bring in terms of partnerships and resources?

Through these programmes DFID leverages resources and funds as outlined below. As such, all these programmes provide good value for money for DFID.

- a) Partnerships - All programmes bring together high quality UK research institutions working with southern partners:
- In SARID programme there 12 research projects being conducted over 4 years bringing together 32 collaborations between 13 UK universities and 19 institutions from southern partners (www.bbsrc.ac.uk/nmsruntime/saveasdialog.aspx?IID=1658&SID=890)
 - In CIDLID programme there are 16 research project being conducted over 3-5 years with 22 collaborations between 16 UK institutions and 8 institutions from southern partners (www.bbsrc.ac.uk/nmsruntime/saveasdialog.aspx?IID=3853&SID=919)
 - In SCPRID project, there are 10 research projects to be conducted over the next 5 years bringing together 49 collaborations between 16 UK institutions, 8 institutions from developed countries and 25 institutions from developing countries. (In preparation - not yet available on the website)

- b) All programmes (i.e. SARID, CIDLID, SCPRID, Zoonoses programme) utilise the proven expertise of BBSRC in managing competitive grants processes in basic science, thus reducing DFID's overheads and transaction costs and demonstrating value for money.
- c) Some programmes (i.e. SCPRID) also bring in BMGF's financial resources and their technical inputs (e.g. peer review, steering committee and panels) and linkages. They also bring in close co-operation (and co-funding) with Government of India, as a significant global partner in agriculture research.
- d) Some programmes (i.e. Zoonoses programme) brings financial resources and expertise and technical input from a range of Research Councils, such as BBSCR (Animal health), Medical Research Council (Public health), Natural Environment research Council (environmental science) and the Economic and Social research Council (i.e. socio-economic science).

How do we work with BBSRC, other donors and southern institutions?

a) Development relevance and science objectives

- The programmes ensure that both development relevance and science objectives are prioritised and that research is directed towards global development objectives rather than bilateral or multilateral research partnerships.
- The programmes “wholesale” research through funding partners with low overheads (i.e. BBSRC) and bundles proposed research initiatives into a single funding arrangement to reduce DFID's overheads and transaction costs.

b) Call for proposals

- BBSRC is required to:
 - Use a single set of rules for the call under the programmes. The calls are open to eligible research institutions from sub-Saharan Africa and Asia (i.e. SARID, CIDLID), or include these and other regions too (i.e. SCPRID, Zoonoses programme). Female scientists are encouraged to apply;
 - Award grants on the basis of research and science quality, and development relevance;
 - Ensure that all research initiatives are relevant to Sub-Saharan Africa and/or South Asia and have a meaningful impact on agricultural productivity and improving food security in these regions.
 - Ensure that the programme funds only proposals that demonstrate evidence of a true working collaboration. The nature of the partnership(s) is scrutinised during the outline assessment process to ensure geographic proportionality.
 - For the purpose of SCPRID programme involving direct Government of India funding, the proposals that include Indian-led research institutions are those that:
 - Only address problems specific to Indian agriculture;

- Put the researchable problem into a regional / global context, but where project activities outside of India such as collaborating research groups, outreach activities, farmer participation are not substantial or meaningful;
- Are genuinely collaborative consortia addressing problems in Africa or South Asia via India.
- Allocation of the funds is subject to a peer-review and assessment process managed by BBSRC on behalf of the funding partners. All research is selected through BBSRC's competitive grant process using two separate, parallel sub-panels which will meet concurrently to consider scientific quality and development relevance of the research proposals. The chairs of these two sub-panels then met with a Chair of the combined panel to decide which applicants should be invited to submit full applications. Following the full peer review of the applications the combined panel will assess which applications are fundable. Assessment Panels for research initiatives include representatives from both sub-Saharan Africa and South Asia.

c) Programme Management

- BBSRC manages and administers the peer review of applications with input and assistance from the funding partners, who have observer status on the expert panels;
- BBSRC manages the awards and monitor outcomes through case studies, periodic and annual progress and annual financial reports, and dissemination event(s) when the research has been completed.
- BBSRC ensures that any research initiative uses responsibly and reasonably any funds for any knowledge sharing and dissemination events;
- DFID requires, as a part of regular monitoring and evaluation, that all successful research institutions provide at least 1-2 research and/or development/impact related stories on an annual basis. These would include a very short narrative (400-500 words maximum in Word document) with key messages, and including photographs (if available).
- BBSRC provides staff to act as a designated Programme Manager, and have experience in operating jointly-funded initiatives throughout the programme lifecycle;

d) Governance

- In some programmes, the funding partners have agreed that either BBSRC (i.e. SARID, CIDLID) alone, or a Steering Committee comprised from funders (i.e. SCPRID), or the Funders Committee (i.e. Zoonoses programme) will oversee the implementation of the project.