

# ERA ARD

The Agricultural Research for Development (ARD)  
Dimension of the European Research Area (ERA)

Promote  
collaboration in  
European ARD  
to strengthen  
Agricultural  
Research for  
the world's poor



## Report



## Innovative Capacity Development Approaches for the ERA-ARD Project



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# Preface

The aim of the present paper is:

- To provide definitions and outline trends in capacity development in Agricultural Research for Development (ARD)
- To summarize the findings and recommendations of recent documents on planning and conducting capacity development activities in ARD
- To present a summary and a compilation of best practices and innovative capacity development approaches among ERA-ARD consortium members
- To derive basic principles for capacity development in ARD and to define entry points for joint and/or transnational activities to strengthen capacity development in ARD.

The paper is structured as follows:

- In Chapter 1 several definitions of capacity and capacity development are quoted in order to introduce a common terminology.
- Chapter 2 gives an overview of the status and current trends of capacity development.
- In Chapter 3 strategic recommendations for capacity development are presented as formulated in the reports of the InterAcademy Council (IAC) and the Third World Academy of Sciences (TWAS).
- Chapter 4 presents operational recommendations on “how to do” capacity development, as well as issues to consider while planning capacity development activities. It also presents some of the conclusions of two other recent studies on capacity development.
- In Chapter 5 a summary of best practices and innovative capacity development approaches of ERA-ARD consortium members is derived from a compilation of innovative capacity development programmes (see also annexes 1 and 2). In addition, the results from the survey on the governance of ARD programmes relating to capacity development issues are presented. By combining the findings of the survey and the compilation of innovative mechanisms with the recommendations in chapters 3 and 4, some key principles for guiding capacity development activities in ARD are derived, and specific capacity development activities in the ERA-ARD framework are proposed.





# 1 Definitions

The term “capacity” presently lacks a generally accepted definition. Nor is the study of capacity an academic discipline of any kind (Morgan, 2006). Moreover, capacity development is not a well-defined practice, and different donors use different definitions of it (World Bank, 2005).

Nevertheless, the first section of the present paper presents two recent and influential definitions of capacity and capacity development as general terms, while the second section presents two definitions that focus on capacity development for research.

## 1.1 Capacity and capacity development in general

The Development Assistance Committee (DAC) of the OECD has used the following definitions when referring to capacity development in general terms:

*Capacity* is the ability of people, organisations and society as a whole to manage their affairs successfully. *Capacity development* is understood as the process whereby people, organisations and society as a whole unleash, strengthen, create, adapt and maintain capacity over time (OECD, 2006).

Douglas Horton et al., (2003) use a similar definition in an evaluation of capacity development projects: *Capacity* is the ability of individuals and organisations to perform effectively, efficiently, and in a sustainable manner. *Capacity development* is an ongoing process by which individuals, groups, organisations, and societies increase their abilities to perform core functions, solve problems, define and achieve objectives, and understand and deal with their development needs in a broad context and sustainable manner (Horton et al., 2003).

These two definitions sufficiently summarize current thinking on definitions of capacity for our purposes. Throughout this report we use the term “capacity development” instead of the traditional “capacity building”. The term “building” refers to a process that starts from scratch to erect a new structure, according to a pre-conceived design - an approach that is not likely to successfully enhance capacity in a sustainable manner (OECD, 2006).

## 1.2 Capacity development for research

Two other reports try to describe and define capacity development in research. With regard to research in health, the UNDP, the World Bank and the WHO use the following definition:

Every developing nation needs capacity: The capacity to identify benefits and opportunities and adapt them to their own needs and constraints, the ability to initiate and engage in research and apply knowledge and technology to essential local problems, moving beyond the mere application of results generated by others (UNDP, World Bank and WHO, 2003).



With regard to economic research, the World Bank has defined capacity development as follows:

*"Capacity development for research"* is not research itself, but aims to help create and reinforce appropriate sustainable institutions within developing countries to foster the emergence of well-trained professionals ready to contribute to policy making and teaching at home and compensate for the 'brain drain' of professionals from developing countries" (World Bank, 2003).





## 2 Background and Current Trends in Capacity Development

Capacity development currently ranks as a high priority for development actors. For Africa, the World Bank has defined capacity development as a core objective (World Bank, 2005). The Paris Declaration (2005)<sup>1</sup>, the Millennium Project (2005)<sup>2</sup>, and NEPAD (2005)<sup>3</sup> all highlight the need for improved capacities to achieve development. In the following chapter, some emerging trends in capacity development are briefly described.

### 2.1 Background

Adequate country capacity is one of the critical missing factors in current efforts to attain the MDGs. In recent years, about a quarter of donor aid, or more than \$15 billion a year, has gone into "Technical Cooperation", the bulk of which is ostensibly aimed at capacity development (OECD, 2006). In a recent estimate, capacity building programmes in agriculture and rural development in the public sector of developing countries, financed by external donors, were estimated to cost around \$1.3-1.5 billion per year (Hoste, 2006, personal communication).

Despite the magnitude of inputs, evaluation results confirm that development of sustainable capacity remains one of the most difficult areas of international development practice. The results of capacity enhancement efforts in the public sector in developing countries are regarded as mixed (OECD, 2006) or even disappointing (Watson, 2006). According to the InterAcademic Council, the international community has given inadequate attention to capacity development in science and technology (IAC, 2004), and huge disparities in research capacity continue to exist, despite considerable progress in certain fields in a number of countries.

The DAC Network on Governance has noted that "until recently, capacity development was viewed mainly as a technical process, involving the simple transfer of knowledge or organisational models from North to South". It continues with the conclusion that "capacity building would be ineffective so long as it was not part of an endogenous process of change, getting its main impulse from within". To this, Watson adds that development agencies are also a part of the problem (Watson, 2006).

In conclusion, support for capacity development appears to be an essential part of development cooperation, but also very difficult.

### 2.2 The Paris Declaration

The 2005 Paris Declaration on Aid Effectiveness highlights the need to increase alignment of aid with partner countries' priorities, systems and procedures, and help them strengthen their capacities (Box 1). In this sense, the Declaration sees capacity

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<sup>1</sup> <http://www1.worldbank.org/harmonization/Paris/FINALPARISDECLARATION.pdf>

<sup>2</sup> <http://www.unmillenniumproject.org/reports/fullreport.htm>

<sup>3</sup> [www.businessactionforafrica.org/documents/CAADP.pdf](http://www.businessactionforafrica.org/documents/CAADP.pdf)



development primarily as the responsibility of the partner countries, with donors playing a supporting role. The Paris Declaration marks an important milestone in the history of support for capacity development.

**Box 1: The Paris Declaration, §22**

The capacity to plan, manage, implement, and account for results of policies and programs is critical for achieving development objectives – from analysis and dialogue through implementation, monitoring and evaluation. Capacity development is the responsibility of partner countries, with donors playing a support role. It needs not only to be based on sound technical analysis, but also to be responsive to the broader social, political and economic environment, including the need to strengthen human resources.

*Partner countries* commit to:

Integrate specific capacity strengthening objectives in national development strategies and pursue their implementation through country-led capacity development strategies where needed.

*Donors* commit to:

Align their analytic and financial support with partner's capacity development objectives and strategies, make effective use of existing capacities, and harmonize support for capacity development accordingly.

## 2.3 Towards a Consensus in Capacity Development Activities

### *From supply- to demand-driven approaches*

The Paris Declaration marks a shift in the concept and perception of capacity development: from a simplistic view of capacity development as a supply-driven activity of knowledge transfer from North to South, to a demand-driven process that focuses on people, institutions and societies and their ability to perform functions, solve problems and set and achieve objectives.

The current concept of capacity development thus takes the importance of country ownership and leadership into account, as well as the social and political context in which capacity development activities are embedded.

### *From individual to organisational capacity development*


In the past, capacity development focused on individuals rather than organisations. However, it became evident that enhancing individual knowledge, skills and attitudes is important but not sufficient to promote change. Recent concepts all take into account that capacity development efforts must include the development of

organisational culture and procedures and address the resources that organisations have available for achieving relevant goals.

There is also general agreement that capacity development encompasses three analytical levels. This view was summarised as follows by the Development Assistance Committee (DAC) Network on Governance in its recent paper on "The Challenge of Capacity Development: Working towards good Practice" (OECD, 2006):

- At the individual level, capacity development aims to strengthen the personal capabilities and competence of a selected group of individuals
- At the organisational level, capacity development targets not only individuals, but whole institutions



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- At the level of the enabling environment (also called the systems level), capacity development considers the structures of power and influence in which the targeted organisations are embedded.

#### *From hard to soft capacities*

There has been a shift in emphasis over time from developing “hard” capacities to developing “soft” ones. Early attempts to build capacity in research and development organisations generally focused on constructing facilities and providing equipment – the classical hard capacities. Later, emphasis shifted to providing technical education for program staff and, more recently, to improving management knowledge and skills through short-term training programs. There have been attempts to develop the social expertise and skills that are essential for leadership, management and more effective networking – for example, skills in environment scanning, self-assessment, facilitation, team-building, and communication. This trend reflects the growing awareness that facilities, resources, and inputs alone will not lead to lasting improvements in an organisation’s performance. Crucial capabilities reside in its management practices and systems, which allow the organisation to acquire resources and use them effectively (Horton, 2003).

#### *From operational to strategic management*

A decade ago, management development efforts generally focused on program and process management, which was primarily concerned with efficiency issues. Over the last decade, an increasing number of research and development organisations have sought to develop their capacity for strategic planning and management. What we are realizing today is the need to go beyond managing an organisation as an isolated entity to managing complex programs, partnerships, alliances, and networks of individuals in several organisations. These complex organisational forms are increasingly diverse and ever-changing in nature. This challenges managers to operate more flexibly and creatively (Horton, 2003).



### 3 Strategic Recommendations for Capacity Development in Research

A few recent reports form a valuable compilation of current expertise on capacity development in research in general and on agricultural research for development. The major results and recommendations relating to capacity development in agricultural research are quoted below.

#### 3.1 Recommendation from the IAC report “Realizing the promise and potential of African agriculture”

At the request of the Secretary-General of the United Nations, the InterAcademy Council (IAC) prepared a strategic plan for harnessing the best science and technology to increase productivity in Africa. The study was presented in 2004 in the report “*Realizing the Promise and Potential of African Agriculture. Science and Technology strategies for Improving Agricultural Productivity and Food Security in Africa*”.

The IAC report (2004) recommends an agricultural research system that embraces the *Participatory Knowledge Quadrangle*, combining farmers, research, education and extension. Other authors have already recommended an *agricultural knowledge system* (*Extension science: Information systems in agricultural development*, Röling, 1988) or an *agricultural knowledge information system* (FAO and World Bank, 2000). According to the IAC, analytical perspectives in science and technology have shifted from agricultural research (the NARS perspective) to agricultural knowledge and information systems, and further to national innovation systems. The NARS concept focuses on the generation of knowledge, the second concept on the generation and diffusion of knowledge, and the latter concept on the generation, diffusion and application of knowledge. In practice this means designing an institutional structure that facilitates “connectivity” between complementary institutions and a reward structure that encourages managers, scientists and academicians to communicate and cooperate with each other and foster linkages with farmers. Besides these actors, other stakeholders such as the private sector and aid agencies are also part of this system.

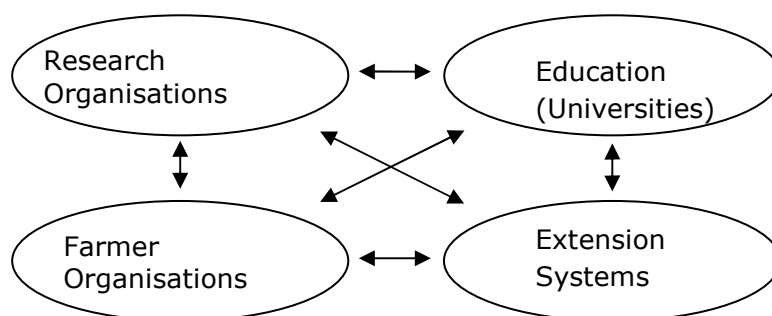


Figure 1: Participatory knowledge quadrangle (figure by authors, based on IAC, 2004)



To be effective, the national innovation system paradigm will require major investments in information and communication technologies, along with changes in university curricula and the role of and the relationships between national agricultural research institutions, extension systems, and universities. Based on these findings, the IAC report makes the following recommendations:

*Building impact-oriented research, knowledge and development institutions:*

- Design and invest in national agricultural science systems that involve farmers in education, research and extension
- Encourage institutions to articulate science and technology strategies and policies
- Increase support for agricultural research and development
- Cultivate African centres of agricultural research excellence
- Strengthen international agricultural research centres

*Creating and retaining a new generation of agricultural scientists:*

- Broaden and deepen political support for agricultural science
- Mobilize increased and sustainable funding for higher education in science and technology, minimizing dependence on donor support
- Focus on current and future generations of agricultural scientists
- Reform university curricula

## **3.2 Recommendations from the IAC report “Inventing a Better Future”**

The IAC declared in 2001 that its highest priority would be the building of greatly increased capacity in science and technology throughout all regions of the world. An international study panel was formed to draft a report that subsequently underwent an extensive external review process. The final result in 2004 was the IAC’s presentation of the report “*Inventing a better future: A strategy for building worldwide capacities in science and technology*”.

The IAC formulated the following recommendations:

*Expanding human resources*

- The government of each industrialised country should expand its support for S&T professionals and doctoral programs in the developing nations’ best universities by offering long-term fellowships with adequate stipends to deserving young people from industrialised nations who wish to do their training in world-class research programs in developing nations. Visiting professors from foreign countries should help raise the level of quality of courses and research, and participate in exams and thesis defences.
- Governments and private institutions in industrialized nations should provide incentives for outstanding young researchers from developing nations to apply their skills in the service of their native countries. Recipient countries and international institutions should create or enhance programs that link these talents with efforts to develop S&T capacities back home.
- National governments and international organisations should provide the financial support and design the institutional framework to establish university “sandwich





programs” that provide for study in, and return from, a more advanced S&T country.

- Regional cooperation in science and technology training that leads to doctoral degrees, together with postdoctoral programs, should be promoted in national or regional centres of excellence, especially those that are in S&T-proficient developing countries. In particular, such centres of excellence should provide scholarships and research facilities, including the use of their own laboratories, to help achieve international cooperation with and among developing nations. They should also take into account the often-critical need for travel money. Bilateral agreements between S&T-advanced and S&T-proficient countries should also allow for participation of scientists and engineers in neighbouring S&T-developing and S&T-lagging countries.
- S&T-advanced nations should create programs that establish short-term adjunct-faculty/research positions at some of their universities and laboratories for scientists and engineers from developing countries
- Networks that have already been established in diverse specialties should help train new scientists and engineers. These networks should receive permanent support from academic, governmental, inter-governmental, and private organisations.


#### *Creating world-class research institutions*

- Centres of excellence – whether of local, national, regional, or international status – should be created, or seriously planned for the near future, in practically every developing nation in order for its S&T capacity to grow. Such centres could serve as the main nodes for individuals or groups charged with enhancing S&T knowledge of national and regional importance.
- The centres of excellence should have institutional autonomy; sustainable financial support; knowledgeable and capable leadership; international input; focused research agendas that include interdisciplinary themes, applied research, and basic research; technology transfer; peer review as a systematic element; merit-based hiring and promotion policies; and mechanisms for nurturing new generations of S&T talent.
- Where such institutions already exist, they should be reinforced or, if necessary, reformed. When reform is indicated, changes should be system-wide and carried out in ways that make the best use of scarce resources (including local talent).
- Virtual networks of excellence (VNE) – research programs jointly sponsored and conducted by research institutions in different geographical locations, with research personnel communicating and collaborating primarily via new technologies such as the Internet and the World Wide Web, deemed by merit-review to be of the highest international quality in personnel, infrastructure, and research output – should be created nationally, regionally, and globally.

#### *Global funding mechanisms*

- A Global Institutional Fund should be established to provide “soft funding” over a period of 5 to 10 years to some 20 centres of excellence of national or regional character (operating by themselves or in developing-country networks). This fund would not be program-specific; it would be used instead to allow centres to promote the values of science and engineering and to create an atmosphere in which the practice of high-quality research can flourish. Specifically, the money would help each centre to develop its programs, cultivate its management, and build its long-term funding base. Donors would meet in a consultative mode to review proposals resulting from an open call for competitive submissions, and they would select the centres according to clearly established evaluation criteria.




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- A Global Program Fund, creating new partnerships with advanced research institutes, should be established as a competitive grants system – for support of research groups in centres of excellence in developing nations – in which international referees would review the quality of the projects being proposed. Preference would be given to proposals that involve groups in several local and regional institutions. However, bilateral proposals – from one recipient centre in cooperation with a research institute in an S&T-advanced or S&T-proficient country – would be perfectly acceptable, given the benefits of their one-on-one focus and the relative simplicity of their objectives (together with the greater likelihood of meeting them).
  - Both funding programs should draw on the experience of the Consultative Group on International Agricultural Research (CGIAR). However, reflecting the need to update policies that have worked for CGIAR in the past, the funding programs should differ from the CGIAR model in two important respects:
  - The centres receiving support from the institutional fund should not be international institutes, but local and regional entities situated in developing countries. Their number could change over time, and they would not necessarily be guaranteed complete coverage of all their needs.
  - The program funds would not be mixed with institutional funds, and the group of recipients from each would not often be similar.

### **3.3 Recommendations from the TWAS report “Building Scientific Capacity”**

In its report *“Building Scientific Capacity: A TWAS Perspective,”* the Third World Academy of Sciences (TWAS) provided a view of this issue as seen through the eyes of scientists and scientific institutions in the South, and made the following recommendations:

*Building and sustaining scientific capacity in the South, both at the individual and the institutional level:*

- Create and strengthen centres of leadership and excellence, especially in the least developed countries.
- Support fellowships, associateships and training programs that keep scientists, technologists, technicians and students up-to-date with the latest information.
- Promote scientific and technological cooperation in the South through South-South exchange fellowships for phd and postdoctoral researchers.
- Create institutional networks to address common problems relating to issues of regional concern or common interest. Such networks should promote joint research projects and conferences, workshops and symposia that allow for regular exchange of ideas.
- Publicize and share successful experiences that can serve as models for the involvement of scientists, policy-makers and planners in using science for national development.
- Develop interdisciplinary panels of experts in the South that can offer timely, authoritative and locally relevant advice to governments and policy-makers on issues of critical importance.
- Create and support merit-based Academies of Science in the South.
- Mobilize expatriates and institutions in the North to enable the “brain drain” to be converted into a “brain gain”. Scientists in the North, particularly those from developing countries, should be encouraged to work on major Third World



problems, and institutions in the North should be encouraged to assist in building scientific capacity and excellence in the South.

- Provide equitable access to currently available knowledge, and create virtual networks among teams of research scientists working in different countries.
- Reform educational systems so that every citizen is able to understand general scientific concepts.
- Popularize science so that the message of science reaches all citizens, young and old alike, including politicians and policy-makers.
- Engage the private and non-governmental sectors as agents of national development by supporting science and technology through in-house and extramural research, training, recruitment and related modes of support.
- Persuade governments to commit themselves to science and technology by investing adequately in science.





## 4 Guidance for Planning Capacity Development

In the following section, we present further operational recommendations that are based on in-depth studies of capacity development in agricultural and rural research. We believe that ERA-ARD should take note of these experiences. (Please refer also to the bibliography for examples of practical tools and guidelines for capacity development).

### 4.1 Recommendations from an ISNAR study

A number of lessons were learned during the evaluation of a capacity development project in Latin America. The project had aimed at capacity development through improved Planning, Monitoring and Evaluation. (Horton, 2000). The main recommendations regarding capacity development were:

- Intended beneficiaries should play central roles in designing and managing capacity development efforts.
- Capacity development programs should articulate and test their underlying theories and assumptions.
- Capacity development programs should focus their attention on organizations that are committed to change.
- Capacity development programs should go beyond providing inputs to facilitating processes of change.
- Capacity development programs need to work simultaneously on many fronts.
- Capacity development programs should adapt themselves to the needs and circumstances of the organizations they support, not vice versa.
- Integrating PM&E is crucial for promoting individual and organizational learning and improvement.

### 4.2 The DAC/OECD framework for capacity development

The Development Assistance Committee (DAC) of the OECD has published a very useful report on "*The Challenge of Capacity Development: Working towards Good Practice*". It has developed a framework and systematic approach for planning capacity development activities (Table 1).

**Table 1: Achieving a fit between capacity development approaches and country realities: Issues to consider (OECD, 2006)**

	<b>Enabling environment</b>	<b>Organisational level</b>	<b>Individual level</b>
<b>Understanding the international and country contexts</b>	<p>What are the historical and contemporary factors underlying the observed "weakness of political will" behind capacity development?</p> <p>How are power structures and formal and informal institutions changing, and with what effects on politicians' incentives?</p>	<p>How are capacities currently shaped by the informal and "political" aspects of organisations?</p> <p>Are these features generalized or variable across organisations or organisational spheres?</p> <p>Are there private-sector pressures and resources that could be mobilized in support of enhanced public sector capacity?</p>	<p>How is the availability of skilled and committed individuals shaped by global and local push and pull factors?</p> <p>Under what conditions could the diasporas make a stronger contribution to capacity development at home?</p>
<b>Identifying and supporting sources of country-owned change</b>	<p>Does the interaction between donors and country factors form a "virtuous circle" or a "vicious circle", from the point of view of capacity development initiatives?</p> <p>Are there ways donors can encourage effective demands within the country for greater capacity development?</p>	<p>Is capacity development an explicit objective of a plan or policy that benefits real country ownership?</p> <p>Is there effective ownership of initiatives within particular organisations or organisational spheres, especially in organisations where there would be substantial spill-over benefits?</p>	<p>Are individual professionals able to be mobilized in support of measures to combat erosion of public-sector capacity?</p> <p>Are donors being sufficiently responsive to government initiatives aimed at restoring salary levels in key posts?</p>
<b>Delivering support</b>	<p>Are donors doing all they can to promote changes in the institutional environment for capacity development?</p> <p>Is support being delivered in ways that enhance, or undermine, the possibility of organisations' learning by doing?</p>	<p>Have the objectives of the supported initiative been clearly defined in terms of desired capacity development outcomes?</p> <p>Have the inputs and their providers been selected with a view to cost and effectiveness, or have these decisions been supply-driven?</p>	<p>Do training components take full advantage of the potentialities created by modern information technology?</p> <p>Are the training components linked to enhancing organisational effectiveness and putting new skills to use?</p>
<b>Learning from experience and sharing lessons</b>	<p>Is there monitoring of whether institutional rules are changing in important ways and how this has come about?</p> <p>Is there independent, objective monitoring of the mode of delivery of support?</p>	<p>Is achievement of the agreed capacity development outcomes being effectively monitored and lessons fed back into the process?</p> <p>Do the monitoring arrangements include reasonable proxy measures, with appropriate involvement of clients or service users?</p>	<p>Does follow-up of individual capacity enhancement go beyond knowledge and livelihood benefits?</p> <p>Does it track the effects on organisational capacity and performance?</p>

## 4.3 Recommendation from the Evaluation Capacity Development Project

A study on capacity development published by ISNAR, IDRC and CTA reviewed six rural and agricultural research capacity development projects in different regions of the world (Horton et al., 2003). The study is built on approaches similar to those used by the study mentioned in section 4.1. Its findings were summarised in nine principles (see Box 2). The study also suggests a number of steps to follow for capacity development within an organization (see Fig.2).

### Box 2: Principles of a holistic approach to organizational capacity development

- Take ownership of your organisation's capacity development initiative
- Focus on the needs and priorities of the organization as a whole
- Management of capacity development processes is crucial for success
- Prepare for monitoring and evaluation at the outset of a capacity development initiative
- Capacity development is more than a one-off event
- Engage stakeholders in the capacity development process
- Cultivate political support
- Preserve your autonomy
- Establish an environment conducive to learning and change

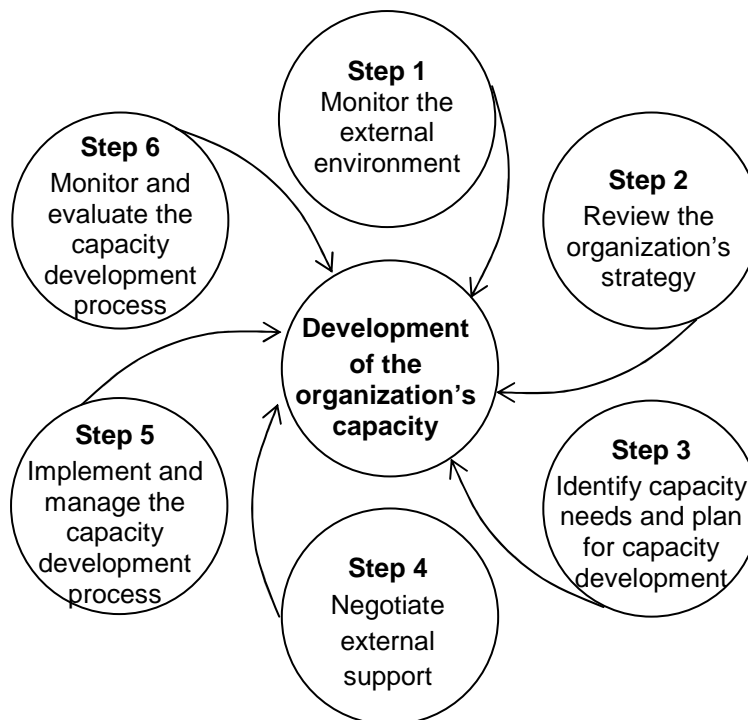


Fig 2: Steps in a holistic approach to capacity development (after Horton, 2003)





## 5 Capacity Development in ERA-ARD


### 5.1 Best practice and innovative capacity development approaches in ARD programmes in European countries

In the framework of the ERA-ARD project, a survey of innovative approaches in CD was undertaken. All Consortium members were asked to describe innovative approaches and best practices of CD mechanisms within their ARD programmes. Abstracts of these programmes or mechanisms are compiled in Annex 1, where a tabular summary can also be found. The intention of this catalogue of mechanisms is to give an overview of different approaches and practices and not to provide a comprehensive mapping of all the ongoing CD activities of the Consortium members. Thus the programmes described represent only a fraction of all ongoing CD programmes on the national level.

A few countries also provided a comprehensive analysis of the CD component in their programmes, an in-depth description of some approaches, or notes to guide support for CD. These documents are arranged in Annex 2.


The main findings from the compilation on best practices and innovative approaches are:

- About half of the Consortium member countries have comprehensive programmes dedicated to CD, i.e. relatively important programmes going beyond the supply of individual research fellowships. Some of these programs are related specifically to ARD, but most at least incorporate ARD-related activities into their portfolios.
- The scope of most programmes encompasses individual and institutional capacity development at the same time. However, support is mainly focussed on the individual level (research grants and scholarships), although a number of programmes are also focussing increasingly on the institutional level.
- Programmes that mainly address the strengthening of basic research capacities often focus on individual capacity development, whereas programmes with a strong component of applied research are more likely to be combined with institutional capacity development.
- The provision of scholarships and research grants is a widespread instrument of capacity development, and most CM countries have specific programmes for this. Eligible applicants in most cases are researchers in the respective country and researchers from a developing country. Maintaining a critical mass of ARD capacity in the North is combined with strengthening ARD capacity in the South in these programmes. Most scholarship programmes aim to establish long-lasting partnerships between the institutions involved.
- Research-oriented programmes tend to focus either on the provision of project-based research grants or on the organisation of research-specific training courses. It is rare to find a combination of both in one programme.
- Some programmes are less research-oriented but focus on strengthening higher education systems in developing countries. These programmes may encompass support in the strengthening or building of institutions, curriculum development, ICT, libraries and documentation systems.
- Efforts are underway in different countries to increase ownership by local partners. Partnership approaches are being applied widely. However, few programmes specifically build up local management capacities.
- Promotion of South-South knowledge exchange is still not very prominent.

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- Collaboration between the different programmes is limited, even if the mechanisms are very similar.
  - Monitoring and Evaluation of the programmes focus more on activities and output than on impacts.
  - Only one programme specifically concerns the maintenance and strengthening of a Southern centre of excellence in ARD-related issues.
  - The potential of modern information and communication technology seems to be harnessed only to a limited extent in the programmes described. The creation of communication and information platforms is only mentioned in one programme, and virtual centres of excellence and the development of e-learning tools are not covered at all.

Innovative elements in capacity development can be identified in many of the existing programmes. The following trends and elements can be noted:

- **Southern agenda setting, local demand:** Many programmes have built mechanisms to orient CD according to demand. Nevertheless, the mechanisms for doing this are very different and not equally well developed. Demand is increasingly identified at the regional level through different mechanisms. Involvement of stakeholders in this process is fostered by a variety of mechanisms.
- Programmes are increasingly developed in **partnership approaches**. Some countries have developed strong partnerships and are pursuing them over considerable periods of time. Several countries have developed guidelines and principles for the establishment of research partnerships of mutual benefit to institutions in the South and the North.
- Programmes are being designed to explicitly support the **dissemination of research into practice**. They support innovative platforms to stimulate new approaches to up- and out-scaling between stakeholders. Also, some other basic research-oriented programmes require dissemination strategies for the application of results.
- Programmes are increasingly directed towards **strengthening local agricultural knowledge and innovation systems**. Capacity constraints are identified in systems analysis, and interventions are planned according to the actual demand and in alignment with existing national initiatives. Examples are the Research into Use programme (United Kingdom) and the tailor-made in-country training programmes of the ICRA.
- A voucher-based question and answer service for farmers uses a **web-based information and communication system** to facilitate communication between farmers and experts and to mobilize and provide existing expertise.
- Some programmes work with **institutional learning approaches** to rural innovation (practitioners' networks) and at the policy level (evidence-based policy-making). One example is the LNV Policy Supporting Knowledge Programme (The Netherlands). Within given thematic areas, policy-relevant knowledge questions, and needs for capacity development are identified in a demand-driven approach with governments, research partners, NGOs, and the private sector in the South.
- Some research-oriented grant programmes work not only on the individual level, but follow a **team-based approach in combination with institutional capacity development**. An example is the IRD programme (France). However, only very few programmes also incorporate the systemic level of CD.

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- **Overcoming the brain drain** is considered a major challenge, and some specific mechanisms have been established to address it: Some programmes have requirements with regard to the return of the researcher to his/her home country upon the completion of the research or study period (UK, Austria, and others). Other programmes require that most of the research is done in the home country. Some programmes use sandwich models (Austria and others). Another approach is research backpacks - a starter credit which enables graduates to acquire products necessary for their research once they are back in their own local institution (Belgium).

## 5.2 Results from the survey on the governance of ARD funding mechanisms in Europe

Capacity development issues were also covered in the ERA-ARD Task 1.3 questionnaire on the governance of funding mechanisms. One question requested an estimate of the relative importance of the three activities "research", "institutional capacity development" and "individual capacity development".

### *Activity scope*

The vast majority of the 85 funding mechanisms listed combine research and capacity development activities in various ways. There are only four funding mechanisms that have no research component and are devoted only to capacity development. On average, the 85 programmes provide almost equal shares of capacity development and research activities:

Activity scope (estimated relative importance in % of total ARD budget)

- 18% for institutional capacity development
- 30% for individual capacity development
- 52% for research

Of course, the relative importance of the activities of individual programmes can differ greatly from the figures above. However, at the national level most countries have a similar mix of research and individual and institutional capacity development. Major deviations can be found in Hungary, where the research component is more prominent, and in the Netherlands, where the budget for institutional capacity development exceeds the budget for individual capacity development.

### *Interest in joint investment*

Among funding mechanisms with a special emphasis on capacity development (>30%), 25 data sets also completed the question about interest in joint activities, including joint investment. The results are presented in Figure 3.

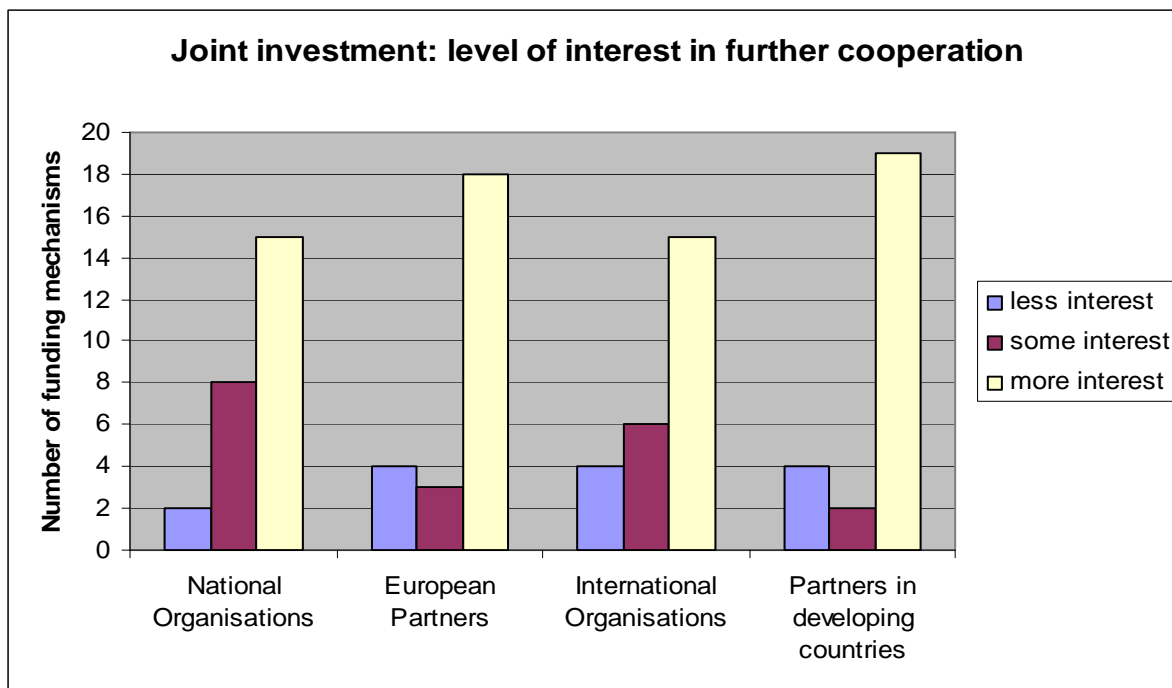


Fig. 3: Level of interest for joint investment - only funding mechanisms with emphasis on CD considered (Source: ERA-ARD task 1.3 questionnaire on funding mechanisms)

Figure 3 indicates that a clear majority of funding mechanisms have at least some interest or even more interest in cooperation and joint investment. This is true for partners in developing countries and for partners at the national, European, and international levels. It is encouraging for ERA-ARD that interest is greatest among European partners and partners in developing countries.

#### *Targeted educational level*

Figure 4 indicates which educational levels are targeted by how many funding mechanisms. Besides the given categories, B.Sc., M.Sc., Ph.D., and Post Doc, the respondents could also define their own categories (others). Most capacity development activities target the B.Sc., the M.Sc. and the Ph.D. levels. It is striking that only very few capacity development schemes operate on the Post Doc level.

The following additional levels were mentioned (one entry each):

- non-educational level, non-formal education, non-degree training
- farmer groups, user groups
- counsellors and producers
- college graduates, school-leavers
- professional and technical training, training during field trips, traineeship
- mid-career professionals

These results indicate that capacity development at the Post Doc level and the mid-career or senior management level is almost completely lacking. It is also surprising that decision-makers at the policy level have not been identified as target groups. The results are in clear contrast to up-to-date concepts of capacity development (see previous chapters). These concepts stipulate the need to combine individual and institutional capacity development by targeting not only young researchers, but also research managers, policy-makers and key partners outside the formal education system.

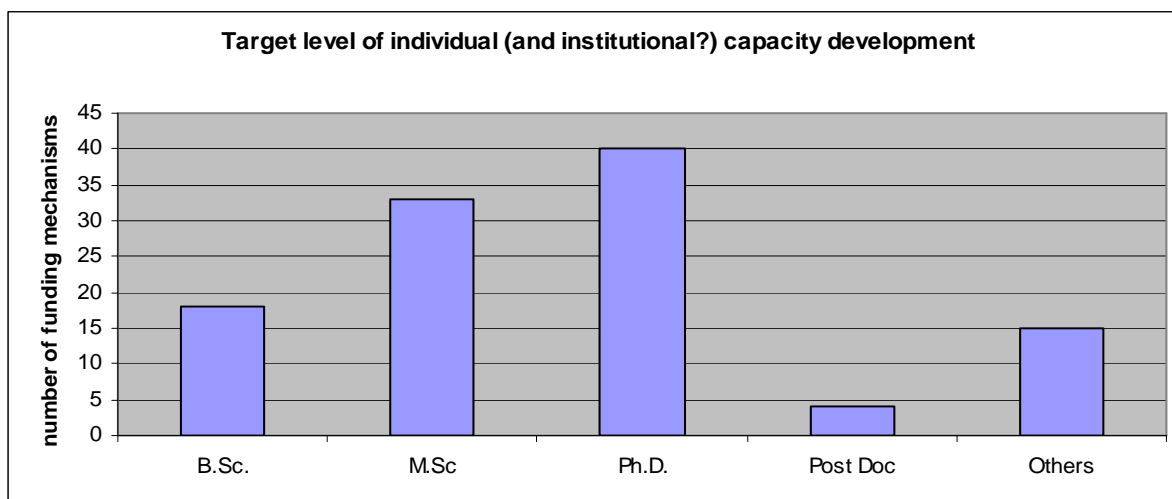



Fig. 4: Targeted educational level in the CD activities of funding mechanisms (Source: ERA-ARD task 1.3 questionnaire on funding mechanisms)

### 5.3 Key principles to be considered when planning a capacity development activity in the ERA-ARD project

This section combines general trends in CD and strategic recommendations for CD with the findings from the survey of funding mechanisms and the compilation of best practices and innovative approaches. It aims to translate these findings into key principles to be considered when planning a capacity development activity in the ERA-ARD project. These key principles have to be defined at a strategic level, as there is no blueprint for planning a specific CD intervention.

*Key principles at the strategic level for planning a capacity development activity:*

1. CD needs to be an integral part of future joint ARD programmes.
2. CD requires consideration of the individual level, the organisation level, and the systems level (enabling environment). For each involved organisation, an analysis is needed in order to build a comprehensive strategy that will address all these levels.
3. CD should contribute to the building of national innovation systems in agriculture, i.e. systems that deal with generation, diffusion and application of knowledge. It should include all relevant stakeholders. The *Participatory Knowledge Quadrangle*, combining farmers, research, education and extension, proposed by the IAC, is a concept that appears to be useful. For the upcoming ERA-ARD sub-programmes, it is suggested that each participating research organisation from the South prepare a CD analysis, involving the different stakeholders in the agricultural innovation system. Depending on the outcomes of the analysis, CD components will be developed, implemented and financed in each ERA-ARD programme.
4. CD will, therefore, involve more actors than only research organisations. It will also have to look at the barriers that endanger connectivity between the different actors. Depending on the context, CD efforts will need to concretely involve actors such as farmer organisations, extension systems or universities.

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5. Many ARD research projects already have a CD dimension, focusing, however, mainly on individual CD. With this focus, the long-term sustainability of CD efforts is jeopardised. Highly trained individuals often leave for other, more attractive positions in and outside the country. While the market for highly trained persons is a reality, CD should involve strategies to counter negative effects, and to move from "brain drain" to "brain exchange".
  6. CD should not only focus on younger researchers (by providing support to attain M.Sc. and Ph.D. degrees), but also address the need for professional and academic development of more senior staff and decision-makers. These are important agents to foster the organisational and strategic changes needed to make research institutions perform better, for instance, in relation to research, communication with stakeholders, or fund raising.
  7. CD requires training in different topics and support for strategic and managerial leadership. This sort of training is different from research and requires different skills. Advice and consultancy in the management of research institutions will also involve the need for specific expertise. Topics will include:
    - Developing a strategy regarding research focus, fund raising, human resource management, harnessing political and institutional support, and communication with stakeholders.
    - Soft skills" related to team building, communication, leadership, etc, required for researchers working in an innovative systems perspective.
  8. There is a general trend in ARD to improve agenda setting by including Southern partners and to orient research towards responding to demands from Southern stakeholders. This trend is also important for CD components of ARD. The focus and the concretisation of CD components should, therefore, not be defined in a top-down manner, but identified through appropriate mechanisms. European countries have already gained a lot of experience with various new ways of identification and implementation of CD programmes (see annex 1 and 2). This experience can be enhanced and improved through exchange and better cooperation.
  9. Each research organisation from the South participating in one of upcoming ERA-ARD sub-programmes should be given the opportunity to prepare a CD analysis, involving the different stakeholders in the agricultural innovation system. The analysis should look at the whole agricultural innovation system, and include external scientific knowledge and local knowledge systems. This analysis should show whether and what kind of CD activities are needed, in order to ensure that research is having an impact and that the benefits of research and individual capacity development can be sustained. Depending on the outcomes of the analysis, CD components will be developed, implemented and financed in every ERA-ARD programme. (Depending on the approach taken, the systemic analysis can be the starting point for the whole programme, not only for the CD component).



## **5.4 Entry points for joint and/or transnational activities to strengthen capacity development in ERA-ARD**

Capacity development has been selected by the ERA-ARD Steering Committee as a specific sub-programme for which an expert group will formulate an action plan for joint activities. Capacity development should also be an integral part of the Food Safety sub-programme, for which joint activities will also be developed, and the upcoming transnational ERA-ARD programme on Energy and Food.

This section aims to develop some entry points and action lines on the operational level for developing joint and transnational activities in capacity development in ARD. In a first step, the existing CD mechanisms on the European level are categorized and in a second step, possible activities for each category are proposed.

The proposed activities encompass a variety of mechanisms. Some of them are easy to establish and can be realised as joint activities under existing programmes just by improved information exchange, improved collaboration or mutual opening up among programmes. Others are more ambitious and will require the creation of new joint CD programmes and some form of joint funding.

Existing capacity development mechanisms are categorized as follows:

1. Granting fellowships and research grants on an individual basis, according to the merits of individual proposals as a first priority, with a variety of research organisations (most ERA-ARD partners have such programmes).
2. Building long-term partnerships with a number of partner institutions, and building up joint CD programmes. Research proposals are selected from among the proposals emanating from these partner institutions.
3. Design of tailored research and CD programmes with selected partners upon completion of a systems analysis to understand agricultural knowledge and innovation systems at various levels.
4. Creation of a Centre of Excellence with a focus on capacity development in ERA-ARD.

Table 2 summarises possible activities in each of the given categories.

Categories	Activities
1. Research grant programmes	<ul style="list-style-type: none"> <li>• Exchange information about content and eligibility criteria of research grant programmes</li> <li>• Exchange information about monitoring and assessment tools applied in the programmes; at a later stage also exchange of evaluators</li> <li>• Mutual opening of programmes (also accepting candidates from other European Countries)</li> <li>• Establish South-South partnerships with the institutions involved in similar programmes with different Consortium members</li> <li>• Exchange approaches and develop strategies to include institutional capacity development in research grant programmes</li> <li>• Formulation of coordinated or joint calls (based on existing calls)</li> <li>• Jointly create new research grant programmes thematically focusing on the ERA-ARD sub-programmes</li> </ul>
2. Long-term partnerships and joint CD programmes	<ul style="list-style-type: none"> <li>• Exchange information about partnership principles developed in several Consortium member countries</li> <li>• Plan institutional capacity development of selected institutions in N-N-S-S partnerships (i.e. set up a strategy for long-term research collaboration)</li> <li>• Develop training courses for capacity building at the educational and the policy level for and with the targeted institutions</li> <li>• Establish links to existing networks in the South and join forces in strengthening these networks</li> </ul>
3. Design of tailored research and CD programmes upon completion of system analysis of agricultural knowledge and innovation systems	<ul style="list-style-type: none"> <li>• Exchange experiences among recent programmes that target agricultural knowledge and innovation systems (AKIS) as a whole</li> <li>• Design common tools for systems analysis</li> <li>• Create or support networks of institutions that jointly address the strengthening of a southern AKIS</li> <li>• Capitalize on and expand the work of ICRA, one of the existing transnational mechanisms for capacity development in ARD, together with ERA-ARD partners</li> </ul>
4. Creation of centres of excellence	<ul style="list-style-type: none"> <li>• Establish a programme fund that supports CD together with existing centres of excellence in developing countries</li> <li>• Develop distant learning tools using ICT in cooperation with centres of excellence in developing countries</li> <li>• Create or support virtual centres (networks) of excellence and research programs jointly sponsored and conducted by research institutions in different geographic locations</li> </ul>

Table 2: Possible capacity development activities within the ERA-ARD project



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### ***Tools and internet links:***

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