

EIARD FSTP Study



MAKING ARD MORE PRO-POOR IMPROVING ACCESSIBILITY AND RELEVANCE OF RESULTS TO THE POOREST

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August 2011



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Disclaimer

This report presents the views and judgement of *the 'Making ARD more pro-poor; improving accessibility of results to the poorest'* study team members, and does not necessarily represent those of EIARD.

Acknowledgements

Particular thanks are due to Dr. Jörg Lohmann, Dr Judith Walter, Dr Barbara Adolph and Dr Philippe Petithugenin for the useful and timely support given by them during this assignment, and to EIARD country representatives and who commented on the draft report at an EIARD Working Group in Brussels in June 2011, and subsequently in writing. Thanks also to Dr Ann Waters-Bayer for her comments, and for sharing the draft with NGOs and other development practitioners.

Executive Summary

Introduction

The European Union (EU), through Food Security Thematic Programme (FSTP), is supporting the European Initiative for Agricultural Research for Development (EIARD) with the overall purpose of achieving *“Coherent, coordinated, relevant and effective European policies for and investments in agricultural research for development that support the food security agenda”*. Part of this support is for the production of three studies (of which this is one), and four policy briefs (one of which will accompany this study). This study contributes to strengthening EU policies towards the MDGs in general, and food security issues in particular. The study pays particular attention to two aspects of pro-poor ARD: a) involvement of the poor in ARD, and b) access of the poor to ARD results.

Methods used

Literature searches were conducted to identify recent documentation of the definition and use of the terms poverty and the poor, the situation of ARD, the involvement of the poor in setting the research agenda and the extent to which ARD results are accessible to the poor. ARD policy documents from the internet, from country profiles prepared by the Agriculture Research Dimension of the European Research Area (ERA-ARD) and from EIARD country contacts were analysed. In addition, a range of ARD projects, identified using the European Information System on ARD (InfoSys+), was reviewed for the extent to which they have a pro-poor design and how effectively results of ARD are made accessible to the poor. The findings of the study were presented to the EIARD Working Group in Brussels in June 2011. Comments from that meeting, and subsequent emailed contributions, were incorporated into the final draft where appropriate.

Key findings and conclusions

A key finding is the emerging paradigm shift from a supply-driven approach to ARD towards a demand-led, agricultural innovation systems (AIS) approach which stresses the importance of partnerships, learning and institutions for innovation. Nonetheless, despite the attraction of the AIS framework, it is not yet a proven concept. Moreover, while the AIS concept focuses explicitly on innovation and technological learning, there is no guarantee that the outcomes will benefit the poor. To date there are only a few projects that have tried to systematically evaluate the effectiveness of the AIS approach in developing countries and assess its pro-poor outcomes. However, IAR4D and innovation platforms are valuable approaches that are already generating technical, institutional, marketing and local policy innovations for end users, but more time is needed to draw final conclusions.

The study argues that four elements should be addressed for pro-poor ARD policy in the context of an agricultural innovation system:

1. **Defining and targeting the poor** is a pre-requisite for programmes that hope to benefit the poor and alleviate poverty. Most projects do not differentiate or characterise the poor within rural communities and so do not address their specific needs, do not involve them in their research activities and do not adequately meet their dissemination requirements.
2. **Gender.** Although women play a key role in agricultural production most of the benefits still accrue to men. Hence, there is a need for ARD to more explicitly address gender inequality in design, implementation and dissemination of ARD.
3. **The involvement of the poor in designing ARD** must be improved. Several initiatives have experimented with the creation of so-called research and innovation platforms in which relevant stakeholders (including the poor) take part to stimulate participatory innovation that also benefits the poor. Although promising, the available studies point out that the outcomes are influenced by a number of contextual factors, and more research is required to find out what constitutes effective and efficient partnerships. Another way to increase the involvement of the poor is to introduce mechanisms that allow them to shape the ARD agenda, for example by organising consultations, ensuring the poor have representation in national innovation committees that set ARD policies and R&D budgets, and introduce competitive research grants schemes that specifically target and involve the poor. Also these approaches are relatively new and limited information is available to provide answers on optimal design, implementation and effectiveness. Finally, the capacity of the poor (including transaction costs) needs to be built in to take part in all these processes and (young) scientists need to be trained in working and communicating with the poor, and demand-led approaches to innovation.
4. **Access by the poor to ARD results** means access to information, knowledge, skills, materials, facilities, infrastructure, markets and finance. The needs of the poor are different from those of the better off who have collateral for loans, the transport to get to urban centres and the literacy skills to be able to interpret extension leaflets. Appropriate messages are therefore needed in appropriate mixes of media and activities, complemented by the materials (sold in appropriate quantities and at an affordable price and distance) needed to make the promoted technologies work. Young farmers might be the most receptive to electronic media / ICT.

The analysis revealed that the elements for pro-poor ARD have not, or only to a limited extent, been translated into the ARD policies of EIARD member countries or into ARD practice as illustrated by our review of ARD projects. Only a few countries (i.e. Austria, Belgium, Denmark, the Netherlands and the UK), included comprehensive and strong statements related to targeting the poor, gender inequality, involvement of the poor and access to information. In particular the ARD policies of the UK and the extensive consultation process that led to the formulation of these policies provide an example of good practice for other member states. It was also found that EIARD members direct most of their ARD funding to the CGIAR, which begs the question if CGIAR research has been responsive to the needs of the poor. The new CGIAR Strategy and Results Framework, and the CGIAR Research Programme proposals aligned to it, suggest that previous criticisms that the CGIAR was supply driven, not receptive to learning and not participatory enough have been taken on board, and that there is more focus on working to achieve MDG-1.

Similarly the analysis of the ARD projects showed mixed performance. Only a few projects included a clear poverty and gender focus and adequate attention on participation of the poor and dissemination of information and materials to the poor. Some of the projects can still be characterised as technology push instead of demand-led initiatives. Only one project adopted a specific AIS framework.

Overall, there seems to be a mismatch between the ARD policies and practice of EIARD members and the overall EIARD Strategy 2009-2013 and the related EU Guidelines on ARD (2008), which

both emphasize the need to adopt an AIS approach to ARD, improve involvement of the poor in ARD and enhanced access to ARD results by the poor.

Finally it is important to stress that the findings above should be interpreted with care as the analysis has been based on limited and potentially incomplete information. It proved to be very difficult to obtain ARD policy documents of EIARD member countries. As an alternative the review of the ARD policies was based on brief (and sometimes patchy) profiles from the ERA-ARD project which cover only 17 out of 29 countries and date from between mid-2007 and the end of 2009. Likewise, project data analysis was problematic because the coverage of InfoSys+ – the EIARD project database – is limited and mostly outdated.

Recommendations

It is recommended that EIARD:

- Selects a definition of poor/poverty that is appropriate at the operational (project) level (e.g. the OECD five rural worlds framework), and ensure that the poor are properly identified, involved in and targeted by the results of ARD. The definition should be harmonized across member states. EIARD needs to be clear whether the chronically poor are included, as the poorest will not usually benefit directly unless explicitly targeted.
- Collects information on ARD policies from all member states to expand and update the ARD profiles presented by the ERA-ARD project.
- Updates and reviews the InfoSys+ website so that it presents a complete and detailed overview of European funded ARD projects.
- Supports a learning process among actors involved in planning and implementing ARD programmes to share and learn from clear field examples, where emphasis is given to the “*how to*”, in terms of approaches and tools used against the prevailing context and costs.

EIARD member countries are recommended to revise their ARD policies to:

- Introduce a workable definition of the poor.
- Make tackling gender inequality a core part of the ARD.
- Organise broad-based consultations (as in DFID) to help formulation of donor ARD policy.
- Support programmes and projects that experiment with innovative approaches to involvement of the poor such as innovation platforms and competitive research grant funding.
- Target the poor much more specifically in the dissemination of ARD results with messages, media, materials, inputs and services that are tailored to the specific needs of the poor. ICTs can play a useful part in the dissemination of ARD results to poor households, and might be particularly attractive to the rural youth.
- Ensure representation of the poor in research councils and research budget committees to steer direction of research that suits needs of the poor.
- Build the capacity of the poor to organise themselves and actively take part in consultations, multi-stakeholder platforms and other initiatives that shape the ARD agenda.
- Raise awareness among scientist about demand-led approaches to ARD and provide training and practice to enable them to work with the poor, including young farmers.
- Require project proposals to include ex-ante analysis of expected impact on poverty, and independent ex-post analysis of whether this has been achieved. The proposals should include a broad-based analysis of the social, economic, political and technical context in which the project is to operate, and therefore the factors that are most likely to influence impact on poverty. Project design should incorporate greater use of experimental method in projects to document and demonstrate what works and why.
- Shift the mindsets of researchers by advocating for curricula that incorporate demand driven and AIS approaches, as well as the development of “soft skills” (communication, negotiation, facilitation) and the effective use of qualitative research methods.

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Abbreviations

AGM:	Annual General Meeting
AIS:	Agricultural Innovation System
ARD:	Agricultural Research for Development
CAADP:	Comprehensive Africa Agriculture Development Programme
CBO:	Community-Based Organisation
CGIAR:	Consultative Group for International Agricultural Research
CIMMYT:	International Maize and Wheat Centre
DAC:	Development Assistance Committee
DANIDA:	Danish International Development Assistance
DEEC:	Developing and Economically Emerging Countries
DFID:	Department for International Development (UK)
DURAS:	Le projet pour le promotion du développement durable dans les systèmes de recherche agricole au Sud
EC:	European Commission
ECA:	Eastern and Central Africa
ECAMAW:	Eastern and Central Africa Maize and Wheat Network
EIARD:	European Initiative for Agricultural Research for Development
ERA:	European Research Area
ESRC:	Economic and Social Research Council
EU:	European Union
FAIR:	Farmer Access to Innovation Resources
FAO:	Food and Agriculture Organisation (UN)
FARA:	Forum for Agricultural Research in Africa
FSTP:	Food Security Thematic Programme
GFAR:	Global Forum for Agricultural Research
IAR4D:	Integrated Agricultural Research for Development
IARC:	International Agricultural Research Centre
ICARDA:	International Centre for Agricultural Research in Dry Areas
ICT:	Information and Communication Technologies
IDRC:	International Development Research Centre
IFDC:	International Center for Soil Fertility and Agricultural Development
ILAC:	Institutional Learning and Change
INNOBAP:	Innovation on banana and plantain project
InfoSys+:	European Information System on Agricultural Research for Development
IP:	Innovation Platform
IPG:	International Public Good
ITPGR:	International Treaty for Plant Genetic Resources for Food and Agriculture
KM:	Knowledge Management
LISF:	Local Innovation Support Funds
M&E:	Monitoring and Evaluation
MDG:	Millennium Development Goals
NARS:	National Agricultural Research System
NGO:	Non-governmental Organisation
NORAD:	Norwegian Agency for Development Cooperation
NRI:	Natural Resources Institute of the University of Greenwich, UK
NRM:	Natural Resource Management
OECD:	Organisation for Economic Cooperation and Development

PROLINNOVA:	Promoting Local Innovation in ecologically-oriented agriculture and NRM
PRSP:	Poverty Reduction Strategy Plans
RIU:	Research into Use Programme (DFID)
SDC:	Swiss Development Co-operation
SIDA:	Swedish International Development Cooperation Agency
SME:	Small and Medium-Sized Enterprises
SSA:	Sub-Saharan Africa
SSA-CP:	Sub-Saharan Africa Challenge Programme
SRSA:	DFID Strategy for Research on Sustainable Agriculture
ToR:	Terms of Reference
UN:	United Nations
WUR:	Wageningen University and Research Centre

1 Introduction

1.1 Background

The Food Security Thematic Programme (FSTP) is a programme of the European Union (EU) that aims “to improve food security in favour of the poorest and the most vulnerable, and contribute to achieving the first Millennium Development Goal (MDG), through a set of actions which ensure overall coherence, complementarity and continuity of Community interventions, including in the area of transition from relief to development”. The EU, through FSTP, is supporting the European Initiative for Agricultural Research for Development (EIARD) with Euro 1.3 million over 3 years with the overall purpose of achieving “Coherent, coordinated, relevant and effective European policies for and investments in agricultural research for development that support the food security agenda”. Part of this support is for the production of three studies (of which this is one), and four policy briefs (one of which will be developed from this study).

1.2 Objectives of the study

This study contributes to the following two results of the EIARD FSTP project:

- EU policies towards the MDGs in general, and food security issues in particular, are strengthened.
- Joint initiatives on ARD are developed by EIARD members and other ARD donors.

According to the ToR, the study will:

- Contribute to ensuring that European ARD policies are based on knowledge of existing approaches and strategies, and related opportunities and challenges, making use of the latest available scientific and policy analysis;
- Analyse existing ARD policies, strategies, investments and programmes of EIARD members in relation to pro-poor ARD, and the extent to which they have factored in existing knowledge;
- Identify areas where increased coordination and harmonisation would be of benefit, and point out gaps, e.g. where policies are not based on latest evidence;
- Provide a basis for improvement and alignment of ARD policies, strategies and programmes so that they are able to more effectively respond to the challenges ahead;
- Help to identify approaches to be used to develop pro-poor research agendas, to identify the poor and to maximise the impact of ARD for them, including issues such as targeting, participation in research agenda setting and research design, etc;
- Help develop a common vision within EIARD on linkages between Agricultural Research for Development (ARD), innovation and rural poverty alleviation.

1.3 Focus of the study

In discussion with the resource people assigned by EIARD (Joerg Lohmann and Barbara Adolph), it was agreed that the study would pay particular attention to two aspects of pro-poor ARD:

- Involvement of the poor
- Access of the poor to ARD results

1.4 Definitions

The study requires definitions of three terms that are widely used in the ToR and the study, but open to varied interpretations. These are: the poor/poverty; Agricultural Research for Development (ARD) and innovation.

1.4.1 The poor/poverty

While the EIARD Strategy 2009-13 mentions the poor and poverty frequently, it does not attempt to define these terms except with reference to the Millennium Development Goals, and MDG 1¹ in

¹ MDG 1 (*To halve the proportion of people in extreme poverty and suffering hunger between 1990 and 2015*) has three targets: a) to halve, between 1990 and 2015, the proportion of people whose income is less than \$1 a

particular. This is a widely used definition, but not sufficiently specific to be useful for defining the targets for ARD. Section 3.1 argues for the adoption by the EU of a definition of the poor (from OECD, 2006) as: *subsistence agricultural households, landless rural households and micro-enterprises*, and for the poorest as: *the chronically-poor rural households, many of which are not economically active*. Further definitions are given in Annex 5.

1.4.2 Agricultural Research for Development (ARD)

Agricultural Research for Development (ARD) is defined by the EIARD Strategy 2005-10 document as: *“research which addresses the agricultural challenges faced by developing countries, emerging countries and countries in transition. It includes biological, economic and social research on the production, storage, processing, and marketing of crops, trees, fodder, forage, livestock, and fish; as well as natural resources management; policy development; knowledge dissemination, transfer, and adoption; capacity building; and the up- and out-scaling, distribution and uptake of research products”*. The later 2009-13 EIARD Strategy goes further in defining the characteristics of ARD as detailed in Annex 2.

1.4.3 Innovation/innovation system

The definition for ARD above does not specify *how* ARD is implemented. The conventional way is for research to develop new technologies that are then disseminated by extension services to farmers. The effectiveness of this linear delivery model has been frequently challenged, and many donors and development organisations (including the EC) are encouraging an agricultural innovation systems approach that involves farmers, extension, research, NGOs and the private sector in multi-stakeholder partnerships. Widely used definitions include: An **innovation system** is *“the organisations, enterprises and individuals that together demand and supply knowledge and technology, and the rules, mechanisms by which these different agents interact”* (World Bank, 2006). A useful definition of **innovation** is *“the application of technical or organisational knowledge to a new situation”*.

1.5 Structure of the study

Section 2 sets out the methodology used for this desk study. Section 3 presents the theoretical underpinnings of pro-poor ARD design, and in particular the issues around involvement of the poor in ARD and access by the poor to ARD results. Section 4 provides an analysis of the pro-poor aspects of ARD policies using a range of projects to illustrate points. Section 5 looks at a number of relevant challenges and opportunities, while Section 6 provides a set of conclusions and recommendations.

2 Methodology

2.1 Review of scientific and policy documentation

Literature searches were conducted to identify recent (last 10-years) documentation of the definition and use of the terms poverty and the poor, the situation of ARD, the involvement of the poor in setting the research agenda and the extent to which ARD results are accessible to the poor.

2.2 Review of member country policies and profiles

ARD policy documents of EIARD, the EU and individual EIARD member countries were sought through internet searches and through requests to EIARD country contact points (via Joerg Lohmann). Unfortunately, apart from limited information for Belgium, Germany, the Netherlands, Denmark and the UK, we were not able to retrieve useful documentation about ARD policies. The limited information available on the internet was supplemented by the country profiles prepared by the ARD Dimension of the European Research Area (ERA-ARD) project.² ERA-ARD aims to improve

day; b) to achieve full and productive employment and decent work for all, including women and young people; c) to halve, between 1990 and 2015, the proportion of people who suffer from hunger.

² Due to missing information on the AER-ARD website, we were not able to evaluate the policies of Bulgaria, Cyprus, Czech Rep, Estonia, Greece, Ireland, Latvia, Luxembourg, Malta, Romania, Sweden and Norway.

coordination and collaboration between national research programmes.³ It is important to note that the ERA-ARD country profiles (which date from the period 2007-2009) mainly focus on the description of the ARD landscape (e.g. major actors, funding mechanisms, and donors and recipients) while there is only limited discussion on the content of the broader ARD policies. We examined if the profiles highlighted issues related to pro-poor design of policies and programmes, and the accessibility of results by the poor.

2.3 Review of ARD projects

A range of ARD projects was reviewed for the extent to which they have a pro-poor design and how effectively results of ARD are made accessible to the poor. Projects were selected from the European Information System on ARD (InfoSys+).⁴ The search resulted in a list of 38 projects. After a first scan in cooperation with the study's assigned resource person, 26 projects were selected for detailed review (see Annex 3). After extensive searching it was found that appropriate, detailed information and relevant contacts were only available for 11 projects, which form the basis for our analysis of present field practice. These projects are further discussed in Section 4.3 and summarised in Annex 4.

2.4 Review of study drafts

The first full draft of this study was submitted on May 20th 2011 to Joerg Lohmann and Barbara Adolph for their comments. The findings of the study were then presented to the EIARD Working Group in Brussels on June 29th 2011. The draft presented to that meeting was circulated for comment to EIARD members and to the Civil Society Organisations Group on Agricultural Research and Development (CSO-GARD). A limited number of comments were received back, and these have been incorporated where appropriate.

3 Pro-poor ARD design

3.1 Definition of “the poor”

The EIARD Strategy 2009-13 mentions the poor frequently, but only with reference to the MDG 1 definition, which is not specific enough to be useful in defining the targets for ARD. The EC Guidelines on ARD (2008) state that the poor are mainly in rural areas (especially remote, marginalised areas). This agrees with the World Bank World Development Report (2008) which states that three out of four poor people in developing countries live in rural areas, and most of them depend directly or indirectly on agriculture for their livelihoods. Annex 5 provides a number of definitions of poverty from the literature. From these we have chosen the OECD (2006) typology of 5 rural worlds in developing countries (Box 1) as the most useful framework to identify the poor in relation to ARD, while recognising that poverty is a broad-based, complex syndrome with many (inter-related) causes and no single solution.

Thus when we talk about “the poor” in this study, we are referring to those from rural worlds 3, 4 and 5⁵, who include landless households and some that are not practicing agriculture directly but are labourers or artisans contributing to the agricultural sector. The typology is based on the household, and does not specifically mention poverty issues *within* the household, or the fact that women are more likely to be poor than men due to their relatively limited access to resources.

³ <http://www.era-ard.org/> (04-04-2011).

⁴ <http://www.infosysplus.org/> (05-04-2011). InfoSys+ aims to “improve access to European web resources in the areas of agriculture, environment, forestry, fisheries, socio-economics, rural-transformation and many others, devoted towards development.” It includes searchable metadata on organisations, projects, funding opportunities, experts, news and events in ARD, which are categorized according to ARD-themes, activities, geo-focus and other attributes. The system relies on collaborative editing by stakeholders on a rolling basis. The disadvantage being that coverage depends on researchers and project administrators updating the system.. A recent comparison with the DFID R4D database showed that Infosys+ is incomplete, in particular after 2007.

⁵ It is also acknowledged that there are poor people that (could) benefit from ARD in urban and peri-urban situations

Box 1: OECD (2006) typology of 5 Rural Worlds (with our additions in *italics*)

The better-off

- Rural World 1 – large-scale commercial agricultural households and enterprises
- Rural World 2 – traditional agricultural households and enterprises not involved in international trade (*the de-facto beneficiaries of the majority of ARD*)

The rural poor

- Rural World 3 – subsistence agricultural households and micro-enterprises
- Rural World 4 – landless rural households and micro-enterprises

The poorest

- Rural World 5 – chronically poor rural households, many no longer economically active⁶.

There is also no simple “read-across” between the Rural World classes presented in the OECD typology and the MDG-1/World Bank poverty thresholds of US\$1.25/person/day. It is acknowledged here that there can be a trade-off between returns to research investment in terms of productivity and income (greatest when the active poor and better-off – Rural Worlds 1, 2 and 3 - are involved) and the social returns (often requiring more time and financial inputs) to reducing vulnerability and risk when involving the poorest (Rural World 5). Donors need to be clearer in defining who they want to benefit, as the poorest will not usually benefit directly unless explicitly targeted.

The OECD (2006) also argues for the pursuit of agricultural growth as an engine for alleviating rural poverty (Box 2).

Box 2: Agricultural growth for poverty reduction

Agriculture connects economic growth and the rural poor, increasing their productivity and incomes. The importance of agriculture for poverty reduction, however, goes well beyond its direct impact on rural incomes. Agricultural growth, particularly through increased agricultural sector productivity, also reduces poverty by lowering and stabilising food prices; improving employment for poor rural people; increasing demand for consumer goods and services, and stimulating growth in the non-farm economy. A positive process of economic transformation and diversification of both livelihoods and national economies is the key to sustained poverty reduction. But it is agricultural growth that enables poor countries, poor regions and ultimately poor households to take the first steps in this process.

Source: OECD (2006)

3.2 The agricultural innovations systems approach towards ARD

During the last decade the perspective on ARD and the agricultural innovation process has shifted. There is agreement that the traditional linear or ‘pipeline’ model of ARD, characterised by sequential stages of technology creation by research institutes followed by diffusion through extension services and (passive) adoption by farmers, has not delivered the desired results (Hall et al. 2001). Annex 1 summarises the change in thinking about agricultural research and development. It has increasingly been highlighted that innovation, defined as the process through which knowledge is created and put into use, is a dynamic learning process that strongly depends on the interaction and partnerships between relevant actors in the agricultural sector as well as the institutional and socio-economic context in which innovation takes place. This has led to the concept of an Agricultural Innovation System (AIS), which can be described as a network of organisations that are focussed on bringing new processes, technology and knowledge into social and economic use as well as the institutions and policies in which there are embedded. AIS is an holistic approach to agricultural innovation and therefore better able to deal with globalisation, (international) value chains and the influence of new actors such as the private sector and civil society. An increasing number of international research institutes, NGOs, donors and international institutions have adopted, or are referring to, the AIS in their ARD policy documents.⁷ Table 1 summarises the key elements of the AIS.

⁶ This includes the economically inactive, old, sick, disabled, indebted, widowed, divorced...men and women

⁷ e.g. the World Bank, EU, DFID, CAADP, FARA, the Netherlands Ministry of Foreign Affairs, and EIARD.

Table 1: Defining features of the Agricultural Innovation System

Defining feature	Agricultural Innovation System
Purpose	Strengthening the capacity to innovate throughout the agricultural production and marketing system.
Actors	Potentially all actors in the public and private sectors involved in the creation, diffusion, adaptation and use of all types of knowledge relevant to agricultural production and marketing.
Outcome	Combinations of technical and institutional innovations throughout the production, marketing, policy research and enterprise domains.
Organising principle	New uses of knowledge for social and economic change.
Mechanism for innovation	Interactive learning.
Degree of market integration	High.
Role of policy	Integrated component and enabling framework
Nature of capacity strengthening	Strengthening interactions between actors; institutional development and change to support interaction, learning and innovation; creating an enabling environment.

Source: World Bank (2006).

The challenge is to create AIS that are responsive to the needs of the poor, something which has been severely neglected in previous ARD approaches (Ashby 2009).⁸ In the next sections we highlight changes along four dimensions that will contribute to a pro-poor ARD design in an innovation systems framework: Targeting the poor, gender differences, involvement of the poor, and access to information by the poor.

3.3 Targeting the poor

The recent emphasis on innovation systems and value chains has many attractions, but runs the risk of excluding those with little or no land, capital, spare family capacity or “connectedness”⁹ to innovate or to join the value chain unless special mechanisms are brought to play to assist them (e.g. group credit schemes and collective marketing initiatives). Successful value chains bring social changes (e.g. successful farmers buy more land and displace weaker farmers who become landless labour). Indentured and child labour are still common in agriculture, and national labour laws for casual labour are often not observed¹⁰.

The above begs a number of questions of ARD. Does the design of ARD policies and consequent programmes emphasise the poor as the intended beneficiaries, providing explicit guidance on the identification of the poor? Do programmes ensure that projects and other support mechanisms (e.g. competitive grant programmes and capacity development programmes) incorporate this guidance in their design? Do programmes ensure that projects include mechanisms to identify the poor¹¹, identify their needs and how these needs will be addressed through the actions of the project, including access

⁸ This has not been addressed adequately by the introduction of a wide number of participatory approaches (e.g. Farming System Research, Participatory Technology Development, Rapid Rural Appraisal, Participatory Rural Appraisal and Farmer Field Schools) in the 1980s and 1990s. These approaches aim to involve partners at the project or program level but rarely include participatory process or partnerships at the policy level. Biggs (2008) also points out that participatory research in the 1990s became a mere label that was put on a broad range of activities which were in fact science-driven consultations with farmers where priorities were determined *a priori* by the large public research institutes in the spirit of the linear research model.

⁹ By connectedness we mean having sufficient geographical proximity, awareness of, and social acceptance by other stakeholders to be able to take part in the value chain activities

¹⁰ Fairtrade International

(http://www.fairtrade.net/fileadmin/user_upload/content/2009/standards/documents/04-10_EN_Generic_Fairtrade_Standard_HL_Aug_2009_EN_amended_version_04-10.pdf) has developed generic standards for agricultural hired labour.

¹¹ e.g. using GIS and social profiling to build target domains that include the majority of the poor

by the poor to the information, knowledge, skills, materials, finance, organisation, facilities and policies necessary to use the results from ARD effectively and sustainably?

3.4 Taking into account gender differences

There is an urgent need to address the gender dimension in ARD. Women are important actors in the agricultural sector. According to the FAO (2010) women produce between 60 and 80 percent of the food in most developing countries and are responsible for half of the world's food production. Yet, despite their key role, there is abundant evidence that their work is not formally recognized and that women have only limited access to inputs such as credit, land ownership and extension services in comparison to men. Women are also over-represented among the poorest (particularly the divorced, widows, and those left to cope when husbands are working away from home). Addressing these challenges has the potential to considerably increase agricultural productivity, sustainability and food security (Meinzen-Dick *et al.*, 2010). It is therefore important that agricultural innovation takes into account the wishes, constraints and preferences of women. This will only be achieved if women themselves actively participate in the innovation process, and particularly in the setting of ARD priorities. The youth (young researchers and young farmers) may well be more receptive to new ideas, and could be seen as potential champions of innovative approaches to poverty alleviation.

3.5 Improving the involvement of the poor in ARD

Three issues are important in the discussion on how to improve the involvement of the poor in the ARD process: research partnerships, participation in setting the research agenda and empowerment.

3.5.1 Research partnerships involving the poor

Central to the AIS is the notion that innovation is shaped by (public-private) partnerships and collaborative efforts between the various stakeholders, including farmers, input suppliers, NGOs, government officials and extension staff. If the poor do not have a voice in such multi-stakeholder partnerships, or if interaction is dominated by scientific researchers, their needs will not be sufficiently taken into account. Triomphe *et al.* (2009) compared and analysed ten multi-stakeholder agricultural research partnerships, which provide important lessons on how to increase the involvement of farmers. First, there is a need to identify common values and goals by means of recurrent negotiations and discussion. The intention to innovate is alone not sufficient. Second, the design and management of partnerships is important (clear rules and responsibilities, effective conflict resolution and monitoring and evaluation). Third, asymmetries have strong influence on the functioning of the partnership. In particular smallholder organisations are among the weakest members in the partnership, while scientists tend to have an advantage because of their accumulated experience with conducting research. It is essential to build the negotiation capacity of farmers to ensure their concerns are effectively taken into account. In contrast, researchers have to learn to step back to create an open space in which each stakeholder can propose their own ideas and suggestions.¹²

Two large multi-country initiatives have been set up to experiment and apply the concept of research partnerships (see Box 3 for the PROLINNOVA project).

The Sub-Saharan Africa Challenge programme (SSA-CP), managed by the Forum for Agricultural Research in Africa (FARA) is a six year project (2004-2010) which was deliberately designed to test the Integrated Agricultural Research for Development (IAR4D) – an AIS approach (see Hawkins *et al.*, 2009) – in the context of sub-Saharan Africa and rural livelihoods. A core element is the establishment of innovation platforms (IPs) to bring stakeholders together, create mutual trust and stimulate cooperation that improves and accelerates the innovation and learning process. A review process (Mokwunye and Ellis-Jones, 2010; Lynhah *et al.*, 2010). concluded that IAR4D and innovation platforms are invaluable approaches that are already generating technical, institutional, marketing and local policy innovations for end users. They maintain that bringing together of local

¹² Triomphe *et al.* (2009) indicate that there is only limited knowledge about what constitutes effective and efficient partnerships, and more case studies combined with cost-benefit analysis are required to enhance cooperation in agricultural research between stakeholders.

actors who have often never met is an essential component of capacity building for the long-term and important in building farmer's capacity to demand research. They considered that, in the SSA-CP, IPs are already delivering greater benefits to end users than conventional approaches and that they can be sustainable. A project database of process and impact indicator variables for the innovation platforms and their associated research communities and households has been developed and will be used in end line surveys, comparing these with results from baseline surveys undertaken in 2008. Comparison will be made of innovation platform intervention villages and counterfactual comparison villages and households. However, the reviews do not indicate if these households will be differentiated on wealth grounds to enable a comparative analysis of the impact of the project on poor and less poor households.

The experience of the SSA-CP and the PROLINNOVA projects demonstrate that a partnership approach to innovation (with active involvement of the poor) is promising, but challenges remain and more time is needed for refinement and experimentation.

Box 3: PROLINNOVA (PROmoting Local INNOVation in ecologically-oriented agriculture and natural resource management)

PROLINNOVA is an NGO-initiated programme that aims to create a global learning network to promote local innovation in NRM. The programme was launched in 1999 and is active in 18 countries in Africa, Asia and Latin America. A key objective of PROLINNOVA is to build multi-stakeholder partnerships at the country level to improve the process of farmer-led local innovation. In contrast to standard participatory approaches where farmers are consulted for input while the priorities and ideas still come from scientists, the research process itself is controlled by farmers.

A common strategy in PROLINNOVA is to build multi-stakeholder partnerships to promote participatory local innovation and bring about policy and institutional change with the aim to make research more farmer-led. Researchers and farmers make an inventory of local innovations that are developed further by means of small research groups, composed of farmers, extension workers and scientists that work together in a participatory manner. The results are actively distributed using catalogues, posters, photographs, video films and mass media. In addition, workshops are organised to raise awareness and build the capacity of stakeholders about local innovation and farmer-led research for example by giving trainings to representatives from research and higher education institutes about the concept and elements of participatory innovation.

A review of nine cases of farmer-led research supported by PROLINNOVA showed that some progress had been made but that *“scientists and development projects that are used to deciding on all aspects of research and “demonstration” of new technologies have to learn to step back and take a supporting role. Farmers, on the other hand, have to become more assertive and manage many aspects of processes with which they are not familiar”* (Wettasinha and Waters-Bayer, 2010, p. 82). Another problem is the lack of participation of farmers in some country programs due to their weak organisational capacity.

Source: <http://www.prolinnova.net> (03/02/11); Waters-Bayer *et al* (2009); Wettasinha and Waters-Bayer (2010)

3.5.2 Participation in setting the research agenda

The institutional context of the AIS refers to the laws and regulation, norms, values and morals that govern the innovation and learning process. These include the mechanisms and procedures to determine how research priorities are set, how knowledge is built up, shared and used, and how research organisations are held accountable to different interest groups. It is important that these rules and norms take into account the demands and needs of the poor. This means that mechanisms need to be implemented which ensure that small-scale farmers, women and landless workers are able to participate in setting the (inter) national or regional research agenda. These might include the regular invitation of representatives for stakeholder meetings on innovation policy and research and development, broad-based consultations by donor countries before drafting ARD strategies and permanent representation of the poor in national innovation committees and agricultural research advisory boards. It also requires new and innovative governance structures that enable farmers to exert control over the research budget and hold research organisations to account.

Competitive research or matching grants that specifically target and involve the poor are an interesting approach to increase the participation of the poor in setting the research agenda. A good example is the Farmer Access to Innovation Resources (FAIR) project, part of PROLINNA (Van Veldhuizen, 2008). The project departs from the idea that fundamental change in the mechanisms to allocate research funding is required for farmers to play a central role in agricultural innovation. Only when farmers are funded directly they have the possibility to decide what kind of external support they want to attract. FAIR focuses on Local Innovation Support Funds (LISFs) whereby farmers receive funding to finance locally mandated research, hire external research support, facilitate linkages with other innovators and share research results. The project started in 2001 with a pilot project in Nepal and was up-scaled to four other countries (Cambodia, Ethiopia, Nepal, South Africa and Uganda) in 2005 (for another example see Box 4). An evaluation of FAIR indicated that local Community-Based Organisation (CBOs) can effectively handle community-based LISFs with relatively low management costs (Van Veldhuizen et al. 2008). A problem with the LISF is the difficulty in capturing the innovations that resulted from farmer experimentation. Although recipients of the funds were asked to submit a report, data on findings has remained patchy.

Box 4: The DURAS project

The DURAS project (project to promote sustainable development in the southern agricultural research systems) was initiated in April 2004 with €4m in funding from the French Ministry of Foreign Affairs and officially closed in June 2008. The main objective of DURAS was *“to foster greater involvement of southern stakeholders in the agricultural research and innovation process and to ensure that their voices were heard at the international level”* (Oliveros, 2010 p. 6).

The core of DURAS was a competitive grants scheme designed to promote participatory innovation processes and expand the scientific capacity of partners. To ensure the involvement of farmers, eligible projects must be led by an organisation from the South, implemented in at least two Southern countries and include at least three types of stakeholders - one of which should be from civil society. 12 projects in 19 countries were funded.

An example is the Innovation on banana and plantain (INNOBAP) project in West Africa that established regional multi-stakeholder platforms which served as the core for learning and training and the formal mechanism to bring together actors in the banana and plantain value chain. The platforms succeeded in exchanging information on new banana and plantain varieties between participants, which resulted in the adoption and selling of these new varieties by farmers on the local market. However, questions remain about the independence of the platform vis-à-vis the research organisations, the inadequate flow of information between stakeholders, and the sustainability of the platforms when funding ends.

Source: Oliveros (2010).

3.5.3 Empowerment, capacity building and awareness raising

The establishment of a pro-poor AIS requires a certain level of confidence, trust and belief by all stakeholders. The poor can only take part in multi-stakeholder partnerships and informal discussion with scientists if they are supported in building organisational capacity, representation and negotiation skills. On the other hand, scientists need to be trained in working and communicating with farmers. They also need to be made aware that there are alternatives to the linear model of research and development. Policymakers must learn to better understand the AIS and facilitate interaction between stakeholders to foster pro-poor innovation. Finally, for pro-poor AIS to become an accepted and mainstream approach, universities should incorporate these concepts into their curricula.

3.6 Access to ARD results by the poor

Having dealt with targeting the poor in Section 3.3, further important issues around access include: the relevance and form of the message, who pays and measuring the impact.

3.6.1 The relevance and form of the message

Relevance in this context has a number of facets. These include:

- the relevance of the technology or process to the circumstances and resources of the poor¹³
- the relevance of the content of the message to what the user wants to know¹⁴
- the language and level of the message (“translation” of research results to the terminology, level of understanding and native language of the user¹⁵)
- the relevance of the medium to the intermediate or end user (print, photos, video, TV, radio, drama, SMS, www...)
- the complementarity of the different communication processes used (e.g. radio to raise awareness followed up by training courses and the availability of relevant inputs)
- the flexibility and up-to-dateness of the message (e.g. costs and revenues change, thereby changing the economic viability of a technology/commodity over time).

In addition the user will judge the messenger by the way the message is presented, the track record of the messenger, the connectedness of the user to other service providers, and by their trust in the messenger to assist the user through the process of adoption, adaptation and use. Preparing and supporting the messenger are therefore crucial aspects of access.

3.6.2 *Who pays/who can pay?*

There appear to be two types of cost to providing access to ARD results (whether to the poor or to other users). Firstly there are the “framework” conditions that ensure successful use of the ARD outputs; secondly there are the direct costs of disseminating the results (Box 5).

For any intervention to be successful certain “framework” conditions need to be in place. These might be macro-economic (e.g. adequate infrastructure) or national policy-level conditions (e.g. policy supporting the control of zoonotic animal diseases), or much more local (e.g. a local extension programme includes the technology in its portfolio and its forward budget). Until recently it has been rare that projects assess what framework conditions need to be in place for ARD results to be successfully used, and what the project can reasonably influence in the lifetime of the project. However, some of the new CGIAR research proposals (CRPs)¹⁶ do present this type of assessment (Philippe Petithuguenin – personal communication).

In old-style linear technology development and dissemination, the responsibility of research ended with the generation of the technology. Extension would then interpret the technology and produce extension materials for farmers. With more consultative working practices (such as innovation platforms), the roles of different actors have become blurred, with the result that sometimes the budget responsibility for the different costs of dissemination falls between the cracks. Dissemination can be interpreted to include everything from stakeholder (farmer, NGO, private sector, extension, research, local government...) involvement in initial planning, right through to the setting up of organizational structures that ensure sustainability and even replication elsewhere. There are difficult decisions to make, such as the extent to which stakeholders contribute to the transaction costs of working together in multi-stakeholder partnerships (travel, subsistence, lost working time etc), and whether information is a marketable commodity to be sold and traded (the FAAP Principles¹⁷ encourage the principle of payment for services by the end user, but this might discriminate against the poor with limited ability to pay). There is also confusion about the roles of extension. Is extension

¹³ Understanding that “the poor” is a heterogeneous grouping and circumstances will vary between sub-groups of the poor

¹⁴ Often extension leaflets provide technical information, but not information on risks, where to get inputs, costs, economic advantage over present practice, available technical and training support, eligibility for credit etc

¹⁵ There may be more than one step in this translation; e.g. from research – extension – different types of farmer

¹⁶ Especially CRP2: Policies, institutions and markets to strengthen assets and agricultural incomes for the poor, led by IFPRI.

¹⁷ FARA (Forum for Agricultural Research in Africa). 2006. *Framework for African Agricultural Productivity / Cadre pour la productivité agricole en Afrique*. Accra, Ghana. http://www.caadp.net/pdf/FAAP_English_13Oct06.pdf

just the provision of advice, or should it also facilitate all the aspects of technology promotion including, for instance, the sufficient and timely availability of genetic materials, credit and training?

Box 5: Dissemination costs

- Transaction costs of stakeholder meetings
- Development , production and distribution costs of dissemination materials for different stakeholders
- Distribution and subsidy costs of inputs (costs of supply to remote areas, and sale of small quantities to those with small amounts of land are instances of subsidies benefitting the poor)
- Advisory services costs (higher for remote areas, less return from working with the poor)
- Training materials development and training delivery
- Establishment and running costs of organizations necessary to the sustainability of ARD results use (e.g. group savings and credit schemes, collective marketing, farmer -farmer seed multiplication...)
- Costs of replication of uptake elsewhere (further justifies investment in research)

A crucial question is therefore, are all the costs associated with sustainable access to ARD results by the intended users catered for somewhere in the multi-stakeholder partnership? Are poor people disadvantaged compared to others because they cannot afford to pay for a crucial component of the technology (information, materials, facilities, training). If so, there may be a case for the subsidy or preferential targeting of these aspects to poor people.

3.6.3 Monitoring access

The purpose of pro-poor ARD is to ensure poor people benefit sustainably from the results of the research in terms of improved livelihoods (i.e. economic, social, NRM, physical infrastructure and facilities, skills, knowledge and employment benefits). Part of the process of achieving improved livelihoods is providing access to ARD results by the poor so that they can evaluate options and make informed decisions about adoption or adaptation. The Box below suggests some of the key questions for M&E related to access of ARD results by poor people.

Box 6: Questions for M&E

- What are the processes/mechanisms of making results accessible to poor people?
- Who is benefiting, and how (qualitative and quantitative – differentiated by wealth, gender and age¹⁸)¹⁹?
- Who is not benefiting and why? Are some disadvantaged by the new technologies or processes?
- What are the outcomes and impacts of these benefits (e.g. improved incomes, food security, progress towards the achievement of MDG-1, resilience to shocks, empowerment and voice, NRM), and how do these impact on poverty (differentiated by gender)?
- What is the cost:benefit of the technology/process promoted, and how replicable is it outside a special project environment?
- Are there any unintended negative consequences on the environment, employment, commodity prices, competing commodities, disadvantaged sectors of the community etc?
- Do projects have M&E processes to follow these questions? Do they include indicators related to these questions in their logframe? What ex-post processes follow progress, sustainability and the secondary consequences of the technologies/processes?

Greater use of ex-ante analysis could help show where projects expect to make their impact, and ex-post analysis should show if this has happened. Box 6 suggests the need for a more evidence-based approach to documenting and demonstrating what works and why, perhaps following approaches used in Health and Medicine where the use of experimental method is the norm. In economics the work by Esther Duflo (Abdul Latif Jameel Poverty Action Lab) sets the standard²⁰.

¹⁸ Other differentiations that might be useful include: remoteness; minority groups (ethnicity, religion...).

¹⁹ In order to be able to attribute any change to the influence of the project, one would need to use a counterfactual or control group to compare with project and without project scenarios.

²⁰ The Abdul Latif Jameel Poverty Action Lab (J-PAL) is a network of 55 affiliated professors around the world who are united by their use of Randomized Evaluations (REs) to answer questions critical to poverty alleviation.

4 Analysis of ARD policies and projects

4.1 The present EIARD policies concerning pro-poor ARD

The EIARD Strategy 2009-2013 (2008) states that ARD is driven primarily by (sustainable) development relevance, but its impact is limited by a number of factors, including a lack of liaison between ARD and broader development efforts and by the lack of involvement of end users in the research process, including dissemination. EIARD Strategy (p. 10) lists six guiding principles: alignment with Developing and Economically Emerging Countries (DEECs) own ARD policies; relevance of ARD to DEEC users; complementarity with DEEC and bilateral action; subsidiarity; partnerships, equity and balanced responsibilities between the South and Europe; and participation, including the adoption of an innovation systems approach. However the Strategy (p10) points out that *“These principles need to be translated into concrete instruments, mechanisms and indicators at all levels of European support to ARD. This is the case for example of the “dissemination strategy and plans” for future research results, which are requested by the EC as part of a research proposal”*

Annex 2 of the EIARD Strategy contains several comments of relevance to involvement of the poor in ARD and access to information. To achieve the MDGs, more research in rural development, in particular in the agricultural sectors, **recognizing the demand of rural farmers and better dissemination of information** is needed. More encouragingly it cites the example of Syngenta’s engagement with South-African universities and local extensions staff, community groups and schools throughout southern Africa in making available robust, interactive internet access to crop protection, fertility and soil management information. Interestingly in Annex 3, the Strategy does not include providing access to ARD results as being one of Europe’s comparative advantages, implying that it could learn from donors in other regions.

One level of access to research outputs is through the International Treaty for Plant Genetic Resources for Food and Agriculture (ITPGR), which facilitates access to plant genetic resources by member states of the Treaty. The terms of the agreements signed between the FAO and CGIAR Centres stipulate that the germplasm within the in-trust collections will be made available without restriction to researchers around the world.

While agricultural research is organized at national, regional and continental level, and has received substantial donor support, **agricultural advisory services have not received comparable attention** at regional and continental level, perhaps because research can be conducted in one place and the results disseminated widely, whereas the impact of advisory services is mainly achieved at the local level.

Linkages between research and extension systems have in the past been weak, and remain so in many developing countries despite various efforts to integrate technology development and dissemination systems. Therefore, it seems therefore critical to revitalize advisory services and their linkages to research, complementing the investments being made in agricultural research.

4.2 ARD policies of EIARD members

In this section the ARD policies of EIARD members (including the EC) are assessed regarding pro-poor design and accessibility of results. Regrettably, the information about the policies presented in the ERA-ARD country profiles is very scant and patchy and therefore it is not possible to benchmark them against all of the four dimensions of a pro-poor AIS system defined in Section 3.3. In addition

the ERA-ARD profiles are only available for 17 EIARD mandate countries²¹, the majority of these being what are deemed²² to be the active members of EIARD (but excluding Ireland, Luxembourg, Norway, Sweden and the European Commission²³). Instead, Table 2 summarises the findings for four elements that are considered as important for pro-poor ARD: (1) clear definition of the target group; (2) attention on gender issues; (3) involvement of the poor in the design of ARD, and (4) access to ARD results by the poor. It also presents information on the coordination and governance of the ARD programs. Apart from the broader analysis, additional information is presented in Box 7 for the United Kingdom, whose policies can be considered as a case of ‘best-practice’ in terms of pro-poor ARD.

Box 7: DFID Strategy for Research on Sustainable Agriculture (SRSA)

The DFID Strategy for Research on Sustainable Agriculture 2006-2016 (SRSA, 2006) has been developed through a wide consultation with developing and developed country stakeholders that is part of DFID’s overall five-year Research Strategy (2008-2015). It sets out DFID’s approach to research on agriculture, fisheries and forestry to get new technologies to poor farmers and to help governments to make better policies. The SRSA recognises the agricultural poor:risk nexus and agriculture:growth nexus, and the interconnectedness of agriculture with other sectors. The SRSA maintains that for agricultural research to hit the moving targets of reducing poverty and increasing the sustainability of agricultural production systems, the research process must become less isolated, more interconnected and more responsive to the demands of research output users. It maintains that agriculture is intrinsically a private-sector activity and where markets work the private sector funds the majority of research and development work. In developing countries the opposite is true, with around 95% being supported by the public sector. Research for poverty reduction and economic growth to meet the MDGs must be treated as global public goods (non-excludable and non-rival) since, where markets fail, it is difficult to appropriate the benefits of investment in research.

Source: DFID Research Strategy 2008-13: Working Paper Series: Sustainable Agriculture http://collections.europarchive.org/tna/20100423085708/http://www.research4development.info/PDF/Outputs/Consultation/ResearchStrategyWorkingPaperfinal_agriculture_P1.pdf

Comments on the Strategy around the main themes of this paper are as follows:

- *Target group.* The ARD strategy is not clear about the target group it wants to address. Although the strategy mentions the need to conduct research that benefits the rural population, in particular women and poor farmers, it does not give a detailed definition of these groups and what this implies in terms of research, technology and dissemination systems.
- *Gender.* DFID mainstreams gender analysis (including the gathering of sex-differentiated data) and encourages partners to do the same. It funds initiatives that focus on the causes of gender inequality.
- *Involvement of the poor.* The first priority is to strengthen and expand research partnerships with stakeholders, including civil society organisations and the private sector in developing countries and give them more of an influence in setting research agendas. DFID will decentralise its research infrastructure and encourage an innovation system approach for demand-led research that benefits the poor.
- *Capacity building.* DFID will build the capacity of researchers to better define and articulate demand within research programmes through engagement with research users and support to “grassroots” innovation.
- *Accessibility of research results.* According to the DFID Working Paper on Communications (2008)²⁴, research communication is rising up the agenda of donors and the global research community. DFID has provided leadership in this area but more collaboration is needed. DFID provides around £7 million per year to three main areas: (i) Identifying and developing ways to enhance people’s access to research products; (ii) Strengthening the context that enables people to use research products; (iii) Contributing to the international debate and knowledge on communication of research

Specific areas for new research include the use and regulatory environment of ICTs, and their relative merits for reaching different research users. The working paper provides directions for the future communication of research by: a) Making existing information more accessible; b) Analysing and synthesising research to provide tailored information services; and c) More harmonised and effective communication of research. It also

²¹ Austria, Belgium, Denmark, Finland, France, Germany, Hungary, Italy, Lithuania, Netherlands, Poland, Portugal, Slovenia, Spain, Switzerland, Turkey and UK)

²² Philippe Petithuguenin, personal communication

²³ The EC is not a member of ERA-ARD

²⁴ Based on Barnard G. *et al* (2006).

recognises the need to track outcomes and learn lessons from communications activities. It has been estimated conservatively that for every £ invested in research, between £5 and £10 are needed to achieve widespread adoption of the technologies produced by that research. Consequently, by 2010 at least 30% of the research budget across all DFID-funded research programmes will be allocated to getting research communicated and into use.

The EC Guidelines on ARD (2008) include in their main lessons from the past that ARD should be conceived as one component of agricultural development, taking into account the necessary links with other components (e.g. extension, inputs supply, financing institutions, markets, institutional development, infrastructure investment, capacity building, land, sustainable NRM). Thus achieving uptake and impact means working with these components to enhance access to ARD results.

Extension programmes are shifting from prescribing technological practices (delivery model), to an AIS model that focuses on participation, mutual learning and building capacity among rural people to identify and take advantage of available opportunities, both technical and economic. The guiding principles listed in the EC Guidelines specifically mention the adoption of a demand-driven and innovation system approach and the importance of the role of gender when shaping the ARD agenda. None of the guiding principles refer explicitly to access to research results, but immediately afterwards the Guidelines state that: *“first and foremost, ARD needs to tackle the issue of how to effectively enhance local knowledge production and translate knowledge into innovation, and how to better link researchers with farmers and end-users, which should be at the centre of research programmes”*. Later, it states that *“the EC will encourage research actors to develop ex-ante strategies and plans that identify potential beneficiaries, involve them and representatives of various societal stakeholders in the design, implementation and monitoring of research projects; and identify and ensure an effective pathway for the delivery and dissemination of research results to intermediate and end beneficiaries”*.

The picture that emerges from the table is very mixed. Only six out of the 17 countries refer to a specific target group for ARD – in most cases small scale farmers and family farms, and only four countries mention gender policies. Involvement of the poor is specifically addressed by seven countries, which ARD policies are said to be ‘demand-driven’ and/or ‘participatory’. In particular, the Netherlands, but also Belgium, identify this approach as a priority for ARD. Nonetheless, apart from broad statements such as ‘actively including all stakeholders’, ‘partnerships with farmers’ and ‘joint determination of the research agenda’, the country profiles do not give much details on the mechanisms that are used to involve the poor in steering ARD. An exception is Austria, which mentions that it supports a project on innovation platforms to engage with farmers.²⁵ It is however, unclear if the farmers that are consulted and who benefit from the research belong to the poor or are among the better off and connected. There is generally a low priority given to the dissemination side of ARD, which is surprising given that it is supposed to be development driven. Only Belgium, Netherlands, Denmark and the UK have strong statements to do with actions that will enhance access to ARD results by the poor. In addition, Austria includes a statement that transparent dissemination of information is an essential component of ARD. Some countries fund networks to exchange information (Denmark) or have initiated North-South exchange programs for researchers (Finland, Germany). However, these initiatives mainly target agricultural researchers in the member country and developing countries. It is not clear if they actively involve the poor, and if, and how, they benefit the poor. Finally, the profiles of Lithuania, Slovenia, Spain and Turkey do not contain policies or statements on any of the elements of a pro-poor ARD design.

²⁵ However, no further information on this project could be found in the InfoSys+ database.

Table 2: Summary of ARD policies by country

Country	ARD coordination and governance	Target group	Involvement of the poor	Access to ARD results by poor	Gender policy
Austria	Absence of central ARD coordination entity, lack of clear ARD standards.	NA	Demand driven approach to ARD, administration, research and civil society are actively included in decision making, project on strategy partnerships through innovation platforms	Innovation platforms for enhanced adaptation and adoption of technologies by farmers and improved linkages to markets	NA
Belgium	Hosted at the federal level.	Poor, small-scale farmers and family farms	Participatory and bottom up approach to ARD, partnership with farmers organisations to prepare and implement research activities	Partnerships with farmers associations and NARES of the Southern countries developed for the dissemination of technologies obtained through research	Gender equality
Denmark	No central coordination of ARD at the national level.	NA	Demand-driven ARD	Since 2001, Denmark' seeks to maximise impact and sustainability of the development initiatives. Promotion of sustainable development through poverty-oriented economic growth is a priority.	Gender is a cross cutting issue
Finland	Research for development (including ARD) is part of the responsibility of the Ministry of Foreign Affairs.	Poor small producers, reference to MDGs	NA	North-South-South Higher Education Institution Network Programme.	NA
France	ARD is related to the national research policy determined by the Ministry of Higher Education and Research and other Ministries.	Reference to MDGs	NA	NA	NA
Germany	Mainly funded by the Federal Ministry for Economic Cooperation and Development but through mechanisms that are not ARD specific.	NA	NA	South-North Dialogue on Innovative Higher Education Strategies.	NA
Hungary	Agricultural research is the responsibility of the Ministry of Agriculture and Rural Development and the Academy of Sciences.	Reference to MDGs	NA	Several training initiatives for extension services and farmers	NA
Italy	ARD activities are not developed in a coordinated way and there is no ARD programme.	Smallholders	Active participation of beneficiaries is always sought, involvement is a priority for implementation and identification of the causes and effects of problems	NA	Gender mainstreaming
Lithuania	Absence of a national ARD programme.	NA	NA	NA	NA

Country	ARD coordination and governance	Target group	Involvement of the poor	Access to ARD results by poor	Gender policy
Netherlands	The Ministry of Economics, Agriculture and Innovation funds and steers ARD.	NA	Demand driven and participatory approach to ARD, research agenda is jointly determined with governments, research partners, NGOs and the private sector in the South, from linear transfer of knowledge to (interactive) co-production of knowledge	In future the Netherlands hope to prioritise new ways of extension (up-scaling) - from linear (transfer) of knowledge to (interactive) co-production of knowledge	NA
Poland	ARD programs are supervised by the Ministry of Agriculture and Rural Development and research institutes.	NA	NA	NA	NA
Portugal	ARD is planned several research institutes that fall under three different ministries.	Small-scale farmers and family farms	Participatory approach to ARD	Priorities include promotion of sustainable, environmentally- friendly production systems and promotion of food production at small family farms;	NA
Slovenia	NA	NA	NA	NA	NA
Spain	ARD is mainly developed by the Ministry of Science and Innovation as well as national and regional research institutes.	NA	NA	NA	NA
Switzerland	There is no specific national ARD programme and responsibilities are shared among different national authorities.	Smallholders	The needs of the rural poor are prominent in ARD	NA	Role of women is prominent
Turkey	ARD is government by a large number of institutions.	NA	NA	NA	NA
United Kingdom*	The Department for International Development (DFID) develops and funds the ARD strategy.	Poor farmers	Needs of developing countries are key in ARD, program to support public-private partnerships to develop technologies.	Strategy is to get new technologies to poor farmers, and help governments to make better policies.	NA

Source: Country profiles from <http://www.era-ard.org> (07-04-2011).

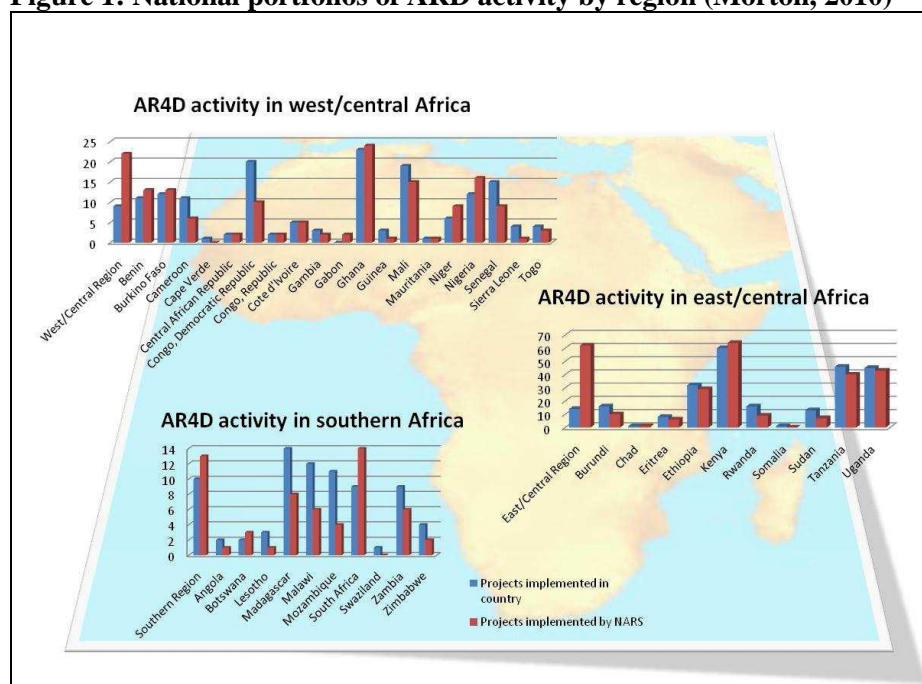
Note: Profiles prepared between mid 2007 and end 2009. NA indicates no information is available. * See Box 7 for details.

Unfortunately the ERA-ARD website, which should be the main source of information on the activities, budgets and aid recipients for EIARD members, is out-dated (with some countries not having up-dated since 2008). Even if the ERA-ARD website were up-dated, it would still be difficult to judge if the expenditures are pro-poor. For this reason, the next section takes an in-depth look at some individual projects that are funded by the member countries.

As reported by Morton (2010), the available data are incomplete, but it is estimated that the total support to agricultural research for development in Sub Saharan Africa (SSA) is around US\$470million per annum. Of that 65% goes through the CGIAR system (\$304million). The estimated total EIARD donor investments in SSA ARD is US\$163million per annum. Of this 65% (i.e. US\$106million pa) is to the CGIAR. The EC and the UK are the largest donors (ca US\$20m in 2009) who each provide about 7% of the CGIAR donor budget. The EC and UK are followed by Germany (US\$12M), Switzerland (US\$ 9M), and Norway (US\$ 8M). Across centres there is a 50:50 split between core and restricted funding although this ratio varies considerably with donor country.

Given the large proportion of EIARD funding going to the CGIAR, a relevant question is if CGIAR research has been responsive to the needs of the poor. Addressing this issue is beyond the purpose of this study but it is worth noting that research of the CGIAR has been criticised quite recently (Watts and Horton, 2010) for being supply driven, not receptive to learning and not participatory enough. As a reaction, the institutional learning and change (ILAC) initiative was initiated to support the CGIAR centres in stimulating pro-poor innovation²⁶. In addition the new CGIAR Strategy and Results Framework²⁷ (March 2010), and the CGIAR Research Programme proposals aligned to it, have taken these criticisms on board. The majority of ARD funding is targeted at sub-Saharan Africa (see Annex 6). Figure 1 shows the asymmetric distribution of ARD activities in the three SSA Sub-Regions.

Figure 1: National portfolios of ARD activity by region (Morton, 2010)



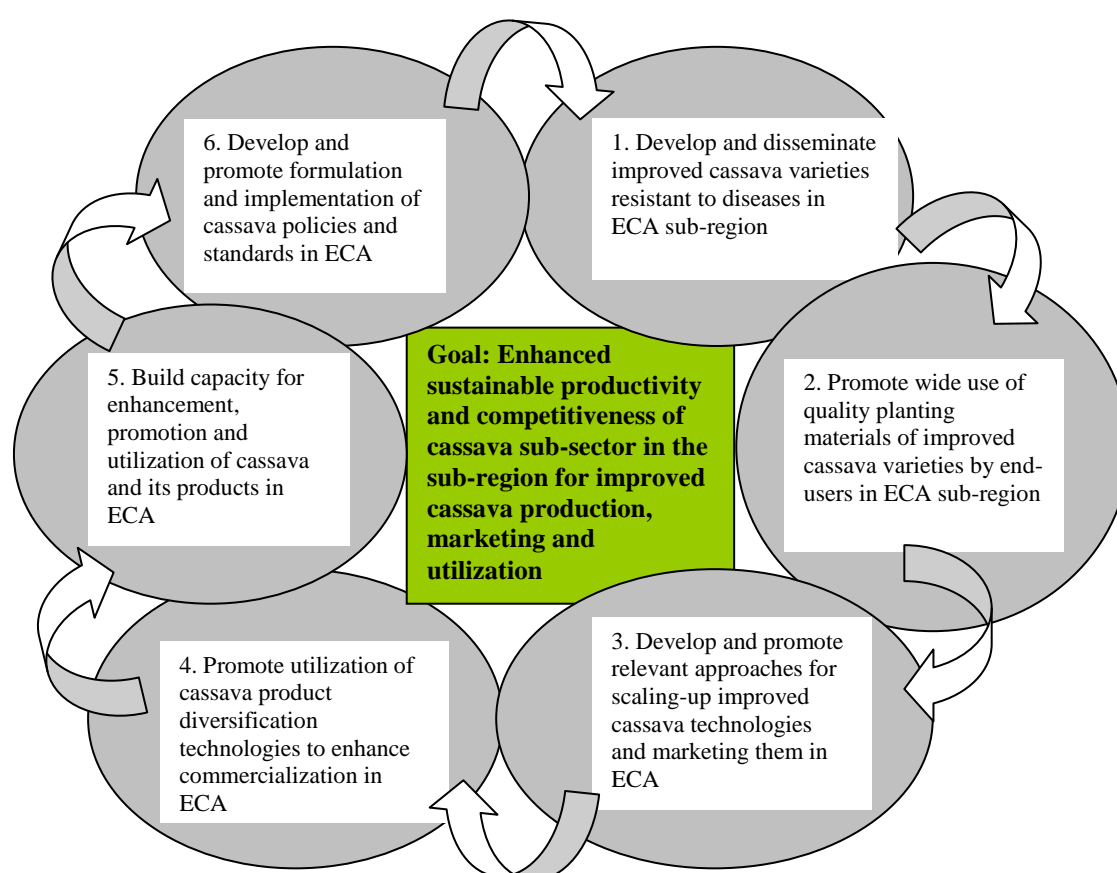
²⁶ See <http://www.cgiar-ilac.org> (08-04-2011) for more information.

²⁷ The new Mega-Programmes of the CGIAR provide an increased focus on the poor and MDG-1 (MP 1: Integrated agric systems for the poor and vulnerable [cassava, millet, sorghum, plantain]; MP 2 Policies, institutions and markets for enabling agricultural incomes for the poor; MP 3 Sustainable rice, wheat and maize systems for ensuring global food security) – CGIAR: Strategy and Results Framework March 2010. <http://cgiarconsortium.cgxchange.org/home/strategy-and-results-framework/megaprograms>).

Much of the ARD funding for research in eastern and central Africa is channelled through a multi-donor trust fund (MDTF) coordinated by ASARECA (the Association for Strengthening Agricultural Research in Eastern and Central Africa). ASARECA's purpose is to: *facilitate the enhanced utilisation of agricultural research and development innovations in eastern and central Africa. This is to be achieved through regional collective action in agricultural research for development, extension, training, and education to promote economic growth, fight poverty, eradicate hunger and enhance sustainable use of resources in Eastern and Central Africa.*

ASARECA has seven demand-driven research programmes, each of which has a research Strategy that was carefully developed through sub-regional stakeholder consultation, leading to projects such as the cassava mega-project depicted in Figure 2. This has an excellent access component, but little explicit poverty orientation. This lack of explicit poverty activities pervades the organisation, despite fighting poverty being included in its purpose.

Figure 2: Cassava mega-project components (ASARECA Staple Crops Programme)



Source: Akullo et al (2008)

4.3 ARD projects funded by EIARD members

Eleven carefully selected²⁸ projects (summarised in Annex 4) were systematically reviewed for elements that relate to: (1) targeting the poor; (2) gender differences; (3) involvement of the poor, and (4) access to information by the poor. The main points emerging are summarised in Table 3 and Table 4.

4.3.1 Targeting the poor

Only four projects talked about their poverty focus. One project specifically targeted poor diary smallholders while another focussed on poor livestock keepers. Another admitted that it worked with middle-wealth farmers. One project is centred around gender analysis, and assumed that women are among the poorest and most disadvantaged without providing further analysis. Apart from these projects, **none of the projects had an explicit focus on the poor** (they did not identify the poor, or their needs; nor did they work with the poor or target the poor with dissemination outputs). However, several projects had an **implicit poverty focus** in that their topics (e.g. stress-tolerant, nutritionally-enhanced maize varieties that benefit poor farmers and consumers).

4.3.2 Gender differences

Only a few projects touched upon **gender issues**. Only one project explicitly focused on the importance to address gender differences in ARD and the need to enhance the participation of women. Two other projects identified women as one of the stakeholder groups for consultation. Two project reports demonstrated that gender differences had been accounted for in developing ARD products and in their dissemination. Several final reports had no mention whatsoever of gender or of women.

4.3.3 Involvement of the poor

Table 3 summarizes the main findings for eight recent projects funded by EIARD members which specifically adopted a demand-led or participatory approach to agricultural research in developing countries.

As part of a shift towards agricultural innovation system approaches, some projects developed multi-stakeholder partnerships, including policy makers, research institutes, NGOs and farmer communities, while some others only highlighted the strengthening of linkages between stakeholders. In one case the development of software was regarded as the vehicle for opening the dialogue between poor farmers and the government. Only one project adopted an explicit AIS-driven approach that specifically aimed at establishing partnerships by means of collaborative and transparent processes and build the organisation capacity of smallholders to engage with other stakeholders. Apart from this initiative, none of the projects presented details on the governance structures of the multi-stakeholder collaboration and if, and to what extent, they contributed to learning and innovation.

All projects included participatory research elements, including the farmer field school approach, participatory breeding, testing and evaluation, participatory training sessions and consultations. However, except perhaps for the project that adopted the AIS approach, involvement of the target group is restricted to feedback and testing of existing technologies that were mostly developed during the project. Opportunities to influence the design and structure of the project seem to have been limited. Some of the projects can be characterised as supply-push rather than demand-led initiatives.

Capacity building was part of most projects, mostly consisting of trainings for farmers in participatory breeding and testing. In two projects, the bulk of the capacity building was directed at scientists and research institutes. Only the AIS-oriented project aimed to strengthen the organisational capacity of smallholder farmer groups to improve participation in stakeholder meetings.

²⁸ The projects were selected using a three-part process: (1) All projects with clear ARD results-access aspects to their titles were identified using the InfoSys website; (2) These were shortlisted with the help of Joerg Lohmann and Judith Walters; and (3) Those with sufficient documentation and relevant content were reviewed and summarised.

Table 3: Approaches to involve the poor in recent EIARD projects

Case study	Approaches to involve the poor	Limitations	Comments
Development of a Farm Field School Methodology.	Focus on poor dairy smallholders; farmer field school approach to technology adoption, dissemination and development; partnerships with stakeholders; building capacity of farmers and extension staff.	No explicit gender focus; no details on functioning and governance structures of partnerships; Unclear to what extent farmers have been able to set the research agenda.	A lot of effort was put into involving high-ranking government policy makers.
Participatory Research and Gender Analysis	Centred around enhancing women's participation in (agricultural) research; Involved a broad range of partnerships; Small grants program.	Apart focus on women, No specific poverty focus; No details on functioning and governance structure of partnerships; No details about effectiveness of small grants programs.	Mainly aimed at raising awareness and improving gender analysis within CGIAR.
Including voices of the poor	Focus on poor livestock keepers; Development of computer program to strengthen the voices of the poor.	Women are listed as one of the stakeholder groups; Except for broad consultations no evidence on establishment of partnerships and involvement of livestock keepers in setting the research agenda; No capacity building.	No documentation on the eventual use of the software by the target group.
Developing and disseminating stress tolerant maize	Use of participatory breeding and on-farm research methods; Collaboration between various stakeholders.	No specific poverty focus; No explicit gender focus; No details on functioning of cooperation structures; No evidence that farmers have been able to influence the research design; Capacity building more directed at NARS than at farmers.	Project mainly aimed to develop new technology while uptake and dissemination have received less attention.
Promotion of IPM strategy for maize grey leaf spot	Consultation with stakeholders to develop the IPM strategy; organisation of farmer-participatory training sessions.	No specific poverty focus; No gender analysis; Except for broad consultations and strengthening of linkages between stakeholders no evidence on establishment of partnerships and involvement research agenda setting.	Establishing networks and partnerships between stakeholders and a demand-led approach are stressed under lessons learned.
Access to quality pre and post-harvest maize information	Innovation system approach with specific aim of facilitating building relationships between stakeholders and creating partnerships; participatory learning techniques; validation of development of extension materials with users.	Inclusive of poor, but not specific to poor; Farmers consulted were mid-wealth group.	Poverty limitations acknowledged by project; gender differentiated samples used; specific focus innovation system approach; high transaction costs; good fit with government policy
Scaling up participatory plant breeding	decentralised, demand-driven seed system developed; linkages between farmers and research institutions improved; Participatory testing and evaluation.	Not poor specific; Women are listed as one of the stakeholder groups; Unclear to what extent farmers have been able to influence the research design; Capacity building more directed at NARS than at farmers.	Early collaboration by stakeholders helped in quickly starting up the project activities.

4.3.4 Access by the poor to ARD results

Table 4 demonstrates a wide range of **approaches** designed to provide access by smallholders and intermediate organisations to ARD results. These include formal seed multiplication, capacity development, production of training and dissemination materials, software to help intermediaries plan pest management campaigns, software to better archive and share technologies, encouragement of low-cost technologies through private enterprise, participatory plant breeding and community-based seed multiplication.

Most projects have worked with a range of **stakeholders**, although only one is a multi-stakeholder partnership. Several have seen their direct user of ARD results as being intermediaries (government, NGOs, private sector) rather than farmers. This is the case for those projects producing software packages as their main ARD output.

There is a wide range in the **numbers of farmers reached**, where mentioned, from 500 up to 1million. Access is to data, information, knowledge, skills and materials depending on the project, and access is for a diverse range of stakeholders with widely differing needs. The scale of access also varies from a small pilot area to the national level (with some spill-over to other countries in the region).

No project exceeded four years and **half were 1-year projects**. Several admitted in their final reports that they had not got to the stage of institutionalising their outputs into the working practices and activities of country organisations (thereby increasing the likelihood of research results being accessible over a longer time period). Those projects producing software packages had no post-project mechanism for updating and improving their packages in the light of field experience.

It is worth noting that Case study 1 (Developing and disseminating stress tolerant maize) was the most expensive (project costs ranged from €56,000 to €1.2million) and did a fantastic job over its three year period. However at the end there was still insufficient seed available to farmers for a long list of reasons. Three years is a very short period to turn around **and** institutionalise a complex area such as access to quality seed.

A final point is that even in the dissemination/access aspects of the projects, technical scientists are still driving the process (three had substantial CGIAR involvement), rather than specialists in promotion, packaging, mass media interaction etc.

Table 4: Approaches to reach and impact the poor in recent EIARD projects

Case study	Approaches to reach and impact the poor	Limitations	Comments
Developing and disseminating stress tolerant maize	Develop appropriate varieties; multiply sufficient seed for 1m farmers; develop seed system capacity	No specific poverty focus No explicit gender focus 3-year project	Even with considerable efforts of project, seed access is still limited
Promotion of IPM in vegetable production	Training of >500 farmers; production and testing of IPM resource kit and dissemination materials; M&E of changes in farmer behaviour due to project interventions	No specific poverty focus No gender analysis 1-year project	No indication of how the sustainability of this initiative will be achieved
Message in a bottle; dissemination of tsetse control techniques	Development and dissemination of computer-based system to help agencies design and implement community-based tsetse control. Disseminated via www and CDs.	Slow adoption; No explicit poverty focus; women not mentioned in final report; no mechanism post-project for the updating and modification of the system. 4-year project	Approach is to reach farmers via intermediate agencies, particularly NGOs
Promotion of IPM strategy for maize grey leaf spot	Raise awareness of disease; develop IPM strategy based on a basket of options; develop wide range of dissemination materials; train 20k farmers and other NARS actors	No attempt to target poor; women not mentioned in final report 1-year project	No time to institutionalise results
Pheromone traps for cowpea pest control	Develop low-cost methods for pest control using pheromone traps. Establish that farmers are willing to pay economic costs.	No private company willing to take on manufacture and sale of traps; poor farmers targeted, but not characterised; sample consulted not wealth differentiated; no gender mention in final report. 1-year project	Project operated in small area; no obvious sustainability mechanisms
Access to quality pre and post-harvest maize information	Innovation system approach; survey of information channels (men and women) for farmers and stockists; participatory learning techniques; development of extension materials with users	Inclusive of poor, but not specific to poor. Farmers consulted were mid-wealth group. High transaction costs of bringing value chain actors together	Poverty limitations acknowledged by project; gender differentiated samples used; recognised diversity of information needs of different value chain actors; good fit with

		3-year project	government policy
Tools to package and deliver information	Developed software systems to package and deliver information; promotion through road shows	Not poor or gender specific; No mechanism for periodic updating and modification;	Delivery to farmers is via intermediaries; Responds to real need for accessible archiving of technologies
Scaling up participatory plant breeding	Large scale testing of varieties using PPB; decentralised, demand-driven seed system developed; technical support services strengthened	1-year project Questionable sustainability as depended on follow-on donor funding Not poor specific 3-year project	Gender sensitive

5 Challenges and opportunities

5.1 Pro-poor ARD; is EIARD hitting the target?

The EIARD Strategy²⁹ states that the goal of EIARD is to *increase the impact of ARD on poverty reduction, food security and sustainable management of natural resources in developing countries*, while admitting that the proportion of poor has actually grown, or fallen only slightly, in many countries in Africa, Latin America and Eastern Europe and Central Asia. In sub-Saharan Africa, a 13% decrease in GDP per capita has resulted in a near-doubling of the number of people living in extreme poverty³⁰.

The EC Guidelines on ARD (2008) note that research-led agricultural productivity growth has had a documented positive impact on poverty reduction in Africa, Asia, and Latin America (Thirtle et al, 2003), but that improved donor coordination and cooperation is crucial. The EC Guidelines maintain that the main beneficiaries of EC-supported ARD should be smallholders and women. We feel that this misses many of the rural poor (especially landless labour), and enables research to take the easy way out and cater mainly for those with sufficient (secure) land and other resources to benefit from research outputs, whereas the main challenge is to provide an environment, technologies, processes and structures that allow the poor to sustainably benefit from research processes.

There is thus a mis-match between EU rhetoric and action. Because of a lack of mechanisms to define, characterise and identify the poor, they are not being effectively targeted, and therefore not being adequately addressed by ARD.

Possible strategies for improving access to opportunities for the rural poor (a wider topic than improving access to ARD results) include the following³¹:

- Designing policies, legal/fiscal frameworks and institutions to give poor people equal access to information, land, capital, and markets
- Ensuring economic policies don't discriminate against economic sectors, social groups or regions
- Biasing technologies, institutions, and social and economic policies in favour of poor people
- Designing agricultural R&D in ways that explicitly address the special needs of poor people

The third approach of bias toward poor people's interests receives the criticism that it may slow economic growth (Alston et al. 1995).

²⁹ A Strategy for the European Initiative for Agricultural Research for Development (EIARD): 2005-2010

³⁰ The World Bank estimates that 1.4 billion people live in extreme poverty based on a poverty line of US\$1.25/day at 2005 prices (The Paris Declaration on Aid Effectiveness 2005 and the Accra Agenda for Action 2008).

³¹ Modified from: <http://impact.cgiar.org/sites/default/files/KerrKolavalli1999.pdf>

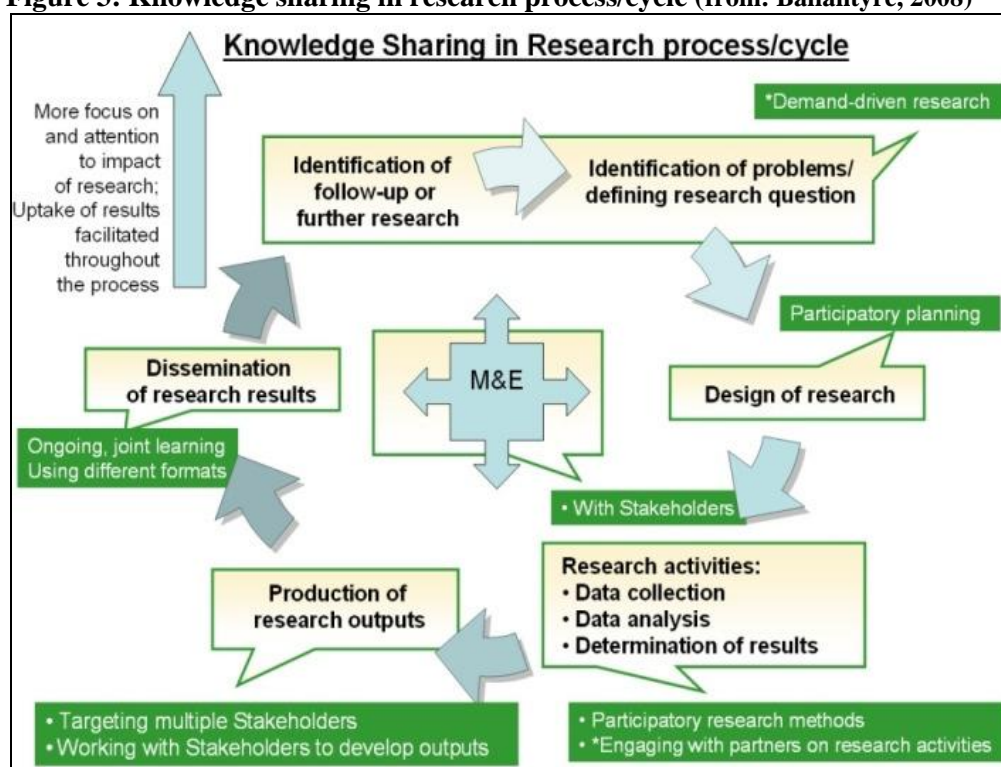
5.2 Swimming with or against the tide?

EIARD and country policies should normally coincide if ARD results are to be sustainably adopted (as enshrined in the first two principles of the *Paris Declaration on Aid Effectiveness 2005 and the Accra Agenda for Action 2008* (OECD 2008)³²). Ideally that means coherence/consistency with national PRSPs, and synergies with economic development plans, environmental plans and social development initiatives. Do projects demonstrate their alignment with country policy direction? If not, ARD may need to provide the evidence that a change in government policy will benefit the country (examples of this include the demonstration that participatory plant breeding can complement on-station trials, changing policies on the release of new varieties, and the demonstration that Community-Based Animal Health Workers in east Africa can complement government and private veterinary services leading to changing policies on animal health para-professionals).

5.3 Strategies for improving access to ARD results

The CGIAR AGM held in Maputo in 2008³³ concluded that a “Triple-A” approach to make CG research available and useful for development was necessary. This approach (Ballantyre, 2008)³⁴ maintains that research organizations like the CGIAR cannot be satisfied just knowing they have produced high quality science. It suggests that, despite substantial efforts and innovation across centres and system-wide, added-value services such as virtual libraries and data warehouses, much CGIAR knowledge remains hard to see and hard to get. It is essential that the outputs of their research are communicated and put to use, in the village, on the ground, in the lab, or across the negotiating table. The paper investigates how the information and knowledge needs of the CGIAR’s priority stakeholders can be better met. Part of the solution is through greater participation of stakeholders, marked in green in Figure 3 below.

Figure 3: Knowledge sharing in research process/cycle (from: Ballantyre, 2008)



³² 1. Ownership: Developing countries set their own strategies for poverty reduction, improve their institutions and tackle corruption; 2. Alignment: Donor countries align behind these objectives and use local systems.

³³ http://ictkm.cgiar.org/archives/AAA_Maputo_30november.pdf

³⁴ http://ictkm.cgiar.org/document_library/program_docs/ICT-KM%20AAA_complete.pdf

In addition, Ballantyre proposes a Triple A – **availability, accessibility, applicability** - framework to assist scientists, managers and information professionals develop pathways to improved accessibility for their outputs. Strong partner capacity is a vital element in this delivery system. The paper argues that research whose outputs have not been made accessible may not be an international public good (IPG)³⁵. Investments to extend the accessibility of outputs will benefit producers **and** consumers worldwide. At present the CGIAR uses relatively traditional forms of science publishing and communication (with pockets of innovation) with limited accessibility. Part of the solution is to move towards the next generation of science communication where individuals and groups are empowered to document and communicate their own activities in different channels and social media. This ‘e-science’ has traditional peer-reviewed outputs, perhaps managed differently than now. It also gives a ‘cloud’ of communication and dissemination possibilities for individuals to adapt to their own needs and situations.

The new CGIAR Strategy and Results Framework³⁶ (March 2010) emphasises the synthesis of outputs and the communication of results, while the individual CGIAR Research Programme proposals provide strong analyses of the uptake and adoption pathways and the estimated benefits to be gained from these actions.

5.4 Getting research into use

In order to increase uptake of research findings, farmers and agricultural extension workers need to be better supported to articulate demand and to become involved in action research activities. Research that stays ‘on-the-shelf’ represents a huge cost and missed opportunity. Particularly in the case of agriculture, the consultation leading to the new DFID research strategy³⁷ threw up a range of reasons for non-adoption, including poor dissemination and communication of research outputs, poor quality of public extension, lack of involvement of end-users in the research process, poor linkages between researchers, end-users and other key stakeholders, and lack of enabling policies. Significantly, in Africa, when asked about whether funds should be invested in new research or research into use, respondents talked of between 50-60% of funds being invested in research into use, while emphasising that new approaches to research should be considered to ensure that in the future research would be more relevant with application being considered from the start. Although many significant research achievements exist in the public domain through peer-reviewed publications, web sites and on-going research and development programmes, there is an institutional inertia that stops them getting into use without significant and proactive effort.

In order to ensure that the potential of past DFID research is not dissipated the **Research into Use Programme** was established in 2006 with the dual purpose of getting agricultural research (technology, methodology, policy) into use and to stimulate research on gaining a better understanding of the process.

Despite the presence of some useful initiatives, the relative importance given to uptake promotion and extension aspects of ARD projects is low. A greater emphasis on making results available, accessible

³⁵ An IPG could be a CGIAR-produced data, information, or knowledge asset that: is described and stored for posterity; can be easily found and accessed; encourages use and re-use of knowledge [and can easily be appropriated]; is appropriable, accessible, sharable, reusable, available, affordable; is available, accessible and applicable without restrictions.

³⁶ The new Mega-Programmes of the CGIAR suggest that there is an increased focus on the poor (MP 1: Integrated agric systems for the poor and vulnerable (cassava, millet, sorghum, plantain); MP 2 Policies, institutions and markets for enabling agricultural incomes for the poor; MP 3 Sustainable rice, wheat and maize systems for ensuring global food security – CGIAR: Strategy and Results Framework March 2010. <http://cgiarconsortium.cgxchange.org/home/strategy-and-results-framework/megaprograms>).

³⁷ Working Paper Series: Sustainable Agriculture - DFID Research Strategy, 2008-2013. Available at: http://www.dfid.gov.uk/r4d/PDF/Outputs/Consultation/ResearchStrategyWorkingPaperfinal_agriculture_P1.pdf

and applicable (including attention to the legal, fiscal and institutional uptake environment) would help to redress this imbalance³⁸.

5.5 Access to ICTs

Access to ICTs already provides farmers with information on prices, markets, technology, and weather via SMS mobile phone messages, as well as providing a convenient rural banking system (M-PESA in Kenya)³⁹. Community-based tele-centres have the potential to empower rural communities and facilitate socio-economic developments in agriculture using e-mail, Internet, phone, radio, TV and printing facilities that are complementary to conventional ways of delivering agricultural information. Alternative power sources such as solar and involvement of private sector must be explored and exploited to provide electricity for ICT use, particularly for the rural areas. In countries with weak government, ICT technology outlook relies on the emerging farmer associations and CBOs as training centres and access points for ICTs. Banking institutions, such as CRDB Bank in Tanzania (<http://www.crdb.com>), have satellite links to all its branches, enabling customers, including farmers, to transact finances electronically between long distances⁴⁰. Considerable progress in involving farmers through client-oriented and demand-driven research approaches is in sight. As a result, researchers are becoming facilitators (rather than leaders) and learners, while farmers are becoming teachers. A shift in the preparation of researchers to include “soft skills” such as PRA and other qualitative research methods, and facilitation, negotiation and communication skills, will enhance and accelerate this trend. Poor subsistence farmers, given access and able to use Internet, will pose a constructive challenge to researchers in the future for more current and accurate solutions to their problems. Remotely located farmers and herders can also provide vital information by mobile phone on locust or army worm infestations, rinderpest outbreaks and severe weather incidents that can alert appropriate responses by research and development agencies. Given their aptitude for electronic media, targeting the rural youth in the development of ICTs might be a productive strategy.

6 Conclusions and recommendations

6.1 Conclusions

The objective of this study has been to evaluate existing ARD policies of EIARD members, programs and strategies in relation to pro-poor ARD and to assess whether they incorporate the latest scientific and policy insights in this field. For this purpose we undertook an extensive desk-study analysing relevant literature related to pro-poor ARD, and reviewed the ARD policies EIARD members and a range of agricultural innovation projects that have been funded by EIARD members.

A key finding is the emerging paradigm shift from a supply-driven approach to ARD in which technology is developed and delivered by agricultural scientists and research institutes towards a demand-led and agricultural innovation systems (AIS) approach which stresses the importance of partnerships, learning and institutions for innovation. Nonetheless, despite the attraction of the AIS framework, it is not yet a proven concept. Moreover, while the AIS concept focuses explicitly on innovation and technological learning, there is no guarantee that the outcomes will benefit the poor. To date there are only a few projects that have tried to systematically evaluate the effectiveness of the AIS approach in developing countries and assess its pro-poor outcomes. For example, a recent review of the SSA-CP – the largest and most extensive initiative to test the AIS approach – pointed out that IAR4D and innovation platforms are valuable approaches that are already generating technical,

³⁸ At the EIARD Working Group meeting in Brussels (June, 2011) the feeling was that donors should not themselves be involved in the up-scaling of research results, but should be involved in developing/demonstrating mechanisms that can be used for such up-scaling (e.g. Innovation Platforms being developed by the DFID Research into Use programme).

³⁹ <http://www.safaricom.co.ke/index.php?id=250>

⁴⁰ ICTs and National Agricultural Research Systems – The case of Tanzania. <http://www.tzonline.org/pdf/ictsandnationalagriculturalresearchsystems.pdf>

institutional, marketing and local policy innovations for end users, but more time is needed to draw final conclusions.

We have argued that four elements should be addressed for pro-poor ARD policy in the context of an AIS:

5. **Defining and targeting the poor** is a pre-requisite for programmes that hope to benefit the poor and alleviate poverty. Most projects do not differentiate or characterise the poor within rural communities and so do not address their specific needs, do not involve them in their research activities and do not adequately meet their dissemination requirements.
6. **Gender.** Although women play a key role in agricultural production most of the benefits still accrue to men. Hence, there is a need for ARD to more explicitly address gender inequality in design, implementation and dissemination of ARD.
7. **The involvement of the poor in designing ARD** must be improved. Several initiatives have experimented with the creation of so-called research and innovation platforms in which relevant stakeholders (including the poor) take part to stimulate participatory innovation that also benefits the poor. Although promising, the available studies point out that the outcomes are influenced by a number of contextual factors (e.g. power balance, capacity of the poor and leadership) and more research is required to find out what constitutes effective and efficient partnerships. Another way to increase the involvement of the poor is to introduce mechanisms that allow them to shape the ARD agenda, for example by organising consultations, ensuring the poor have representation in national innovation committees that set ARD policies and R&D budgets, and introduce competitive research grants schemes that specifically target and involve the poor. Also these approaches are relatively new and limited information is available to provide answers on optimal design, implementation and effectiveness. Finally, the capacity of the poor (including transaction costs) needs to be built in to take part in all these processes and (young) scientists need to be trained in working and communicating with the poor, and demand-led approaches to innovation.
8. **Access by the poor to ARD results** means access to information, knowledge, skills, materials, facilities, infrastructure, markets and finance. The needs of the poor are different from those of the better off who have collateral for loans, the transport to get to urban centres and the literacy skills to be able to interpret extension leaflets. Appropriate messages are therefore needed in appropriate mixes of media and activities, complemented by the materials (sold in appropriate quantities and at an affordable price and distance) needed to make the promoted technologies work. Young farmers might be the most receptive to electronic media / ICT.

The analysis revealed that the elements for pro-poor ARD have not, or only to a limited extent, been translated into the ARD policies of EIARD member countries or into ARD practice as illustrated by our review of ARD projects. Only a few countries (i.e. Austria, Belgium, Denmark, the Netherlands and the UK), included comprehensive and strong statements related to targeting the poor, gender inequality, involvement of the poor and access to information. In particular the ARD policies of the UK and the extensive consultation process that led to the formulation of these policies provide an example of good practice for other member states. It was also found that EIARD members direct most of their ARD funding to the CGIAR, which begs the question if CGIAR research has been responsive to the needs of the poor. The new CGIAR Strategy and Results Framework, and the CGIAR Research Programme proposals aligned to it, suggest that previous criticisms that the CGIAR was supply driven, not receptive to learning and not participatory enough have been taken on board, and that there is more focus on working to achieve MDG-1.

Similarly the analysis of the ARD projects showed mixed performance. Only a few projects included a clear poverty and gender focus and adequate attention on participation of the poor and dissemination of information and materials to the poor. Some of the projects can still be characterised as technology push instead of demand-led initiatives. Only one project adopted a specific AIS framework.

Overall, there seems to be a mismatch between the ARD policies and practice of EIARD members and the overall EIARD Strategy 2009-2013 and the related EU Guidelines on ARD (2008), which both emphasise the need to adopt an AIS approach to ARD, improve involvement of the poor in ARD and enhanced access to ARD results by the poor.

Finally it is important to stress that the findings above should be interpreted with care as the analysis has been based on limited and potentially incomplete information. It proved to be very difficult to obtain ARD policy documents of EIARD member countries. As an alternative the review of the ARD policies was based on brief (and sometimes patchy) profiles from the ERA-ARD project which cover only 17 out of 29 countries and date from between mid-2007 and the end of 2009. Likewise, project data analysis was problematic because the coverage of InfoSys+ – the EIARD project database – is limited and mostly outdated.

6.2 Recommendations

It is recommended that EIARD:

- Selects a definition of poor/poverty that is appropriate at the operational (project) level (e.g. the OECD five rural worlds framework), and ensure that the poor are properly identified, involved in and targeted by the results of ARD. The definition should be harmonized across member states. EIARD needs to be clear whether the chronically poor are included, as the poorest will not usually benefit directly unless explicitly targeted.
- Collects information on ARD policies from all member states to expand and update the ARD profiles presented by the ERA-ARD project.
- Updates and reviews the InfoSys+ website so that it presents a complete and detailed overview of European funded ARD projects.
- Supports a learning process among actors involved in planning and implementing ARD programmes to share and learn from clear field examples, where emphasis is given to the “*how to*”, in terms of approaches and tools used against the prevailing context and costs.

EIARD member countries are recommended to revise their ARD policies to:

- Introduce a workable definition of the poor.
- Make tackling gender inequality a core part of the ARD.
- Organise broad-based consultations (as in DFID) to help formulation of donor ARD policy.
- Support programmes and projects that experiment with innovative approaches to involvement of the poor such as innovation platforms and competitive research grant funding.
- Target the poor much more specifically in the dissemination of ARD results with messages, media, materials, inputs and services that are tailored to the specific needs of the poor. ICTs can play a useful part in the dissemination of ARD results to poor households, and might be particularly attractive to the rural youth.
- Ensure representation of the poor in research counsels and research budget committees to steer direction of research that suits needs of the poor.
- Build the capacity of the poor to organise themselves and actively take part in consultations, multi-stakeholder platforms and other initiatives that shape the ARD agenda.
- Raise awareness among scientist about demand-led approaches to ARD and provide training and practice to enable them to work with the poor, including young farmers.
- Require project proposals to include ex-ante analysis of expected impact on poverty, and independent ex-post analysis of whether this has been achieved. The proposals should include a broad-based analysis of the social, economic, political and technical context in which the project is to operate, and therefore the factors that are most likely to influence impact on poverty. Project design should incorporate greater use of experimental method in projects to document and demonstrate what works and why.
- Shift the mindsets of researchers by advocating for curricula that incorporate demand driven and AIS approaches, as well as the development of “soft skills” (communication, negotiation, facilitation) and the effective use of qualitative research methods.

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Annex 1: Changing approaches to agricultural research and development

Table 5: Changing approaches to agricultural research and development

	Transfer of Technology	Farming Systems Research	Farmer Participatory Research	People-centred Innovation and Learning
Period	Central since 1960s	Starting in the 1970s and 1980s	From 1990s	From 2000s
Theory of innovation	Linear, supply through pipeline	Learn through survey	Collaborate in research	Innovation network centred on co-development; involving multi-stakeholder processes and partnerships
Farmers as seen by scientist	Progressive adopters, laggards	Objects of study and sources of info	Colleagues	Partners, collaborators, entrepreneurs, innovators, organised group setting the agenda, exerting demand
Scientists as seen by farmers	Not seen – only saw extension workers	Used our land, asked us questions	Friendly consumers of our time	One of many sources of ideas and information
Knowledge and disciplines	Single discipline driven (breeding)	Inter-disciplinary (plus economics)	Inter-disciplinary (plus farmer experts)	Extra/trans disciplinary, holistic.
Farmers' roles	Learn, adopt, conform	Provide information for scientists	Diagnose experiment, test adapt	Empowered co-generators of knowledge and innovation; negotiators
Scope	Productivity	Input output relationship	Farm based	Beyond the farm gate, multi-functional agriculture and livelihood systems, national and international value chains
Core elements	Technology packages	Modified packages to overcome constraints	Joint production of knowledge	Social networks of innovators; shared learning and change, politics of demand.
Drivers	Supply push from research and science	Scientists' need to learn about farmers conditions and needs	Demand pull from farmers	Responsiveness to changing contexts: markets, globalization, climate change, producer organisations, power and politics
Key changes sought	Farmer behaviour	Scientists' knowledge	Scientist-farmer relationships	Institutional, professional and personal change, opening space for innovation
Intended outcome	Technology transfer and uptake	Technology produced with better fit to farming systems	Co-evolved technology with better fit to livelihood systems	Capacities to innovate, learn and change
Innovators	Scientists	Scientists adapt packages	Farmers and scientists together	Multiple actors – learning alliances

Source: adapted from Scoones and Thompson (2009)

Annex 2: The characteristics of ARD (from: EIARD Strategy 2009-13, Annex 1)

Multi-dimensions and scope of ARD

ARD is intrinsically:

- ***fundamental & applied*** – dealing with upstream and problems solving research;
- ***comprehensive*** – dealing potentially with research objects in any field and at any relevant scale, thus encompassing a wide range of scientific disciplines (from molecular biology or genetics to agroecology; economics, political and social sciences or modelling);
- ***multi-stakeholder*** – because concerned people are many and face a variety of often ill-known specific situations, thus requiring iterative and inter-active loops of participatory diagnosis-to research-product processes that include all players and activities of the local innovation systems.
- ***international*** – because carried out in and/or for developing & emerging economy countries, and in most cases with Southern ARD partners and International Agricultural Research Centres (in particular CGIAR Centres).
- ***global*** – as similar problems are widely shared among countries and as local interactions with world problems result from globalizations of all kinds;
- ***multiple policy*** purposed – because it contributes to various and different policies: Science & Research, Agriculture, Foreign Affairs & Development, Environment, Trade & Economy, Health policies, to mention the most important ones.

The concept of ARD has evolved considerably over the last decade from research which focused directly on reducing hunger to the wider issues concerned with poverty alleviation, and is now beginning to address the challenge of sustainable development *for all* within the concepts of “***One World***” and “***Global Changes***”.

ARD is now expected to broaden its agenda towards challenges of mutual interest of developing, emerging and industrialised countries.

Annex 3: Shortlist of projects from InfoSys+

The projects summarised below were selected using a three-part process: (1) All projects with clear results-access aspects to their titles were identified using the InfoSys website; (2) These were shortlisted with the help of Joerg Lohmann and Judith Walters; and (3) Those with sufficient documentation and relevant content were reviewed and summarised (Annex 4).

#	Title	EIARD member
1	Mutual learning of livestock keepers and scientists for adaptation to climate change in pastoral areas	Germany
2	Developing and disseminating stress tolerant maize for sustainable food security in Eastern and Central Africa	Germany
3	Strategic partnerships and effective networking for sustainable Agroforestry research, development and education in Southern Africa region	Belgium
4	Eastern Selous Community Wildlife and Natural Resources Management Project	Belgium
5	Support to local farmers organisations in Latin America: valorisation of resources for a sustainable agriculture	Belgium
6	A strategy for reviving the vital breadbasket of the Democratic Republic of Congo through Integrated soil fertility management coupled to resilient germplasm in cassava-based systems	Belgium
7	Development and transfer of IPM technology to small-scale farmers for sustainable banana production in Asia and the Pacific	Belgium
8	Development of conservation agriculture technologies for adoption by smallholders in Central Asia	Germany
9	Participatory development and testing of strategies to reduce climate vulnerability of poor farm households in East Africa through innovations in potato and sweet potato technologies and enabling policies	Germany
10	Enhancing access to genetic diversity through scaling up participatory plant breeding: Roles of different types of farmer and development organizations in Mali	Germany
11	Contracting Out of Poverty: Experimental Approaches to Innovation in Agricultural Markets with Small Farmers	Germany
12	Participatory Research and Gender Analysis (PRGA) 2007	Italy
13	Towards Improved Farmer Access to Agricultural Information in Uganda – the Question and Answer Service (QAS) Voucher System (VS)	Netherlands
14	Development of a Farm Field School Methodology for Smallholder Dairy Farmers	United Kingdom
15	Including the voices of the poor: developing a decision-making framework for livestock disease prioritisation and the uptake of animal health technologies by poor livestock keepers	United Kingdom
16	ICLARM: Aquatic resources valuation and policies for poverty elimination in the Lower Mekong Basin	United Kingdom
17	Promoting adoption of integrated pest management in vegetable production through improved resources for Farmer Trainers	United Kingdom
18	Message in a Bottle: Disseminating Tsetse Control Technologies	United Kingdom
19	Promotion of an IPM strategy for maize grey leaf spot (GLS) in East Africa	United Kingdom
20	Implementing pheromone traps and other new technologies for control of cowpea insect pests in West Africa through farmer field schools	United Kingdom
21	Improving farmer and other stakeholders' access to quality information and products for pre- and post- harvest maize systems management in the Southern Highlands of Tanzania	United Kingdom
22	Pro-poor sustainable agriculture knowledge centres	United Kingdom
23	STEP tools to package and deliver information for local use	United Kingdom
24	Enhancing the livelihood of the local population in a biodiversity hotspot (Central Menabe, Madagascar): Scientific bases for a participatory forest landscape management	Switzerland
25	Developing optimised cattle breeding schemes, with a special focus on trypanotolerance, based on the demands and opportunities of poor livestock-keepers	Switzerland
26	Integration of Biofertilizers (Mycorrhiza and PGPR) in a Green Manure Based Wheat-pulse Rotation	Switzerland

Annex 4: Case studies of relevant and documented pro-poor ARD projects

Case study 1

Development of a Farm Field School Methodology for Smallholder Dairy Farmers

Project summary: *Dates:* 2001-4. *Funding agency:* DFID. *IARCs:* International Livestock Research Institute. *Budget:* NA; *Countries:* Kenya. *Objective:* To adapt and test Farmer Field School (FFS) methodology for animal health and production, focussing upon smallholder dairy farmers.

Main achievements: A group of 25 Kenyan government extension officers were trained in Farmer Field School (FFS) approaches for two weeks in Bungoma, Kenya. The project fostered the start of 10 new livestock FFS groups and developed information and materials for use by farmers. A 'training of trainers' manual was produced in collaboration with the FAO. More than 200 farmers graduated during the course of the programme, and eight farmers started their training to become facilitators.

Poverty focus: Project targets poor dairy smallholder farmers.

Gender: No mention of gender or any specific women's needs in the summary report

Research partnerships: Regular and very active collaborative links have been established with the Ministry of Agriculture, FAO, The Coast Development Authority, Land O' Lake, CAPE programme, ITC, SPFSS-FAO. The project has put a lot of effort into involving high-ranking government policy makers.

Setting the research agenda: Using the FFS approach developed by FAO in South East Asia, this project has developed a process that allows farmers to adapt existing technologies and try out new ideas, which are developed through interactions between farmers, scientists and extension workers.

Capacity: Through development of the training of trainers' manual and curriculum, the project is building the capacity of extension staff to work as FFS facilitators. It will also provide further training and learning materials that they can use.

Lessons learned: No information on lessons learned.

Sources: Summary report - <http://www.share4dev.info/ffsnet/documents/3155.pdf> and <http://www.dfid-ahp.org.uk/index.php?section=4&subsection=128>

Case study 2

Participatory Research and Gender Analysis

Project summary: *Dates:* 1997-2007; *Funding agency:* Italian Ministry of Foreign Affairs – Directorate General for Development Cooperation; *IARCs:* International Center for Tropical Agriculture (CIAT); *Budget:* € 150,000 (2007); *Countries:* CGIAR programs in various countries; *Objective:* The Program aims to identify, adopt, adapt, and develop suitable participatory and gender-analysis methodologies for agricultural research; build capacity in the use and understanding of these methods in the CGIAR and its partners; develop appropriate research partnerships and networks; and promote the institutionalization (mainstreaming) of gender-sensitive participatory research approaches (within the CGIAR and its partners).

Main achievements: The Program demonstrated that participatory research and gender analysis: embody rigorous methods that are scientifically grounded; produce broad impacts through technologies and resource-management options that are well suited to endusers' needs; produce process impacts in the form of human and social capital, which help sustain rural development and innovation; are especially beneficial to women, the poorest and marginalized groups. Are cost-efficient, primarily because of the increased impact and shortened time for technology development. After 2003, in the second phase the program started to mainstream gender-sensitive participatory research.

Poverty focus: It is stated that women are among the poorest and marginal groups, which are often overlooked by conventional research. This group is not further disaggregated are grouped.

Gender: Women are the key target group and are specifically addressed.

Research partnerships: During its first phase, the Program engaged in 48 partnership-based activities with 84 partners and, during the second phase, 30 activities with 40 partners. Partnerships were formed across the spectrum of gender and participatory research stakeholders, from advanced research institutions and fellow CGIAR organizations, through a subregional organization, universities, the private sector, national research and extension services, and NGOs, to farmers and communities.

Setting the research agenda: During its first phase, the Program awarded at least 26 small grants for participatory and gender research in plant breeding and natural resource management.

Capacity: The Program and its partners conducted numerous training events around the world. They also provided mentoring and backstopping to research partners, who often conducted training workshops as part of small-grant projects.

Lessons learned: There is a sense that impact assessments are still widely under-used—they are still commissioned by donors and other stakeholders with an interest in attributing positive developments to project activities, rather than being used by project-implementing organizations to learn and change so as to ‘do development’ better.

Sources: Project Summary - http://www.ciat.cgiar.org/newsroom/documents/brief4_prga.pdf

Case study 3 **Including voices of the poor**

Project summary: *Dates:* 2002-05; *Funding agency:* DFID; *IARCs:* Livestock Development Group, University of Reading; *Budget:* €209,430 ; *Countries:* Bolivia, India, Kenya; *Objective:* Developing a decision-making framework for livestock disease prioritisation and the uptake of animal health technologies by poor livestock keepers

Main achievements: A computer-based learning aid for farmers – The Livestock Guru – has been developed to help poor Indian farmers identify key diseases and obtain prevention and treatment information. A literature review of existing prioritisation frameworks was also undertaken.

Poverty focus: Poor livestock keepers.

Gender: The analysis part aimed to identify the differences in perceptions and opinions of the different stakeholders, specifically including women but also experts and vets.

Research partnerships: 250 poor livestock-keeping households have been interviewed in Kenya. Stakeholder Consultations have also been started. Poor livestock keepers in Pondicherry, India, are participating in field testing of The Livestock Guru in India.

Setting the research agenda: Apart from the interviews and consultations there are no indications that the target group has been involved in setting the research agenda.

Capacity: No evidence of capacity building.

Lessons learned: No information on lessons learned.

Sources: Project summary - <http://www.dfid-ahp.org.uk/index.php?section=4&subsection=74>

Case study 4

Developing and disseminating stress tolerant maize for sustainable food security in eastern and central Africa

Project summary: *Dates:* 2002-5. *Funding agency:* GTZ. *IARCs:* CIMMYT and University of Hannover. *Budget:* €1.2m; *Countries:* Ethiopia, Kenya, Tanzania, Uganda. *Objective:* to develop high yielding, stress tolerant, nutritionally enhanced maize varieties, seed systems that make them available to resource-poor farmers, and appropriate agronomic practices that further enhance productivity under farmers' conditions.

Main achievements: Maize hybrids and open pollinated varieties (OPVs) developed and released for tolerance to low soil N fertility, drought stress and *Striga*; In 2004, 630mt of CIMMYT/ECAMAW hybrid and 175mt of OPV seed were produced in Kenya, sufficient to sow about 33,000 ha; more than 200,000 farmers exposed to new stress tolerant maize cultivars; In 2005/6, 1500mt produced to cover more than 60,000 ha and 1m farmers exposed to new stress tolerant cultivars; The project contributed significantly to the improvement of the regional capacities of professionals from NARS, seed companies and farmers in various fields of the maize production and breeding systems; The community based maize seed production systems involved a private seed company, farmers groups, the Rockefeller-funded seed project, the public sector (research institutes and extension services) and NGOs; Elaboration of a framework for seed production involving the following elements: (i) exposure of farmers to germplasm through “mother-baby” trials, (ii) training of farmer-growers in seed production, (iii) provision of breeder seed, (iv) encouragement of farmers to produce seed, (v) business ethics, (vi) linking of farmers with private seed companies, and (vi) quality control; Provision of vital infrastructure to national programs and seed multiplication entities; Production and distribution of foundation seed to communities for seed production and local trials.

Limitations: Access to seed of improved varieties remains a major constraint, despite the above, because of: Delays in variety release; Inappropriate and stringent certification standards in some countries; Insufficient harmonization of regulations in the ECA target countries; Very limited capacities of professional staff in the seed sector; Insufficient mainstreaming of seed program issues in the ECAMAW network; Limited provision of basic (foundation) seed from research institutes; Lack of variety promotion and marketing strategies; Lack of government commitment for investments in the breeding research and the seed sector; Limited private sector involvement and monopolistic, government supported structures of the seed industry; lack of investment capital for private sector and seed producing farmers.

Poverty focus: No definition of, identification of or targeting of the poor

Research partnerships: The project successfully collaborated with a number of institutions and farmers groups in program delivery, seed systems development and training.

Setting the research agenda: Participatory breeding and on-farm research methods have been used. The process of developing a strategy for community based maize seed production systems involved the participation farmers' groups, the public sector, NGOs and funders.

Capacity: Farmers were trained in the establishment of mother baby trials and on germplasm evaluation. The project contributed significantly to the improvement of the regional capacities of professionals from NARS, seed companies and farmers in various fields of the maize production and breeding systems.

Gender: No mention of gender or any specific women's needs in the final report

Access by the poor:

- Varieties are consciously relevant to reducing risks for poor landowning farmers, but there is otherwise no specific identification or targeting of the poor
- Wide dissemination through demonstrations, trials, seed and training.
- Sustainability and scope remain an issue despite efforts to develop organisational structures, capacity, linkages and infrastructure

Source: CIMMYT (2005). Africa Maize Stress Project – Phase II. Final Report

Case study 5

Promoting adoption of IPM in vegetable production through improved resources for Farmer Trainers

Project summary: *Dates:* 2005-6. *Funding agency:* DFID. *IARCs:* NRI, CABI, ICIPE. *Budget:* €54k; *Countries:* Kenya. *Objective:* to enable farmers to use IPM methods to grow safe and healthy crops in a profitable and sustainable way

Achievements: Training >500 farmers in IPM (small proportion of the production base); Production and testing of IPM resource kit, posters, calendars and instructors resource kit

Poverty focus: No obvious poverty focus. Assumes farmers have land and access to IPM materials.

Access issues: The pressure on out grower farmers to comply with European residue and production standards has created a demand for IPM practices to be adopted, and why the information found such a ready audience. Additional printing of materials due to high demand. Additional materials produced (e.g. Veg. IPM farmer pocketbook; IPM field cards; Farmer training course).

Gender: No clear gender analysis or differentiation. Participation, roles, needs and demands of women not articulated.

Sustainability: Short duration of project. Continuation of momentum depends on Kenyan government.

M&E: A sample of farmer groups surveyed to analyse changes in IPM behaviour due to intervention

Source: Final Technical Report - http://www.dfid.gov.uk/r4d/PDF/Outputs/CropProtection/R8341_FTR.pdf

Case study 6

Message in a bottle: disseminating tsetse control techniques

Project summary: *Dates:* 2001-5. *Funding agency:* DFID. *IARCs:* NRI. *Budget:* €376k; *Countries:* Ethiopia, Kenya, Uganda, Tanzania, Zimbabwe, RSA. *Objective:* To validate, promote and disseminate strategies to improve sustainably the health and productivity of livestock maintained by poor livestock keepers in semi-arid production systems.

Main achievements: A computer-based system to help NGOs design and implement community-based interventions against tsetse was developed. The decision support system was disseminated via the world-wide web and CD-ROMs distributed at meetings held in five tsetse-affected countries.

Poverty focus: No definition of, identification of or targeting of the poor

Access issues: Disseminated the computer-based model through workshops and meetings and via the web. Even government and NGO organisations are adopting slowly, mainly due to unfamiliarity. An average of 3000 pages/month were visited on the website during the final year of the project. There is no direct access to the technology by farmers. This research was targeted at intermediary NGO and government advisory services.

Gender: No mention of gender or any specific women's needs in the final report

Sustainability: A few organisations have adopted the model, but it needs updating and modifying in the light of developments. No mechanism for that.

Lessons learned: Computer-based tools have a long adoption time, and need updating/modifying periodically

Sources: Final Technical Report - http://www.researchintouse.com/nrk/RIUinfo/outputs/R7987_FTR.pdf

Case study 7

Promotion of an IPM strategy for maize grey leaf spot (GLS) in East Africa

Project summary: *Dates:* 2005-6. *Funding agency:* DFID. *IARCs:* NRI. *Budget:* €77k; *Countries:* Kenya, Uganda, Tanzania, Zimbabwe. *Objective:* to promote an integrated management strategy for GLS on maize, to reduce the impact of pests on poor people's crops, and to improve the quality and yield from maize-based cropping systems in East Africa

Main achievements: Awareness of the identity and importance of maize GLS was raised amongst key stakeholder groups in East Africa. An IPM strategy based on a basket of options for the management of maize GLS by smallholder farmers was promoted throughout East Africa.

Research partnerships: Linkages have been strengthened between key stakeholders in the maize production systems in East Africa but no information to what extent this has led to the creation of research partnerships.

Setting the research agenda: Consultation with breeders and agronomists was undertaken to gather information on the existence of maize varieties that are resistant to GLS and develop the IPM strategy.

Capacity: In order to raise the awareness of maize GLS, farmer-participatory training sessions were conducted in Kenya, Uganda and Tanzania in collaboration with NGOs and NARS.

Access issues: Wide range and large numbers of materials developed and distributed. Participatory training of >300 extensionists and >20,000 farmers; production of 8000 leaflets, >10,000 posters, newspaper articles, radio documentaries and training videos in national and local languages. Also training conducted at FFS, NGOs and NARIs.

Poverty focus: No specific poverty focus. No attempt to identify or target the poor.

Gender: Women not mentioned at all in the Final report

Sustainability: Report acknowledges that further work is needed to strengthen the institutionalisation of the IPM strategy for GLS in the region

Lessons learned: Large numbers needed to make a difference to overall awareness. Need to institutionalise the initiative.

Sources: Final Technical Report - http://www.dfid.gov.uk/r4d/PDF/Outputs/CropProtection/R8453_FTR.pdf

Case study 8

Implementing pheromone traps and other new technologies for control of cowpea insect pests in West Africa through farmer field schools

Project summary: *Dates:* 2005. *Funding agency:* DFID. *IARCs:* NRI. *Budget:* €211k; *Countries:* Benin, Ghana *Objective:* to improve food security and reduce poverty among small-scale rural farmers in Benin and Ghana by enabling the reduction of costs of pest control in cowpea.

Poverty focus: The traps and lures are aimed at providing an alternative (cheaper) pest control method to insecticides for poor farmers, but these are not characterised. Willingness to pay is estimated, but the farmer sample consulted was not wealth group differentiated

Gender: Not mentioned at all in the final report.

Access issues: It has not yet been possible to identify local commercial companies to either manufacture or supply pheromone traps or lures for *M. vitrata*. Studies of the social and economic feasibility of technologies showed that a substantial proportion of farmers would be willing to pay the estimated economic cost of traps and lures. In the longer-term farmers wish to make purchases of traps, lures and botanical pesticides through existing providers, but farmer production of traps was successfully carried out and a short-term supply route for

lures (through PRONAF from the UK supplier) has been identified. Produced 100 posters and 1000 training leaflets in Ghana and 300 posters and 500 leaflets in Benin.

Sustainability: Might be a follow on project with support from IITA and IFAD, but this project was only operating in a small area and did not affect national-level adoption.

Lessons learned: Need to follow up and ensure all aspects of the technology are available in-country. Need to spread the work widely if there is to be national take up.

Sources: Final technical report - http://www.dfid.gov.uk/r4d/PDF/Outputs/CropProtection/R8300_FTR.pdf

Case study 9

Improving farmer and other stakeholders' access to quality information and products for pre- and post-harvest maize systems management in the Southern Highlands of Tanzania

Project summary: *Dates:* 2005-7. *Funding agency:* DFID. *IARCs:* NRI. *Budget:* €68k; *Countries:* Tanzania. **Objective:** To understand how national innovation systems can be mobilised to sustain uptake and adoption of knowledge for the benefit of the poor. Specifically to provide innovative learning tools and products, using existing and novel promotion pathways

Main achievements: A validation survey with middle wealth farmers of existing communication methods, pathways (main sources of information were: parents and grandparents; extension; primary school; personal experience; neighbours and other farmers; and FFS. For women parents and grandparents are the main source of information. Extension and FFS is a more frequently mentioned source for men than women), tools and needs for both stockists and farmers. A study of seed fairs and how they offer diverse and unexpected learning opportunities; A survey of stockists which confirmed that service providers closer to farmers are responding to demand by bulk breaking and selling in small packs; Monitoring and evaluation of the farmer research groups which confirmed major benefits to group members. Learning tools and approaches have been developed and/ or evaluated using participatory techniques, with the target stakeholders to improve their relevance and utilisation (e.g. participatory iterative methods for developing extension leaflets with users, based on what users want in them and how they want the information presented).

Poverty and gender focus: The project was **inclusive** to the extent that agricultural service provision affects both rich and poor, but from which the poor may benefit equally. The primary beneficiaries targeted by the project were smallholders in the Southern Highlands of Tanzania. The project differentiated between women and men, but it was beyond the scope of this short project to specifically target wealth and age.

Research partnerships: The project facilitated the building of relationships with a wide range of stakeholders from the public, private commercial, NGO sectors, together with farmers organised in farmer research groups. The projects have worked towards improving communication and finding common ground for improvement using a collaborative and transparent process.

Setting the research agenda: A validation survey of existing communication methods, pathways, tools and needs was conducted for both stockists and farmers. Learning tools and approaches have been developed and/ or evaluated using participatory techniques, with the target stakeholders.

Capacity: No evidence of capacity building

Access issues: One of few projects looking at **access** of smallholders and other VC actors to research results

Sustainability: Short project that was able to draw important lessons, but not institutionalise them

Lessons learned: Important insights have been shared amongst stakeholders about capacity, effectiveness and professional morale; perceptions of policy makers and strategies for engagement within government policies. The diversity of information needs of the many stakeholders is recognised. This has formed the basis for future communication and partnerships between stakeholders. This process has been challenging, transaction costs are high, but there are clear indications of returns to the investment.

Sources: Project final report - http://www.dfid.gov.uk/r4d/PDF/Outputs/CropPostHarvest/R8422_FTR.pdf

Case study 10
STEP tools to package and deliver information for local use

Project summary: *Dates:* 2005-6. *Funding agency:* DFID. *IARCs:* Step Systems Ltd. *Budget:* €77k; *Countries:* Kenya, Malawi, Uganda, Zimbabwe. *Objective:* to generate and promote new tools for innovation systems that can be used to improve access, uptake and adoption of crop post harvest knowledge for the benefit of the poor

Main achievements: Development of software systems to package and deliver information and knowledge on CPH technologies. The systems and tools have been demonstrated and promoted through a series of seven Roadshows in the region (in Kenya, Malawi and Uganda) to various private sector, NGO and government departments as well as through the Step Systems web site.

Poverty focus: Non-specific;

Gender: Non-specific

Capacity: Local training on data entry and on its use.

Access issues: Access is by intermediaries in the first instance

Sustainability: Needs updating and modification (funding for this)

Lessons learned: There is a need for accessible archiving of technologies such that interested parties can input, store, change, search, retrieve, analyse, view and print data and information

Sources: Project final report - http://www.dfid.gov.uk/r4d/PDF/Outputs/CropPostHarvest/R8402_FTR.pdf

Case study 11

Enhancing access to genetic diversity through scaling up participatory plant breeding: Roles of different types of farmer and development organizations in Mali

Project summary: *Dates:* 2003-5. *Funding agency:* BMZ. *IARCs:* ICRISAT. *Budget:* €?; *Countries:* Mali. *Objective:* to enhance the flow of genetic resources and information among farmers, and also between farmers and breeders.

Main achievements: a) The large scale testing of new varieties through participatory breeding; b) decentralized, demand responsive seed production system for sorghum varieties created; and c) an information and seed distribution system, responding to the needs of sorghum producers and technical support services, developed.

Poverty focus: Not specific

Gender: Women were found to be especially interested in the seeds, because of its tolerance to inundation, which appears to be a major challenge for low-lying women's fields.

Research partnerships: Improved linkages between breeders and farmers over the project period were realized.

Capacity: Farmer organizations that participated received direct support, in the form of a technically trained person. Several trainings were organized with farmer groups for testing and evaluation techniques.

Setting the research agenda: Farmers have been involved in the development of varieties on-station. Full farmer participation at the stage of variety testing and variety evaluation was realized. Farmers' priorities and capacities are applied in the variety development process. Farmers took leadership roles in conducting such trials.

Access issues: Participatory trials gave rise to selection of varieties relevant to men and women farmers. Good access to seed during project. One seed coop opened. Radio was used to disseminate information related to the project.

Sustainability: Carried out a semi-formal survey covered 275 farms in 54 villages. The main focus of the survey was on which of the test varieties were grown by the farmers and on the distribution pathways. Otherwise no impact assessment done. The report states that seed multiplication would be maintained by new projects with donor money (i.e. not very sustainable). One seed coop opened and seed sellers were given financial management and accounting training.

Lessons learned:

Sources: **ICRISAT**, 2008. Final report: Enhancing access to genetic diversity through scaling up participatory plant breeding: roles of different types of farmer organizations in Mali

Annex 5: Who are the poor? Definitions from the literature

The EC Guidelines on ARD (2008) state that the poor are mainly in rural areas (especially remote, marginalised areas), and that agriculture is the mainstay of many developing countries, especially in rural areas. This agrees with the World Bank World Development Report (2008) which states that three out of four poor people in developing countries live in rural areas, and most of them depend directly or indirectly on agriculture for their livelihoods.

The OECD (2006) typology of 5 rural worlds in developing countries provides a useful framework to identify the various actors that are active in rural areas. The poor can be classified under rural world 3, 4 and 5 and perhaps a part of rural world 2 while it can be assumed that rural world 1 corresponds with the rich part of the population.

- Rural World 1 – large-scale commercial agricultural households and enterprises
- Rural World 2 – traditional agricultural households and enterprises
- Rural World 3 – subsistence agricultural households and micro-enterprises.
- Rural World 4 – landless rural households and micro-enterprises.
- Rural World 5 – chronically poor rural households, many no longer economically active.

As normally defined, “poverty” means that one cannot afford certain pre-determined consumption needs (Ravallion, 2004). Schwartzman (1998) defined poverty using two concepts; absolute and relative poverty. He stated that the concept of absolute poverty can be understood as the minimum set of resources a person needs to survive, whereas the concept of relative poverty is a measurement of the resources and living conditions of parts of the population in relation to others.

The World Bank also defines poverty as absolute or relative (Maxwell, 1999). It currently uses a figure (US\$1.25 in 2005 prices) for absolute poverty, and alternatively defines poverty as relative deprivation, for example, as half mean income - or as exclusion from participation in society. Maxwell (1999) also noted that the European Union decided that: ‘the poor shall be taken to mean persons, families and groups of persons whose resources (material, cultural, social) are so limited as to exclude them from the minimum acceptable way of life in the member state in which they live’.

The UN definition of poverty (Gordon, 2005) suggests that poverty is a denial of choices and opportunities, a violation of human dignity and the lack of basic capacity to participate effectively in society. It also means insecurity, powerlessness and exclusion of individuals, households and communities. It means susceptibility to violence, and it often implies living on marginal or fragile environments, without access to clean water or sanitation. Absolute poverty is defined as a condition characterised by severe deprivation of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education and information. It depends not only on income but also on access to services.

The DFID Research into Use (RIU) Programme adopts a typology of poverty developed by Hobley and Jones (2006). This divides the poor into a number of groups, each of which is characterised by a set of issues, some of which can be addressed through ARD. The groupings are:

- Moderate poor
- Extreme vulnerable poor (people living in disaster prone or remote areas; poor in urban areas; occupation groups; indigenous people and minority religious groups)
- Extreme dependent poor (elderly without support; disabled)
- Children of the extreme vulnerable and dependent poor

The DAC (2006) points out that poverty is multi-dimensional (Table 6). DAC also warns that poverty is not homogeneous, but can be scattered within a community, country or region. It can occur in urban, peri-urban or rural situations (agriculture of different sorts is carried out in all those situations). The poor have different needs to those in a more secure and asset-rich situation. They therefore need

specific technologies and processes that respond to their specific, varied and dynamic situations. It is therefore necessary to characterise the specifics of poverty in any particular situation and develop responses through ARD and other complementary processes that address these conditions.

Table 6: Dimensions of poverty

Dimension	Components
<i>Social status</i>	Old-age, disability, poor health, gender inequalities; lack of family, community and government safety nets; belonging to a minority grouping; refugee/IDP;
<i>Vulnerability</i>	Environment (living in marginal climate, soil, water situations), natural disasters (earthquake, fire, tsunami...), pests and diseases (human, crop and animal), financial (indebtedness, lack of access to credit, currency collapse), civil unrest (wars; ethnic, political or religious discrimination; theft), infrastructure (roads, transport communication), market fluctuations/failures, corruption and poor governance
<i>Assets</i>	Insufficient and insecure ownership and access to resources (land, livestock, common property, forest, fishing, game, water, inputs, finance, information, knowledge, markets)
<i>Opportunity</i>	Limited education and literacy; lack of alternative employment/income generation (land and non-land based); lack of linkages
<i>Marginalisation</i>	Physical marginalisation (remoteness; biotic, abiotic environment); social marginalisation (gender, age, ethnicity); lack of empowerment and voice, lack of opportunity to organise effectively
<i>Access to basic human rights</i>	Education, information, health facilities, sanitation, food, clothing, adequate housing, credit, employment, personal security

Source: DAC (2006).

Annex 6: ARD Programmes, Target Countries and Funding mechanisms by country

	ARD PROGRAMMES	TARGET COUNTRIES / GEOGRAPHIC AL AREA	FUNDING MECHANISMS				
			ORGANISATION	FUNDING	ARD BUDGET (€)	THEMES/PRIORTIES	TYPE OF ACTIVITIES
Austria	<ul style="list-style-type: none"> - Austrian Development Agency - Multilateral cooperation: CGIAR - PFEIL 10 - "Programme for Research and Development" - <i>Commission for Development Studies (KEF)</i> 	Developing countries: West, East & Southern Africa, Central and Southern America, Asia and South Eastern Europe.	<ul style="list-style-type: none"> - Federal Ministry of Finance - Austrian Agency for International in Education & Research (OeAD) - Federal Ministry of Agriculture, Forestry, Environment and Water Management. - The Austrian Foreign Ministry 	<ul style="list-style-type: none"> - Targeted funding of CGIAR - KEF - PFEIL 10 - North South Dialog Programme OEZA 	1,685,766** 90,000** 50,000** 370,000**	Sustainable agricultural production /natural resource management, Biodiversity protection, sustainable land use, water management, sustainable forest management, livestock , climate change mitigation and adaptation, poverty reduction and food security.	Demand –driven research, Stakeholder involvement and creating public awareness through project-presentations, public discussions, radio-programmes and round-tables .
Belgium	<ul style="list-style-type: none"> - ARD within Direct bilateral help - ARD within Indirect bilateral help - ARD within Multilateral aid 	West Africa, Eastern Africa, Southern and Central Africa.	<ul style="list-style-type: none"> - Directorate – General for Development Cooperation (DGDC) with VLIR – UDC. 	<ul style="list-style-type: none"> - Institutional University Cooperation (IUC) - Own Initiative Programmes (OI) - International Courses Programme (ICP), International Training Programme (ITP) and Scholarships (ICP, VLADOC, INCO). 	1,740,000** 2,210,000** 6,225,000**	Specific themes: Sustainable development, Global change, Biodiversity and Ecosystems and Information Society Technologies.	Agricultural research in Plant Physiology, Remote sensing for crop and land changes monitoring and Collections of micro-organisms. In addition: Stakeholder involvement,

			<ul style="list-style-type: none"> - Directorate – General for Development Cooperation (DGDC) with CIUF – CUD. - Belgium Science Policy Office (BELSPO) - Directorate – General for Development Cooperation (DGDC) 	<ul style="list-style-type: none"> - IUC - OI - ICP & ITP - ARD in Research Programme - CGIAR Restricted Support Core - CGIAR Unrestricted Support Core 	<p>393,981**</p> <p>1,800,703**</p> <p>1,176,719**</p> <p>275,788**</p> <p>4,512,995**</p> <p>1, 884,000**</p>		<p>participatory approach, sustainable management of natural resources, gender equality and efficient and sustainable implementation procedures in development projects (e.g. efficient financing mechanisms,...).</p>
Denmark	<ul style="list-style-type: none"> - Danish Sector Program Support - International Agricultural Research Centres (IARCs) - Competitive funding - <i>Danish Centres</i> - Network 	Sub Saharan Africa and Denmark.	<ul style="list-style-type: none"> - The Ministry of Foreign Affairs 	<ul style="list-style-type: none"> - The Agricultural Sector Programme Support (ASPS) - International Agricultural Research Centres (IARCs) - Consultative Research Committee for Development Research; FFU; and the Danish Fellowship Programme - The Danish Centres and Networks 	<p>4, 702,152***</p> <p>16,438,356***</p> <p>3,013,699***</p>	<p>Social and economic development; human rights, democratisation and good governance; stability, security and the fight against terrorism; refugees, humanitarian assistance and regions of origin, the environment, poverty reduction and food security.</p>	<p>Demand –driven research for development, research capacity building, stakeholder involvement, gender mainstreaming, environmental protection and governance (by promoting respect for human rights, democratisation and good governance).</p>

Finland	<ul style="list-style-type: none"> - International Advanced Research Centres (IARCs) - Research Projects Funded by the Academy of Finland - Networks - Exchange Opportunities 	Sub Saharan Africa	<ul style="list-style-type: none"> - Ministry of Foreign Affairs of Finland - University of Helsinki - Academy of Finland 	<ul style="list-style-type: none"> - Institutional Cooperation Instruments (HEI ICI, ICI), estimation for ARD projects - Commissioned Development Policy Research, estimation for ARD research - Finland's Centre for International Mobility (CIMO) , estimation for ARD. - CGIAR - Bilateral Project – Improvement of Food Security through Cooperation in Research and Education. - Vikki Tropical Resources Institute (VITRI): Agroforestry & NRM research. - Academy of Finland: Estimation for ARD. 	1,000,000 400, 000 500,000 3,000,000 2,500,000 100,000 410,000	Sustainable agriculture, biodiversity preservation, climate change, desertification and depletion of the soil, and environmental protection.	Agricultural research, rural development and stakeholder involvement.
France	<ul style="list-style-type: none"> - FSP (Priority Solidarity Fund) in Agricultural Research for Development. - CIRAD (Centre de coopération Internationale en 	54 countries in Africa, the Arab world, Asia, the Pacific and Caribbean.	<ul style="list-style-type: none"> - Ministry of Higher Education and Research. 	<ul style="list-style-type: none"> - CIRAD - IRD - Other Research Organisations (INRA via F14IAR, 	141,000,000** 40,690,000** 355,000**	Sustainable development and environment (biodiversity, ecosystems, water management, climate changes), agricultural research and rural development (perennial and food crops, domestic agriculture, research in animal production and	Agricultural research and education, rural development and stakeholder involvement.

	<p>Recherche Agronomique pour le Développement).</p> <ul style="list-style-type: none"> - IRD (Institut de Recherche pour le Développement). - Cemagref (Institut de recherche pour la gestion durable des eaux et des territoires). - <i>Agropolis Foundation.</i> - FI4IAR (French Initiative for International Agricultural Research). 		<ul style="list-style-type: none"> - Ministry of Foreign and European Affairs. - Ministry of Food, Agriculture and Fisheries. - Agropolis Foundation 	<p>Cemagref)</p> <ul style="list-style-type: none"> - France Contribution to CGIAR (Scientific Partnership) - France Contribution to CGIAR (Direct Grant). - Funding programmes for agricultural research and development - Priority Solidarity Fund (PSF) - France Contribution to CGIAR (Direct Grant). - Research and training in agriculture and food science and engineering for tropical countries. - France Contribution to CGIAR (Scientific Partnership + Direct Grant) - Research Organisations (Cemagref) 	<p>4,100,000**</p> <p>450,000**</p> <p>9,800,000**</p> <p>850,000**</p> <p>4,000,000**</p> <p>600,000**</p> <p>120,000**</p> <p>500, 000**</p>	<p>halieutic research), scientific partnerships and structuring of research teams and strengthening of national and regional institutions involved in scientific research (agricultural sciences, halieutic, etc.), food security and poverty reduction.</p>	
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Germany	- Programmes of the Federal Ministry for Economic Cooperation and Development (BMZ)	Africa, America and Asia.	Latin and	- Ministry of Food, Agriculture and Consumer Protection (BMELV).	- Research Institutes of BMELV.	2,000,000***	Climate change, promoting conservation and characterization of underutilized plant genetic resources to increase the income of the poor, tolerance to selected biotic stresses, increasing income from fruit and vegetables, Income increases from livestock, Integrated land, water and forest management at landscape level and Rural institutions and their governance. Global food security priority themes are Fair Trade, International Cooperation, Sustainability and Ecological Cultivation farming.	Agricultural research and education, staff development, institution building and stakeholder involvement.
	- Programmes of the Federal Ministry of Consumer Protection, Food and Agriculture (BMELV)			- Federal Ministry for Economic Cooperation and Development (BMZ)	- Targeted funding for IARCs	13,000,000***		
	- Programmes of the Federal Ministry of Education and Research (BMBF)			- Federal Ministry of Education and Research (BMBF)	- Project funding	14,000,000***		
	- Programmes of the German Research Council (DFG)			- German Research Council (DFG)	- Diverse programmes: Collaborative Research Centres, Research Training Groups, Research Units, Individual Grants Programme, and Research Fellowships.	5,500,000***		
	- Programmes of the German Academic Exchange Service (DAAD)			- The German Academic Exchange Service (DAAD)	- Development Cooperation	3,500,000***		
	- Programmes of the Eiselen Foundation			- Eiselen Foundation	- Research Grants	250,000***		
					TOTAL	38,250,000***		

Hungary	<ul style="list-style-type: none"> - Ministry of Foreign Affairs - Ministry of Agriculture and Rural Development - HAS Agricultural Research Institute - Science and Technology Cooperation of the National Office for Research and Technology 	Developing countries: South America, South-East Asia, North Africa and the Middle East, as well as in the present CIS States.	<ul style="list-style-type: none"> - Ministry of Foreign Affairs (MFA). - Ministry of Agriculture and Rural Development (MARD). - Hungarian Academy of Science (HAS). - National Office for Research and Technology (NKTH). 	<ul style="list-style-type: none"> - International Development Cooperation Programme. - Bilateral and Multilateral Relations. - HAS Agricultural Research Institute. - Science and Technology Cooperation 	<p>341,932**</p> <p>1, 901,333** (455, 000 Euros FAO).</p> <p>14,503**</p> <p>185,296**</p>	Agriculture, Aquaculture Production, Animal Breeding, Organic Herb Production and Extension of Hungarian poultry breeding on tropical climate.	Agricultural research provision of training, extension and higher education to staff and stakeholder involvement.
Ireland							
Italy	<ul style="list-style-type: none"> - The Italian agricultural research system which focuses on sustainable production, diet and nutrition, food safety, ecology, rural development and landscape management. 	Sub-Saharan Africa, Balkan, Mediterranean, and Middle East, Tunisia, Palestinian Territories, Lebanon, Iraq, Latin America and the Caribbean, Asia and Oceania.	<ul style="list-style-type: none"> - Ministry of Foreign Affairs 	<ul style="list-style-type: none"> - CGIAR - IAO –Annual Contribution - IAO – Project - IAM Bari - Annual Contribution - IAM Bari - Projects - Bilateral Cooperation Projects (estimate) 	<p>5,000,000**</p> <p>2,785,000**</p> <p>3,432,000**</p> <p>5,944,000**</p> <p>2,000,000**</p> <p>2,500,000**</p>	Food security, poverty reduction, sustainable development, Germplasm improvement, Development of production systems, Animal husbandry, Water and soil resources, Crop pathology, Forestry and Agro-forestry and Agricultural Economics and Socio - Economics.	Agricultural research and education, gender mainstreaming, rural development and stakeholder involvement.

				- GFAR	100,000**		
Lithuania	<ul style="list-style-type: none"> - Agency for International Science and Technology Development Programmes in Lithuania - The Lithuanian State Science and Studies Foundation - The Ministry of Foreign Affairs 	Lithuania's neighbours such as Ukraine, Belarus, Moldova and Armenia.	<ul style="list-style-type: none"> - Lithuanian State Science and Studies Foundation - Agency for International Science and Technology Development Programmes in Lithuania - Ministry of Foreign Affairs - Ministry of Agriculture 	<ul style="list-style-type: none"> - State Program on Cooperation with Ukraine. - State Program on Cooperation with Ukraine. - COST Projects - Lithuanian Development Cooperation. - Bilateral Projects with Lithuania's neighbour countries 	55,600*** 12,101*** 167,372*** 13,033*** 30,000***	Research for ensuring the quality of human life - Genomic and Biotechnologies for Health and Agriculture; Technologies of Safety, Clean and Good Quality Food; and Changes of Ecosystems and Climate.	Stakeholder involvement and agricultural research.
Netherlands	<ul style="list-style-type: none"> - Wageningen University and Research Centre (Wageningen UR). - Dutch Ministry of Agriculture, Nature and Food Quality (LNV) - Other universities and research institutions (e.g. Universities of Nijmegen, Leiden, Amsterdam, Groningen, Tilburg). 	Developing countries.	<ul style="list-style-type: none"> - Ministry of Agriculture, Nature and Food Quality (LNV) - Ministry of Foreign Affairs - Nuffic Department for Human Resources and Institutional 	<ul style="list-style-type: none"> - LNV research and capacity building programmes. - Research and capacity building programmes. - Core – funding CGIAR institutes CIFOR, ICARDA, IPGRI, ICRAF, IWMI, Worldfish Centre (ICLARM). - Netherlands Programme for Institutional Strengthening of Post-Secondary 	8,462,000**** 25,000,000**** 7,500,000**** 11,000,000****	Sustainable chains, robustness and resilience and scarcity and distribution.	Demand driven agenda-setting (demand from the South) and participatory approach (participatory (action) research, multi-stakeholder processes and social learning).

	<ul style="list-style-type: none"> - IARC's and international education programmes in the field of agriculture: Netherlands Fellowship Programme – Academic Programme (NFP-AP), Netherlands Fellowship Programme – Training Programme (NFP-TP) and Netherlands Programme for Institutional Strengthening of Post-Secondary Education and Training Capacity (NTP). 		Development	Education and Training Capacity (NPT)			
Poland	<ul style="list-style-type: none"> - Ministry of Foreign Affairs. - Ministry of Agriculture and Rural Development (Research Institutes). - Ministry of Science and Higher Education - Agricultural universities - Other institutions such as Polish Academy of Science and the Foundation for Polish Science. 	Eastern and South-Eastern Europe (non-EU members) , Central Asia (Armenia, Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan) and Balkan states.	<ul style="list-style-type: none"> - Ministry of Science and Higher Education. - Ministry of Foreign Affairs. - Ministry of Agriculture and Rural Development. 	<ul style="list-style-type: none"> - Agricultural Research Development (estimated). - Assistance Funds Official Development (ODA). - Support for ecological agriculture. - Support for research activities. - Support for scientific 	<p>133,425,000 (in 2006).</p> <p>16,600,000 (in 2006).</p> <p>2,100,000 (in 2006).</p> <p>140,000 (in 2006).</p>	Sustainable agriculture	Agricultural research and stakeholder involvement.

[illegible]

	Bilateral Scientific Cooperation and Multilateral Scientific Cooperation	(like US and Japan), regionally important countries like China, India, Brazil and South Africa, new countries formed after secession from the Soviet Union, developing countries in the 3rd world, as well as on international organisations, active in the field of research and technology development.				Plants in agriculture-genetics and modern technologies, Animal health, Environment and food safety, Fauna, flora and vegetation of Slovenia and neighbouring regions, Plant physiology and biotechnology, Pharmaceutical biotechnology: man and environment, Forest biology, ecology and technology, Research on immune status enhancement, development and productivity of plants and animals, Comparative genomics and genome biodiversity, Nutrition and ecology of gastrointestinal tract, Applied botany, genetics and ecology, Horticulture and Plant biology.	
Spain	<ul style="list-style-type: none"> - FONTAGRO. Agricultural Technology Regional Funding - CPR. Cooperative Research Programme (OCDE) - European Consortium for agricultural Research in the Tropics (ECART) - INIA International courses - Forestry Research - The Azahar 		<ul style="list-style-type: none"> - Ministry of Foreign Affairs and Cooperation (AECID). - Ministry of Science and Innovation. - National Institute for Agriculture & Food Research & Technology (INIA) 	<ul style="list-style-type: none"> - Forestry Research in Mediterranean, Latin America and Caribe. - The Azahar Programme - CGIAR - International Courses - Agreements <p>Regional Governments</p> <ul style="list-style-type: none"> - IFAPA 	<p>830, 000**</p> <p>583,870**</p> <p>1,852, 124**</p> <p>231, 621**</p> <p>99,000**</p> <p>595,000**</p>	Climate change, animal health, rural development, water resources, livestock production, food production, forestry research, etc.	Agricultural research and stakeholder involvement.

	Programme - Bilateral Cooperation			- IRTA - IVIA	80,775** 103,450**		
Sweden	-						
Switzerland	- SDC core funding and restricted programme and project funding for international organisations - Mitigating Syndromes of Global Change - Livestock Systems in Support of Poor people - Research Fellowship Partnerships Programme for Agriculture, Forestry and Environment (RFPP) - Indo-Swiss Collaboration in Biotechnology - Long term system comparison organic farming	Switzerland and Developing countries (such as India, Kenya, etc).	- Swiss Agency for Development and Cooperation (SDC).	- Core funding (CGIAR, ICIPE). - Restricted project and programme funding (bilateral funding by SDC geographical divisions and global programmes). - CABI Core funding and projects with the Swiss Agency for Development and Cooperation managed by CAB international. - Swiss Centre for international agriculture – ZIL Research Projects managed by North South Centre of ETH Zurich. - Research Fellow Partnership Programme for Agriculture, Forestry and Natural Resource (RFPP), managed by North South Centre of ETH Zurich. - Info – Resources and Secretariat of Swiss Forum for International Agricultural Research (SFIAR) managed by	8, 150,000** 5,800,000** 1,300,000** 190,000** 1, 050,000** 275,000**	Sustainable intensification of agricultural production systems and promotion of inclusive market-systems, Support of initiatives for the definition of policies, Support of initiatives for the definition of policies and Forecasting of natural disasters, risk reduction strategies and use of new opportunities	Agricultural research and training, smallholder production/ agriculture, mainstreaming gender and stakeholder involvement.

			<ul style="list-style-type: none"> - Swiss Agency for Development and Cooperation (SDC) and Swiss National Science Foundation. 	<p>Swiss College of Agriculture.</p> <ul style="list-style-type: none"> - Swiss National Centre of Competence in Research (NCCR) North – South Research Partnerships for mitigating syndromes of global change managed by the Centre Development & Environment, University of Berne. - Research Partnerships with developing countries. - SCOPES (Scientific Cooperation BETWEEN Eastern Europe & Switzerland). 	<p>4,900,000**</p>		
			<ul style="list-style-type: none"> - Swiss College of Agriculture (SCA). 	<ul style="list-style-type: none"> - SCA, Fund for Research and Development (R +D). 	<p>800,000**</p>		
			<ul style="list-style-type: none"> - Syngenta Foundation for Sustainable Agriculture. 	<ul style="list-style-type: none"> - Syngenta Foundation for Sustainable Agriculture. 	<p>300,000**</p>		
					<p>70,000**</p>		
					<p>2,600,000**</p>		

Turkey	<ul style="list-style-type: none"> - GDAR - TÜBİTAK - Programmes under ARDEB: 1001 - Technology and Innovation Grant Programs 	Africa (East & West), Asia, Europe and USA.	<ul style="list-style-type: none"> - Ministry of Agriculture and Rural Affairs - Ministry of Environment and Forestry - The Scientific and Technological Research Council of Turkey (TUBİTAK). 	<ul style="list-style-type: none"> - General Directorate of Agricultural Research. - General Directorate of Agricultural Research contribution to CGIAR. - Research and Development Office - The Support Programme for Scientific and Technological Research Projects (1001). - Short-Term R&D Funding Programme (1002). - Support Programme for Research Projects of Public Institutions (1007). - National Young Researchers Career Development Programme (Career Programme) (3501). - International Bilateral and Multilateral Project Programmes. - Technology and Innovation Funding Programs Directorate (TEYDEB). 	16,000,000** 400,000** 1,500,000** 13,931,000** 1,585,000** 13,002,000** 1,119,000** 1,740,000**	Development of new genotypes through the combination of classical improvement, Grain seed, seed, seedling, sapling and breeder production, characterization and preservation of gene resources, processed product diversity, food processing methods and procedures, food security and reliability, development of equipment and structures in agricultural, forest, food and fishery products, and of production systems, activation of protection, control and treatment techniques, and combat against and integrated control of disease-pests, evaluation and development of natural resources and wild life, development and dissemination of information technologies through remote censoring and early warning system in agriculture and forestry. Current Priorities :Dairy cattle breeding, Water quality and effectively usage of water, Researches on safe, high quality food and feed, Viticulture, Oil seed crops, Plant genetic resources, Bread wheat, Sheep breeding, Fisheries management, Protected vegetables, Fodder crops, Chick pea, Poultry and small domestic animal diseases, Animal vaccines and Biological substances.	Agriculture and food research and stakeholder involvement.
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			<ul style="list-style-type: none"> - Turkish International Cooperation and Development Agency (TIKA). 	<ul style="list-style-type: none"> - Agricultural Cooperation and Training Program. 	<p>2,047,000**</p> <p>1,600,000**</p>		
United Kingdom	<ul style="list-style-type: none"> - Research into Use - Regional Research Programmes - International Research - Advanced Research Organisations 	Africa (West, East & South), Asia (South) and some parts of Europe.	<ul style="list-style-type: none"> - Welcome Trust - Department for Environment, food and Rural Affaires - The Sainsbury family Charitable Trusts - Shell Foundation - Biotechnology and Biological Sciences Research Council 	<ul style="list-style-type: none"> - Livestock for Life - Darwin Initiative - Gatsby Charitable Foundation - Shell Foundation - Sustainable Agricultural Research for International 	<p>739,238*</p>	<p>Climate Change, Sustainable agriculture, Fisheries, Forestry and Livestock farming.</p> <p>Prioritise technologies that will increase the productivity of labour, focus on situations where potential gains are greatest, take full account of people's exposure to risk and vulnerability, seeking to maintain high levels of resilience to shortterm shocks such as drought, pests and diseases, and longer term trends</p>	Agricultural research and education and stakeholder involvement.

			<ul style="list-style-type: none"> - UK Department for International Development (DFID) 	<p>Development (£500,000/ annum)</p> <ul style="list-style-type: none"> - Combating Infectious Diseases of Livestock for International Development - Strategy for Research on Sustainable Agriculture (£56 million/ annum). 	59,139,103*	<p>such as climate change where agriculture, fisheries and forestry can contribute significantly to mitigation measures, incorporate research on market opportunities and ensure the sustainable and productive use of resources such as soil, land, water and common property; to maximise their contributions to growth and poverty reduction, provision of environmental services, and ensuring environmental sustainability.</p> <p>Specific Priorities: International research, regional research in Africa and Asia, getting research into widespread use in developing countries and investing in high level science.</p>	
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