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Innovative capacity development approaches for the ERA-ARD project

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Annex 1

Best practices and innovative capacity development approaches in ARD programmes of ERA-ARD consortium members

Annex 2

National reports on best practices and innovative capacity development approaches in ARD programmes

Foreword

The aim of this paper is:

1. to give definitions and outline trends in capacity development in Agricultural Research for Development (ARD)
2. to summarize the findings and recommendations of recent documents for planning and conducting capacity development activities in ARD
3. to present a summary and a compilation of best practices and innovative capacity development approaches of ERA-ARD consortium members
4. 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 structure of the paper is as follows:

- In Chapter 1 some definitions on capacity and capacity development are quoted in order to introduce a common terminology.
- In Chapter 2 an overview is given about the status and current trends in capacity development.
- In Chapter 3 strategic recommendations for capacity development are presented as they are formulated in the reports of the InterAcademy Council (IAC) and the Third World Academy of Sciences (TWAS).
- Chapter 4 presents some operational recommendations on “how to do” capacity development and issues to consider while planning capacity development activities. It also provides 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 annex 1 and 2). In addition, the results from the survey on the governance of ARD programmes are presented, as far as capacity development issues are concerned. Combining the findings of the survey and the compilation of innovative mechanisms with the recommendations of the chapters 3 and 4, some key principles for 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 general accepted definition. The study of capacity is also not an academic discipline of any kind. (Morgan, 2006). Moreover, capacity development is not a well-defined practice and different donors use different definitions (World Bank, 2005).

Nevertheless, in the first section, two recent and influential definitions of capacity and capacity development as general terms are presented. In the second section two definitions are given 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) are using 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 summarize the current thinking on the definition sufficiently for our purpose. In this report we use throughout the phrase “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, UNDP, World Bank and 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 research in the economics, 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 high on the priorities of development actors. For Africa, the World Bank has defined capacity development as a core objective (World Bank, 2005). The Paris Declaration (2005)¹, the Millennium Project (2005)², and NEPAD (2005)³ all highlight the need for improved capacities to achieve development. In the following chapter, some of the emerging trends are briefly described.

2.1 Background

Adequate country capacity is one of the critical missing factors in current efforts to meet 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, was estimated to be 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 of developing countries are considered to be 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 capacities continue to exist, despite considerable progress in certain fields and 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”. Watson adds to this, that development agencies are also a part of the problem (Watson, 2006).

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

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

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

³ www.businessactionforafrica.org/documents/CAADP.pdf

2.2 *The Paris Declaration*

The 2005 Paris Declaration on Aid Effectiveness highlights the need for an increasing alignment of aid with partner countries' priorities, systems and procedures and helping to strengthen their capacities (Box 1). In this sense, the Declaration sees capacity development primarily as a responsibility of the partner countries, with donors playing a supporting role. In this sense, the Paris Declaration marks an important milestone in the history of support to 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 the 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 are important, but are 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 organisations resources towards achieving their 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 competences of a selected group of individuals
- At the *organisational level*, capacity development targets not only individuals, but whole institutions
- 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 basis of current expertise on capacity development in research in general and on agricultural research for development. Therefore, the major results and recommendations regarding capacity development in agricultural research are quoted below.

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

The InterAcademy Council (IAC) prepared, upon the request of the Secretary-General of the United Nations, a strategic plan for harnessing the best science and technology to increase the 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. Already before, other authors have 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 the 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 like the private sector and aid agencies are also part of this system.

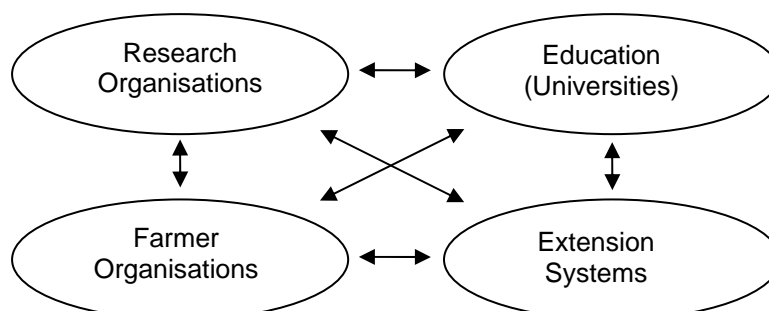


Figure 1: Participatory knowledge quadrangle (figure by authors, based on IAC, 2004)

To be effective, the national innovation system paradigm will require major investments in information and communication technologies, along with changes in the university curricula and the role and 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. As final result, the IAC presented in 2004 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 industrialized-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 industrialized nations who wish to do their training in world-class research programs in developing nations. Visiting professors from foreign countries should help raise the quality level of courses and research, and participate in exams and thesis defences.
- Governments and private institutions in industrialized nations provide incentives for outstanding young researchers from developing nations to apply their skills in the service of their native lands. 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 countries among the developing ones. 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 aid in the training of new scientists and engineers. These networks should be given enduring support by 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 can 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, as well as 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 the 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 a national or regional character (operating by themselves or in developing-country networks). This funding 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.
- 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 for updating policies that have worked for CGIAR in the past, the funding programs should differ from the CGIAR model in two important ways:
 - The centres receiving support from the institutional fund should not be international institutes, but local and regional entities situated in the developing nations. Their numbers could change over time and they would not necessarily be guaranteed complete coverage of all their needs.
 - The program funds may not be mingled with institutional funds and the ensemble of recipients from each would often not be the same.

3.3 Recommendations from the TWAS report “Building Scientific Capacity”

The Third World Academy of Sciences (TWAS) provided in its report *“Building Scientific Capacity: A TWAS Perspective”* a view on 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 doctoral 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 the constant 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 enabling 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 for 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 some more operational recommendations that are based on in-depth studies of capacity development in agricultural and rural research. It is felt 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 *Recommendation from a 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 change processes.
- 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 presented a very useful report on *“The Challenge of Capacity Development: Working towards good practice”*. It has developed a framework and systematic approach to plan capacity development activities. The framework suggests the following issues should be considered at each analytical level of capacity development:

- Understanding the international and country context
- Identifying and supporting sources of country-owned change
- Delivering support
- Learning from experience and sharing lessons

This framework provides good guidance about the steps to be taken while planning a capacity development program (Table 1):

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

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

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 some similar approaches as used by the study mentioned in section 4.1. It summarized its findings in nine principles (see Box 2).

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

- Take ownership of your organization'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.

Source: Horton, 2003

The study also suggests a numbers of steps to follow for capacity development of an organization (see Fig.2). The steps follow an ideal sequence. However, in practice, capacity development can begin at different points in the sequence.

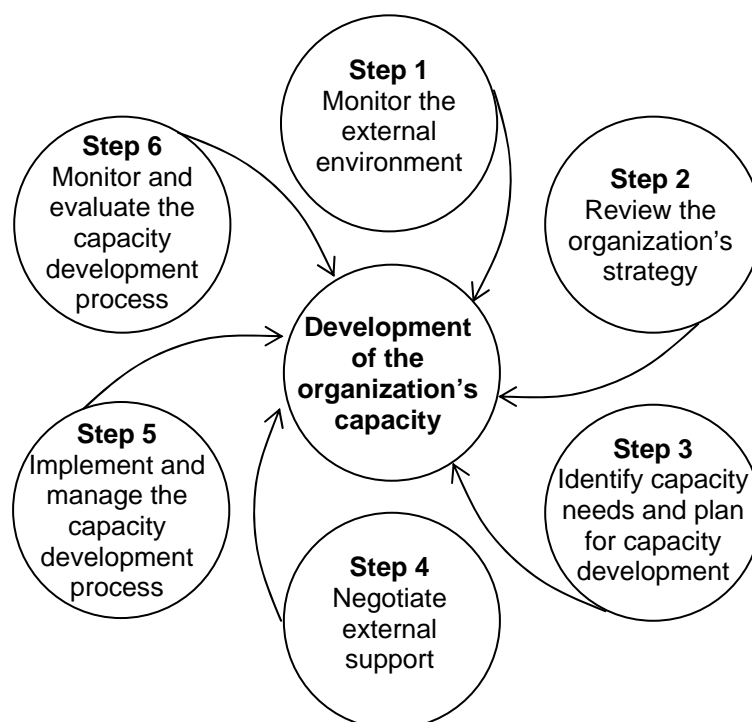


Fig 2: Steps in a holistic approach to capacity development (after Horton, 2003)

5 Capacity Development in ERA-ARD

5.1 *Best practice and innovative capacity development approaches in ARD programmes from 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 also a tabular summary can 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 the ongoing CD programmes on the national level. A few countries provided also a comprehensive analysis of the CD component in their programmes, an in-depth description of some approaches or guidance notes on 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 portfolio.
- 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), but a number of programmes are increasingly focussing also 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 for capacity development and most CM countries have specific programmes for this. Eligible applicants are in most cases national researchers of 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 intend 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. The combination of both in one programme can rarely be found.

- Some programmes are less research oriented, but focus on the strengthening of higher education systems in Developing countries. Such programmes may encompass support in 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.
- Collaboration between the different programmes is limited, even if the mechanisms are very similar.
- Monitoring and Evaluation of the programmes are rather on activities and output and less on the impact.
- Only one programme concerns specifically the maintenance and the 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 may be noted:

- **Southern agenda setting, local demand:** Many programmes have built mechanisms to orient CD according to demand. Nevertheless, the mechanisms to do that are very different and not equally well developed. Demand is increasingly identified at regional level through different mechanisms. Involvement of stakeholders in this process is fostered with a variety of mechanisms.
- Programmes are increasingly developed in **partnership approaches**. Some countries have developed strong partnerships and are pursuing these partnerships over considerable periods of time. Several countries have developed guidelines and principles for the establishing of research partnerships of mutual benefit for institutions in the South and the North.
- Programmes are being designed to explicitly support the **dissemination of research into practice**. They support innovation platforms to stimulate new approaches to up- and out-scaling between stakeholders. Also some more basic research oriented programmes require dissemination strategies for the application of the results.
- Programmes are increasingly directed towards **strengthening local agricultural knowledge and innovation systems**. Capacity constraints are identified in a systems analysis and interventions are planned according to the actual demand and in alignment to existing national initiatives. Examples are the Research into Use programme (United Kingdom) and the tailor-made in-country training programmes of ICRA.

- A voucher based question 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** of rural innovation (practitioners' networks) and on 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, NGO's 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 programme of IRD (France). However, only very few programmes also incorporate the systemic level of CD.
- **Overcoming the Brain drain** is considered as a major challenge and some specific mechanisms are 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. In one question, it was requested to estimate 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 mixtures, there are only four funding mechanisms that have no research component and are only devoted to capacity development. On average, the 85 programmes provide almost equal shares for 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, relative importance of the activities of individual programmes can differ very much from the figures above. However, at the national level most of the countries have a similar mix between research, 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 the funding mechanisms with a special emphasis on capacity development (>30%), 25 data sets also completed the question about the interest in joint activities including joint investment. The results are presented in Figure 3.

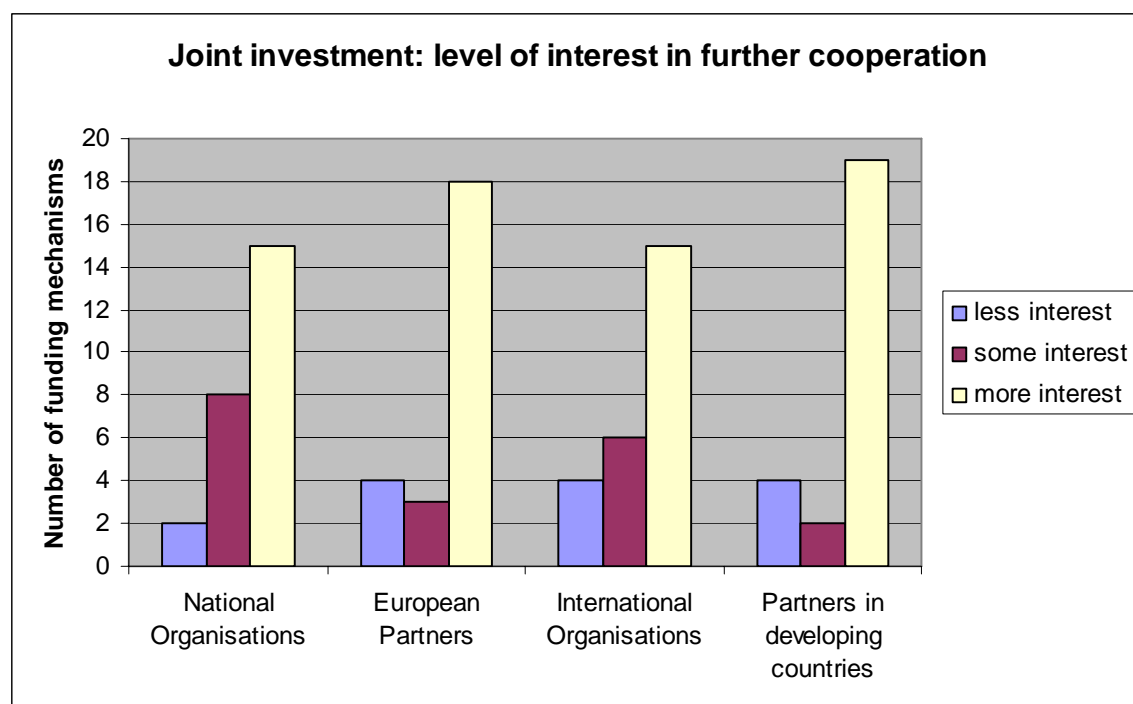


Fig. 3: Level of interest for joint investment - only funding mechanisms with emphasis on CD considered (Source: ERA-ARD task 1.3 questionnaire on funding mechanisms).

Figure 3 indicates that a clear majority of funding mechanisms has at least some or even more interest in cooperation and joint investment. This is true for partners in developing countries and for partners at the national, the European, and the international level. It is encouraging for ERA-ARD that the interest is highest for 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 own categories (others). The major part of the capacity development activities targets 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 level of mid-career or senior management 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 the up-to-date concepts regarding capacity development (see previous chapters). These concepts stipulate the need for combining 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.

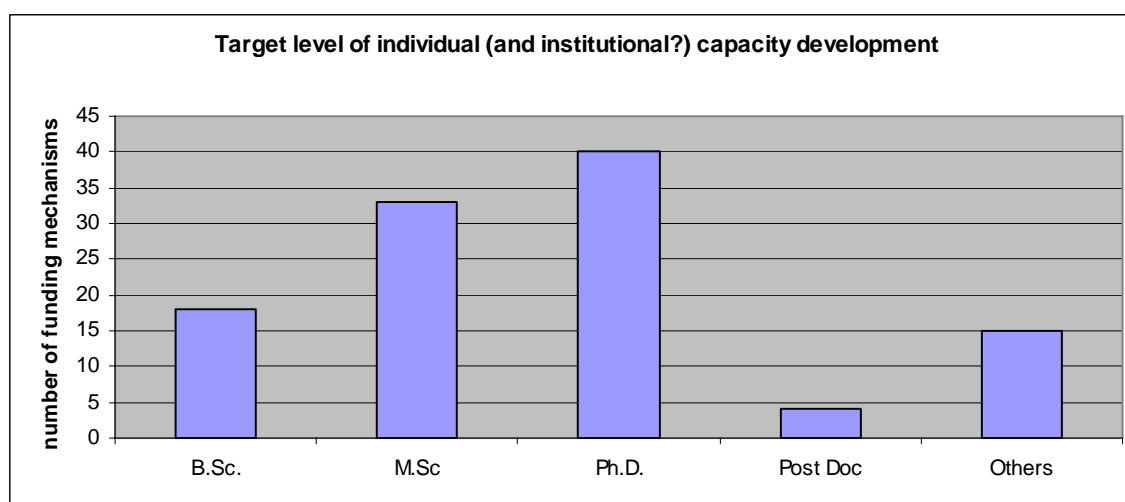


Fig. 4: Targeted educational level in the CD activities of the funding mechanisms (Source: ERA-ARD task 1.3 questionnaire on funding mechanisms)

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

This section combines the general trends in CD and the strategic recommendations for CD with the findings from the survey of funding mechanisms and from the compilation of best practices and innovative approaches. It aims at translating these findings into some 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 the planning of 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 necessitates considering 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, which will address all these levels.
3. CD should contribute to building 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 will have to 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 have to look at the barriers that endanger the connectivity between the different actors as well. Depending on the context, CD efforts will need to concretely involve actors such as farmer organisations, extension systems or universities.
5. Many ARD research projects already have a CD dimension, focusing, however, mainly on individual CD. With this focus, the long-term sustainability of the CD efforts remains jeopardised. Highly trained individuals often leave for other, more attractive positions in and outside the country. While this 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 needs for professional and academic development of more senior staff and decisions makers. These are important agents to foster the organisational and strategic changes needed to make research institutions more performing, for instance in relation to research, communication with stakeholders or fund raising.
7. CD requires training on 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 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 innovation 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 already have gained a lot of experiences with different new ways of identification and implementation of CD programmes (see annex 1 and 2). These experiences can be enhanced and improved by exchange and improved 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 making an impact and that the benefits of the 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 shall 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 intends to develop some entry points and action lines on the operational level to develop 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 among programmes. Others are more ambitious, will require the creation of new joint CD programmes and some way of joint funding.

The existing capacity development mechanisms are categorized as follows:

1. Granting fellowships and research grants on individual basis, according to the merits of the 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. Selection of research proposals among the proposals emitted from these partner institutions.
3. Design of tailored research and CD programme 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 vocation of capacity development in ERA-ARD.

Table 2 summarizes some possible activities in each of the given categories.

Categories	Activities
1. Research grant programmes	<ul style="list-style-type: none"> • Exchange information about content and eligibility criteria of research grant programmes • Exchange information about monitoring and assessment tools applied in the programmes, in a later stage also exchange of evaluators • Mutual opening of programmes (accepting also candidates from other European Countries) • Establish South-South partnerships with the institutions involved in similar programmes of different Consortium members • Exchange approaches and develop strategies to include institutional capacity development in research grant programmes • Formulation of coordinated or joint calls (based on existing calls) • Jointly create new research grant programmes thematically focusing on the ERA-ARD sub-programmes
2. Long-term partnerships and joint CD programmes	<ul style="list-style-type: none"> • Exchange information about partnership principles developed in several Consortium member countries • Plan institutional capacity development of selected institutions in N-N-S-S partnerships (i.e. set up a strategy for long-term research collaboration) • Develop training courses for capacity building at the educational and the policy level for and with the targeted institutions • Establish links to already existing networks in the South and join forces in strengthening these networks

Categories	Activities
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"> • Exchange experiences among recent programmes that target agricultural knowledge and innovation systems (AKIS) as a whole • Design common tools for systems analysis • Create or support networks of institutions that jointly address the strengthening of a southern AKIS • Capitalize on and expand the work of ICRA, one of the existing transnational mechanisms for capacity development in ARD, together with ERA-ARD partners
4. Creation of centres of excellence	<ul style="list-style-type: none"> • Establish a programme fund that supports CD together with existing centres of excellence in developing countries • Develop distant learning tools using ICT in cooperation with centres of excellence in developing countries • Create or support virtual centres (networks) of excellence research programs jointly sponsored and conducted by research institutions in different geographic locations

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

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Tools and internet links:

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