

Joint rapid appraisal on strengthening agricultural innovation systems in Africa, Asia and Latin America

by regional research and extension organizations

SYNTHESIS REPORT - 2021

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Abbreviations and acronyms

AFAAS African Forum for Agricultural Advisory Services

Agrinatura The European Alliance on Agricultural knowledge for Development

AGROSAVIA Corporación Colombiana de Investigación Agropecuaria

AIS Agricultural Innovation System

APAARI Asia-Pacific Association of Agricultural Research Institutions

APIRAS Asia-Pacific Islands Rural Advisory Services Network

BCI Better Cotton Initiative

CD capacity development

CDAIS Capacity Development for Agricultural Innovation Systems

Desira Development Smart Innovation through Research in Agriculture

DG Directorate-General

FAO Food and Agriculture Organisation of the United Nations

FARA Forum for Agricultural Research in Africa

IFAD International Fund for Agricultural Development

IICA Inter-American Institute for Cooperation on Agriculture

Latin America and the Caribbean

M&E monitoring and evaluation

MARDI Malaysian Agricultural Research and Development Institute

MasAgro Modernización Sustentable de la Agricultura Tradicional

(Sustainable Modernization of Traditional Agriculture)

MEL monitoring, evaluation and learning

NAFRI National Agriculture and Forestry Research Institute

NARI National Agricultural Research Institute

NGO non-governmental organisation

PRIICA Programa Regional de Investigación e Innovación por

Cadenas de Valor Agrícola

R&D research and development

RELASER Red Latinoamericana de Servicios de Extensión Rural

Resakss Regional Strategic Analysis and Knowledge Support System

RREO Regional Research and Extension Organisation

SCARDA Strengthening Capacity for Agricultural Research for Development

TAP Tropical Agriculture Platform

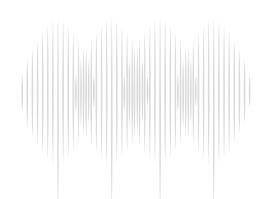
Summary

During the last quarter of 2020, Regional Agricultural Research and Extension Organisations (RREO) in Africa, Asia and Latin America jointly carried out rapid appraisals to map the innovation environment and identify and document initiatives aimed at strengthening Agricultural Innovation Systems (AIS). The focus was on functional capacity development with a view to exploring ways in which RREO can support the development of these capacities and integrate them with technical capacities. A combination of literature reviews, case studies and stakeholder surveys was used to gather information. The results were documented in three separate reports which are available from the RREO. In the present document, key findings from the regional reports are presented and discussed.

There were considerable differences between regions and among countries within the regions with regard to the institutional environment in which innovation takes place. In many countries, in each of the regions, agricultural innovation is framed within structures and institutions which are largely driven by the public sector. Government support to agricultural research and extension agencies continues to be based on linear transfer of technology approaches. However, in some countries AIS thinking is being incorporated into policies and programmes. The case studies in the reports from the regions illustrate different ways in which multi-actor collaboration is being supported in order to enhance innovation capacity. Innovation platforms and networks have been established to provide spaces for different organisations to interact, share information and knowledge and develop partnerships. Some of these platforms and networks are continuing to operate when external support is withdrawn but the sustainability of these mechanisms is a challenge and further efforts are needed to promote local ownership and resourcing.

The case studies highlighted the importance of participatory capacity needs assessments to identify priority capacity needs and design appropriate interventions to address them. There are several initiatives which provide examples of good practice in this area, including the European Union-funded Capacity Development for Agricultural Innovation Systems (CDAIS) project which operated in eight countries across the three regions. Findings from this project and others showed the value of having suitably qualified persons as facilitators in innovation processes. However, there are few people with the skills and expertise required to provide effective support and this was viewed as a major constraint to capacity strengthening efforts in all the three regions. More resources are needed to train facilitators and public agencies should give higher priority to in-house training for staff in functional capacities.

In addition to capacity needs assessments and effective facilitation, several other success factors for effective capacity strengthening are described. These include adaptive management approaches, strong information and knowledge management processes, and the incorporation of measures to enhance sustainability during programme design. Building on emerging trends and current initiatives, opportunities for strengthening agricultural innovation systems are discussed. Suggestions are made on how RREO can help to address these opportunities; for example, by making use of new information and communication technologies to share knowledge and contribute to training. Based on the findings from the individual and synthesis reports, the RREO are preparing joint action plans to guide their future activities in enhancing innovation capacities in their regions.



Introduction

It is widely acknowledged that a transformation in agricultural and food systems is needed in order to produce sufficient quantities of nutritious and safe food for a rapidly expanding global population; and at the same time meet emerging challenges such as climate change, land degradation and the growing demand for scarce resources such as water from other sectors. Innovation drives increased productivity and can also improve sustainability if appropriate policies and practices are designed and implemented. Innovations include technologies such as high-yielding crop seed varieties and more efficient livestock management practices. However, technology alone is insufficient to drive change and consideration needs to be given to the multiplicity of factors which influence innovation processes (Klerkx et al., 2012). The Agricultural Innovation System (AIS) approach was designed to reflect this broader perspective on how innovations arise and are incorporated into everyday use. In the AIS approach, innovation is viewed as a combination of technological improvements and non-technological changes such as, among others, more favourable land tenure arrangements. These changes take place at different scales from the field to the region, and are influenced by a range of actors; whilst research often plays a key role in developing innovations, it is one of several interacting inputs. The AIS approach is now being adopted to support innovation in some settings, but it remains underutilised and there is considerable potential to promote its wider use.



A critical determinant of a fully functional agricultural ecosystem is the ability of each of the actors to carry out their respective tasks and so contribute to the effectiveness of the overall system. This may involve the development of certain skills with which organisations and individuals are not familiar. It may also require changes in the institutional environment for which specific capacities are needed to identify and implement appropriate revisions. The G20 group of countries recognised the importance of capacity strengthening when, in 2012, it called for the establishment of the Tropical Agriculture Platform (TAP). TAP is a global network of over 50 organisations including national agricultural research, education and extension institutions as well as civil society actors, farmers' organizations and key regional and international fora, networks and agencies. TAP embraces the AIS perspective and its primary function is to serve as a multilateral facilitation mechanism that enables better coherence and greater impact of capacity development interventions in agricultural innovation systems (Aerni *et al.*, 2015). The Secretariat of TAP is hosted by the Food and Agriculture Organisation of the United Nations (FAO).

One of the early activities of TAP was to develop a Common Framework on Capacity Development for Agricultural Innovation Systems.¹ The Common Framework embraces the AIS approach and aims to harmonize the diversity of approaches to capacity development for agricultural innovation of various development actors. It emphasises the need for a holistic approach to capacity strengthening, addressing the three dimensions (individual, organisational and enabling environment) at the same time. In the Common Framework, capacity development for AIS is built around a set of specific functional capacities which are considered to be essential for effective AIS. The functional capacities are relevant to all three dimensions of capacity development. They consist of four fundamental capacities which are the basis for a fifth overarching capacity. The four fundamental capacities are:

- Capacity to Navigate Complexity
- Capacity to Collaborate
- Capacity to Reflect and Learn
- Capacity to Engage in Strategic and Political Processes.

The overarching capacity is the:

Capacity to Adapt and Respond in order to Realize the Potential of Innovation, shifting focus
from reactive problem solving to co-creating the future.

The Common Framework was developed and assessed under a European Union-funded project, jointly led by Agrinatura (The European Alliance on Agricultural knowledge for Development) and FAO. It is supported by a set of tools, assessment methodologies and operational guidelines which were also developed and tested in the project.² These tools and approaches are

¹ See https://tapipedia.org/framework

² Capacity Development for Agricultural Innovation System (CDAIS) https://cdais.net/home

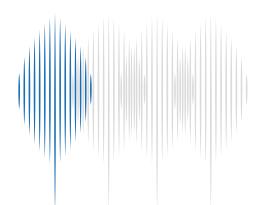


being further promoted through an FAO/TAP-led project under the European Union-funded Development Smart Innovation through Research in Agriculture (DeSIRA) initiative. DeSIRA aims at enhancing and accelerating innovation for agriculture and rural transformation whilst emphasising climate relevant actions. Selected Regional Research and Extension Organizations (RREO) in Africa, Asia-Pacific and Latin America and the Caribbean (LAC) are partners in the TAP/FAO DeSIRA project. One of the objectives of the project is to strengthen the capacity of RREO to integrate TAP tools and approaches in their work programmes to promote innovation processes at the country level. At the same time, it seeks to facilitate and strengthen collaboration and synergies between research and extension organizations at regional and national level through a joint planning and implementation process.

The joint rapid appraisal for uptake of TAP approaches and tools by RREO is an initial step in this process of strengthening their capacities and facilitating collaboration. The overall objective of the joint rapid appraisal is to examine and document the regional landscape for facilitating and strengthening capacity for agricultural innovation. It is not intended to provide a detailed analysis of agricultural innovation policies, structures and capacity strengthening initiatives. Rather, the purpose is to provide an overview of current capacity strengthening activities in the regions and the institutional context, whilst identifying key challenges and opportunities for future interventions. The findings of the appraisal will be used to inform joint action plans for the RREO for integrating TAP tools and approaches using the entry points identified.



2



Methodology

Information was gathered through qualitative methods commonly used in rapid appraisal, which is an approach that is used to quickly develop an initial understanding of a system or a situation (Beebe, 1995). Prior to the start of the exercise, a methodology was co-designed by the consultant, FAO project staff and RREO contact persons in order to standardise the approach and ensure comparability across the regions. The information collection was done by consultants appointed by the RREO, staff of capacity development (CD) specialists from RREO (AFAAS and FARA) and a training workshop was held to develop a common understanding of the task.

In the event, it was not possible to employ the full range of information gathering techniques which were outlined in the original methodology. Due to restrictions on travel and on physical meetings imposed by the Covid-19 pandemic, all information was collected through online activities. In each region, with slight variation, the following methods were used:

A **desk review** was carried out to examine the innovation policy environment in selected countries in the region and to identify and examine key initiatives to strengthen AIS. The review covered capacity strengthening initiatives which have been conducted within the past ten years, including those still in progress. Key words were used in internet searches to identify relevant initiatives and the main actors involved. Discussions with RREO staff and key informants led to the identification of some further initiatives which were not revealed in the internet searches.





Stakeholder surveys were conducted in each of the regions. Questionnaires were prepared and sent to respondents identified by RREO staff. Follow up discussions were held with selected respondents to explore certain issues in more detail. A limitation of this aspect of the study is that it was only possible to involve a relatively small number of people and most of these were researchers, agricultural extension staff and officials in Ministries of Agriculture.

Capacity strengthening initiatives which had characteristics of particular interest were examined in greater detail as **case studies**. The case studies were selected to provide examples of capacity strengthening approaches for innovation and to better understand factors influencing successes and failures in leading to the desired outcomes.

Individual interviews were held online with key informants. The main purpose of the interviews was to explore in greater depth issues that were identified in the desk review, survey and case studies. The intention was to hold interviews with representatives of different stakeholder groups in order to capture a wide range of perspectives. In practice, the majority of those interviewed were from the public sector; staff in agricultural ministries, research managers, researchers and extensionists.

Each of the three regions in which the joint rapid appraisal was carried out are highly diverse with respect to factors such as agro-climatic environments, economic structures, culture and institutional arrangements for facilitating innovation. Taking into account this large degree of



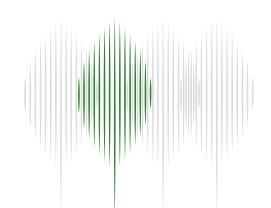
heterogeneity, the appraisal in the LAC region was done separately for the Andean countries and Central America and key features in each of these two sub-regions were then compared and discussed. A similar approach was taken in Asia, where separate appraisals were done for countries in South Asia and Southeast Asia and the findings were then reviewed together. In Africa, the focus of the appraisal was on the target countries in a European Union-funded DeSIRA project which is linked to the TAP/FAO DeSIRA project as well as other CD initiatives in the region. These countries are Cameroon, Ethiopia, Ghana, Kenya, Madagascar, Malawi, Mali, Nigeria, South Africa and Uganda.

The RREO involved in the appraisal were:

- Africa: Forum for Agricultural Research in Africa (FARA) and the African Forum for Agricultural Advisory Services (AFAAS)
- Asia: Asia-Pacific Association of Agricultural Research Institutions (APAARI) and the Asia-Pacific Islands Rural Advisory Services Network (APIRAS)
- ♦ LAC: Inter-American Institute for Cooperation on Agriculture (IICA) and the Latin American Network for Rural Extension Services (RELASER).



3



Main findings

3.1 Innovation environment

As expected, there were large variations between regions and among countries within the regions with regard to the institutional environment in which innovation takes place. Policies and regulatory frameworks have a major influence in creating favourable conditions under which innovation can flourish. In Africa, one of the constraints to the design of suitable policies and regulatory frameworks is that most countries lack the capacities and skills necessary for policy analysis, dialogue and implementation (Dittoh, 2014). Systems for monitoring and evaluation are not fully developed and there are deficiencies in data collection and processing.

Innovation policies are in place in some countries in each of the regions. These may be specific to the agriculture sector or, in some cases, cross-sectoral. However, the existence of an innovation policy does not necessarily lead to significantly enhanced innovation if implementation is weak. In India, for example, there is a National Agricultural Innovation Policy and a National Innovation Foundation which is mandated to strengthen grassroots technological innovations in the country. Although this institutional framework is in place, there are deficiencies in the promotion of AIS approaches on the ground. A similar situation is found in Cambodia where policies supportive of innovation exist, such as the 'One-Village, One-Product' policy which aims to encourage sustainable agricultural production through a variety of enabling measures. In this case, the constraining factors are considered to be low level of human capital and limited cooperation among key actors. Indonesia has a dedicated central government unit with responsibility for



innovation policy, the DG Strengthening Innovation, which was formed in 2015. The mandate of this unit is to strengthen government policy on innovation-related growth and enhance coordination of government Research and Development (R&D) and innovation policies. However, its effectiveness has been constrained by the difficulties in achieving co-ordination between policymakers, especially at a high level.

Some countries have highly centralised research and innovation systems with limited scope for multi-stakeholder engagement. An example in Southeast Asia is Viet Nam where the Agricultural Restructuring Plan emphasizes multi-stakeholder cooperation but the system is managed by state-based networks and there is limited provision for demand articulation to shape the innovation agenda. In Myanmar, the system is also strongly centralised and government organisations are structured in a way which limits their ability to form partnerships with different actors. This constrains innovation and also leads to duplication of activities.

Similar structural challenges to those reported in Viet Nam and Myanmar are also evident to some extent in other regions. Nevertheless, in some countries there has been a clear shift from traditional top-down approaches to research and innovation towards a more diverse innovation ecosystem. This is particularly evident in the LAC region where there are several examples of national policies promoting AIS approaches. In Colombia, where legislation was passed to establish a national agricultural innovation system, there have been attempts to make the research system more demand-led through public investments in competitive grants schemes, support for innovation networks and the establishment of Science, Technology and Agriculture Innovation Parks. The former national agricultural research organisation, the Colombian Corporation for Agricultural Research (CORPOICA), was reconstituted as a privately managed, decentralized public entity which aims to match knowledge and technology supply with demand. It does this through innovation networks linked to priority value chains and facilitates the preparation of innovation agendas and partnership plans.

In spite of encouraging signs that AIS approaches are becoming more widely integrated into national innovation policies and programmes, certain challenges to their successful adoption remain. A common feature in each of the regions is under-investment in the agriculture sector. In Africa, most countries are signatories to the 2014 Malabo Declaration on 'Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods' (African Union, 2014) which reaffirmed a previous commitment to allocate 10 percent of public resources to agriculture. Few countries have met this target and the proportion of funding allocated to research and extension activities is extremely low. There are also large variations in spending on agricultural research and extension in the other regions. In the LAC region, research expenditure in countries in Central America is historically very low in comparison to countries such as Brazil and Mexico. This reflects differences between countries in economic resources but is also an indication of the relatively low priority attached to the agricultural sector. Asia and the Pacific has been the region



allocating the largest percentage of central government spending to agriculture between 2001 (3.85 percent) and 2017 (3.03 percent)³. In spite of this, the region faces similar challenges to Africa and LAC with large variations between countries and relatively low expenditure on research and extension.

The limited government funding for agricultural research and extension is a primary cause of the under-performance of national agricultural research and innovation systems. In Southeast Asia, Malaysia has a relatively strong and well-managed research and innovation system and this is underpinned by higher and more secure funding than many other countries in the region. Support for R&D in the agriculture sector has been a key driver of growth in the economy. Agricultural R&D spending as a percentage of production value (research intensity) is comparatively high. Investment by the public and private sectors has been primarily in cash crops such as palm oil and rubber and this has led to increased crop productivity and quality whilst reducing costs. There are also productive research programmes in some other sub-sectors such as grain crops. For example, high yielding rice varieties with desirable quality characteristics have been developed at the Malaysian Agricultural Research and Development Institute (MARDI). MARDI and universities such as the Universiti Putra Malaysia and Universiti Kebangsaan Malaysia have food technology programmes which generate added value products from grains and other crops. By contrast, in Myanmar investment in the agricultural R&D, and in the sector as a whole, is very low and this has resulted in a lack of innovative farming methods to enhance productivity and in major shortcomings in quality control measures, supply chains, logistics and transport facilities. There is only one university engaged in agricultural research and this focuses mainly on rice and soybeans with no involvement of the private sector.

A common feature across each of the three regions is inconsistent **support for public agricultural extension systems**. There are different models for providing extension and rural advisory services. In some countries, there have been attempts to bring agricultural research and extension functions together in a single institution. An example of this is the Rwanda Agriculture Board which was formed in 2011 and combined the national Agricultural Research Institute (Institut des Sciences Agronomiques du Rwanda) with the Agricultural Development Authority and the Animal Resources Development Authority. However, implementing such reforms has usually been challenging and there is no compelling evidence that they have led to improved performance of the overall system.

In the LAC region, there are some countries where the National Agricultural Research Institute (NARI) has responsibility for extension, whereas in others the mandate lies with the Ministry of Agriculture. Experience has shown that placing responsibility for delivering extension services with the NARI without an appropriate increase in funding tends to dilute scarce resources and

³ FAO statistics accessed at http://www.fao.org/economic/ess/investment/expenditure/en



compromise the ability of the organisation to carry out the full range of its mandated activities. A common feature of many countries in the region is the privatisation of agricultural extension services, a process which began as far back as the 1980s. Currently, there are several examples of pluralistic extension services with inputs from private organisations in the provision of technical assistance and training. These are commonly associated with specific value chains as exemplified by the activities of companies such as Farm-Agro, Fundación El Ordeño, and Fundación Servicios para el Desarrollo Alternativo. (SEDAL) in Ecuador. In some cases, such as in Brazil, agri-business companies provide extension services within the scope of contract farming schemes (Babu *et al.*, 2016).

There has also been a trend towards greater inclusiveness toward smallholders in the research and extension systems in countries in the LAC region. This has resulted in a more active role for smallholders in the conduct of participatory research and an increased involvement of producer associations in providing extension services. In addition, there is a growing interest in territorial approaches to rural extension and development processes. The territorial approach emphasises the importance of multi-actor and inter-institutional processes in development and so facilitates the emergence of innovation platforms at the local level. These developments are sometimes associated with a focus on agro-ecological approaches to farming. However, accommodating a variety of approaches to agricultural transformation in countries with highly diverse agricultural systems is not straightforward. A case study from Brazil illustrates the policy challenges and institutional barriers in promoting the scaling out of agro-ecological approaches in a context of considerable diversity in the types of farmer (Diesel and Dias, 2016).





3.2 Initiatives for strengthening AIS capacities

Each of the regional reports includes descriptions of national and regional initiatives which contribute to strengthening the capacities of AIS. The descriptions include examples of individual, organisational and institutional capacity strengthening approaches although these are categorised differently in each report. In Africa, capacity strengthening interventions are classified into those addressing the enabling environment and those designed to enhance the functioning of organisations and individuals. In the LAC region interventions are not differentiated by level and are analysed using a common set of criteria; namely:

- objective
- methodology
- driver
- potential for sustainability
- potential for scaling up.

In Southeast Asia, interventions are distinguished according to their objectives and in South Asia the classification is based on whether they are primarily training activities or whether they are organised into projects or programmes with wider remits. This difference of approach in the regional reports means that cross-regional comparisons are less easy to make but it has the advantage of highlighting aspects of capacity strengthening initiatives in a variety of dimensions.

More detailed accounts of capacity strengthening interventions are presented in the regional reports. In this section, examples have been selected from the broad range of interventions with a view to illustrating how they have been implemented and identifying any lessons that have emerged. Lessons include success factors in designing and implementing the initiatives as well as constraints which affected their performance.

3.2.1 Objectives of capacity strengthening interventions

Each capacity strengthening initiative has its own specific objectives and a particular context in which it arises. The objectives and context shape the overall approach that is adopted, taking into account the target beneficiaries. They also influence the type of capacity strengthening methods which are used and the actors who are responsible for delivering them. In broad terms, most of the initiatives described in the regional reports aimed to strengthen technical or functional capacities for innovation but these took many different forms. Most of the initiatives that were specifically targeted at farmers involved strengthening their technical capacities, whether these were related to enhancing productivity, improving the quality of produce, building resilience to climate change, or to other issues. Initiatives that aimed to strengthen linkages between different innovation actors often sought to enhance both technical and functional skills.



In broad terms capacity strengthening interventions for enhanced innovation may be categorised as follows:

- 1. Developing the skills of individuals. This involves equipping people with the technical and functional skills needed to enable them to contribute effectively to innovation activities. Whilst the ability to apply a wide range of functional skills is useful to actors in agricultural innovation systems, some skills are more relevant than others for particular purposes, and this can be reflected in the design of capacity development interventions.
- 2. **Strengthening organisational capacities.** This may target a variety of capacities. Key ones are the capacities to engage effectively in innovation partnerships and to develop capacity strengthening programmes for their staff and other actors in the innovation system.
- 3. **Strengthening the coherence or functionality of the agricultural innovation system.** Examples of capacity strengthening interventions include enhancing the performance of innovation platforms and networks which bring together different actors for knowledge exchange, lesson learning and other functions.

Capacity strengthening conducted under these three categories are examined below but first an analysis is made on how capacity needs were identified in the initiatives presented in the regional reports.

3.2.2 Identifying capacity needs

A sound understanding of capacity needs is fundamental to the development of capacity strengthening initiatives to enhance innovation. Capacity needs assessments need to be thorough and inclusive in order to inform the design of suitable interventions and encourage ownership. Assessments may be undertaken at different levels within innovation systems and the methodologies used will depend on the objectives and the target group.

A case study from Ghana describes a capacity needs assessment conducted at the overall system level (Dittoh, 2014). The assessment was done through the Regional Strategic Analysis and Knowledge Support System (ReSAKSS) which supports the collection and sharing of policy-relevant data in the agricultural sector. The aim was to analyse capacities in the country for agricultural policy analysis, investment planning, programme implementation, monitoring and evaluation (M&E), and knowledge management. Through a consultation with a wide range of stakeholders it was revealed that:

- there was limited use of evidence in policy making;
- there were few organized mechanisms for managing or sharing knowledge;
- M&E at the district level was largely absent; and
- staff retention in the public sector was low due to a lack of incentives and few opportunities to enhance skills.



Recommendations to address these gaps included:

- actions to build the capacities of staff for policy dialogue and analysis at national, regional and district levels;
- increase resource allocations for M&E;
- establish new knowledge management and sharing mechanisms; and
- take steps to develop a culture that encourages open discussion and innovation.

This type of system-level analysis is not widely used but has considerable value in establishing a baseline for enhancing the enabling environment in which innovation can flourish.

Several cases in the regional reports refer to capacity needs assessments carried out within specific value chains or innovation platforms. A Participatory Market Chain Approach (PMCA) was used to strengthen potato value chains in a programme implemented by the World Potato Centre in Java, Indonesia. As part of this process a capacity needs assessment was carried out with stakeholders in the value chain. The assessment identified the need for business development services for innovators, strengthening bonding social capital and enhancing enterprise management skills and the capacity for negotiation of farmers' organizations. Support to strengthen these capacities was subsequently provided with programme support.

There are several cases from the Capacity Development for Agricultural Innovation Systems (CDAIS) project which conducted capacity needs assessments in several innovation 'niches' in the eight target countries in which the project operated. In Bangladesh, following an initial multistakeholder consultation workshop, three-day capacity needs assessment workshops were held with actors in each of the five niches (value chains) targeted by the project. Participants included growers, traders, wholesalers, retailers, researchers and the District Marketing Officer who were identified with the help of the local office in the Department of Agriculture. The workshop was led by a National Innovation Facilitator who had received prior training for this purpose through the project. The role of the facilitator was considered to be crucial as it required an individual with knowledge of innovation processes as well as skills to lead the assessment. The capacity needs assessment was carried out using a methodology developed in CDAIS and applied throughout the eight countries. As part of the process, participants were sensitised on the AIS approach and on functional capacities and how these can be developed. The output of the workshop was an action in which selected niche members designed activities to strengthen the value chain.

Capacity needs assessments to inform specific training activities are also mentioned in the reports, although these are largely with technical training. In Indonesia there is a network of twenty national agricultural training centres which carry out capacity needs assessments of extension staff at village, district and provincial levels and store the information, together with details of training events, in a central database. However, the main focus is on technical skills and a common feature across the regions is the limited focus on developing functional capacities of public sector agricultural extension staff. A similar situation is found in public research institutes.



By contrast, civil society organisations, especially large NGOs such as Professional Assistance for Development Action (PRADAN) in India and Bangladesh Rural Advancement Committee (BRAC) in Bangladesh, have systems to carry out periodic training needs assessments of their staff. These organisations recognise that it is important to employ staff with the skills required to engage effectively with farmers and other stakeholders and jointly develop solutions to emerging challenges.

3.2.3 Strengthening the capacities of individuals

Interventions to strengthen the capacities of individuals to contribute to agricultural innovation processes are described in each of the regional reports. Examples are provided of stand-alone training courses or workshops. Many of these training exercises targeted farmers and focus primarily on enhancing their technical skills in specific areas of production or post-harvest processes. Some training interventions went beyond this to cover business management skills designed to assist farmers to participate more effectively in market-oriented agriculture and so generate more revenue. In some cases, training was given as a stand-alone intervention; for example, training rice farmers in Malang, Indonesia, to adopt technological innovations that enhance their productivity. In Madagascar, the IFAD-funded Future Vocational Training and Agricultural Productivity Improvement Programme supported apprenticeships for young people to benefit from hands-on technical training in the workplace, enabling them to gain experience of using their new skills whilst in employment.

Evidence from each of the regions illustrates how the private sector is becoming increasingly engaged in capacity development for enhanced innovation, especially through farmer training. Private sector capacity strengthening activities are primarily aimed at increasing the quantity and quality of produce in commodity supply chains and they generally take the form of technical training programmes. Increasingly, though, large private companies are responding to consumer pressures to implement more environmentally sustainable production practices and to ensure better economic and social outcomes for farmers. One way they are doing this is through the use of Ecological standards and Certification schemes which are independently monitored and verified by third party auditors. The Better Cotton Initiative (BCI) which promotes the Better Cotton Standard is one example (see Box 1). The focus is on technical training of farmers and there is less emphasis on the development of other skills but, as the example from Gujarat in India illustrates, the scheme can bring wider benefits to farmers through group formation and facilitating markets linkages.



BOX 1



The Better Cotton Initiative is a global not-for-profit organisation which aims to promote more environmentally sustainable methods of cotton production whilst ensuring beneficial social and economic outcomes for producers. The Better Cotton Standard is now widely applied and covers a substantial proportion of global cotton production. BCI has approximately 2 000 members who are mainly suppliers and manufacturers, retailers and brands and also include civil society organisations and producer organisations. Farmer are organised into producer groups and given training in safe production practices and in other skills such as book-keeping to assist them to run their farms as businesses. Capacity strengthening and inspection activities are delivered through implementing partners, including public agricultural extension organisations and NGOs. Although BCI support to producers is mainly oriented towards technical training, the producer organisation model provides scope for further support. In Gujarat in India, BCI worked through its local partner the Ambuja Cement Foundation to facilitate the establishment of the Somnath Producer Organisation which procures inputs for its members and has linked them to the market via the Multi Commodity Exchange.

Another motivation for private companies to support better environmental management is to ensure the sustainability of future supply chains. In West Africa, cocoa buyers have recognised that cocoa farms will only remain productive if the health of the wider forest landscape is preserved, especially as the adverse impacts of climate change start to be felt. This is the driver behind Touton's Partnership for Productivity, Protection and Resilience in Cocoa which is being implemented in Ghana in association with the Ghana Cocoa Board and the Forestry Commission. Services to farmers are provided through Rural Service Centres which are staffed by a sustainability manager, a business development manager and two agronomists. The Centres facilitate access to agro-inputs and finance and provide training and coaching on rehabilitation of farms and technologies for increasing productivity as well as livelihood diversification. Touton and other large companies in the sector are now working towards an industry-wide Climate-Smart Cocoa standard.

Some companies have developed their own standards. For example, Woolworths in South Africa has a Farming for the Future brand which aims to show that its fruit, vegetables and flowers are sourced from farms that use sustainable management practices. Farmers receive training in areas such as soil and water management and are given assistance to develop a farm management plan. Their farms are inspected regularly for compliance with the agreed practices. Because this type of scheme is not subject to their party auditing, there is the potential for a lower degree of rigour and transparency in the monitoring process. However, some farmers



have stated that the Farming for the Future initiative provides them with higher quality guidance than the GlobalG.A.P. scheme which they say gives then limited feedback or advice (Thorlakson *et al.*, 2018).

Farmers were the direct beneficiaries of a large proportion of the capacity strengthening interventions for individuals but other groups were also targeted. In India, the Syngenta Foundation provided support for rural youth to establish themselves as agri-entrepreneurs who can supply inputs and agricultural information to farmers. An interesting example of training for researchers, was an initiative in Viet Nam where they were capacitated to use risk assessment to assist the Ministry of Health and the Ministry of Agriculture and Rural Development to make informed decisions on food safety management. In Ethiopia, agricultural extension officers and value chain actors received training in market-oriented development approaches and interventions. The form of training used varied from short courses, usually delivered face-to face, to workshops and experiential learning through internships and other mechanisms. In the case of farmers, on-site training events and demonstrations were the most frequently used approaches whilst exposure visits were used in a small number or initiatives.

3.2.4 Capacity strengthening of organisations

In each of the regions, public sector agricultural research and extension organisations are being encouraged to move away from a top-down transfer of technology approach towards more inclusive approaches which involve engagement with other actors in the innovation system. The extent to which this is being done varies between countries and institutional rigidities continue to create barriers towards closer integration. There are few examples in the regional reports of capacity strengthening initiatives specifically targeting organisations but some initiatives include activities on organisational development. One of the components in the Upland Research and Capacity Development Programme funded by the Swedish International Development Agency was designed to strengthen the Research Management Division in the National Agriculture and Forestry Research Institute (NAFRI) in the Lao People's Democratic Republic. The aim was to assist NAFRI to enhance its capacity to coordinate development-oriented research that would help to reduce poverty in resource-poor upland communities. Although the project was of relatively short duration (five years), an evaluation concluded that progress was made in introducing more systematic research management processes and in instilling a more positive culture of research in NAFRI. In spite of this, it was also noted that changes in procedures and working practices had not been mainstreamed in other activities outside the project domain.

Institutionalising change in organisations requires a holistic approach with strong support from senior managers and consultative processes to ensure buy-in from staff. The Strengthening Capacity for Agricultural Research for Development (SCARDA) which was led by the Forum



for Agricultural Research in Africa developed and tested a comprehensive approach to organisational capacity strengthening. This was based on a stepwise participatory needs assessment conducted in the target national agricultural research institutes and universities in ten countries in Africa. Priority capacity needs varied across organisations and tailor-made action plans were drawn up to provide specific interventions such as enhancing financial management procedures and supporting business development units. These measures were intended to collectively contribute to the broader objective of the programme which was to strengthen the ability of the target public sector organisations to collaborate more effectively with other actors in national agricultural innovations systems. In the later stages of the programme, support was provided to designated innovation platforms. In Botswana, the Department of Agricultural Research and the Botswana College of Agriculture worked with the Smallstock Industry Federation in the country to establish an Innovation Platform for Smallstock. One of the outcomes of the platform's activities was to bring about a policy change that provides stronger incentives for producers to improve their production.

Capacity strengthening initiatives such as SCARDA are rare, but it is becoming increasingly common for public sector agencies to receive support to participate in innovation networks or platforms. Effective participation in innovation networks and platforms requires functional skills including the capacities to collaborate and communicate. The case of Corporación Colombiana de Investigación Agropecuaria (AGROSAVIA) in Colombia illustrates how some public institutions now have the mandate to facilitate the development of functional capacities among



innovation actors. AGROSAVIA is the product of an institutional reform process in Colombia and is a privately-managed decentralised public entity with a mandate to generate and share scientific knowledge through research, innovation and training. Although the traditional linear model of research and technology transfer remains in place to some degree, AGROSAVIA is transitioning to a more collaborative mode of operation. Through the LINKATA programme, AGROSAVIA has established local innovation networks and platforms where different actors convene to share knowledge and prepare work plans to strengthen priority agri-food chains. A critical element in the role played by AGROSAVIA is to facilitate access to relevant information in a timely manner as this enhances collaboration and increases trust among the different actors. Several Colombia-based respondents in the stakeholder survey conducted in the LAC rapid appraisal highlighted the role of AGROSAVIA in developing functional capacities for innovation in that country.

3.2.5 Capacity strengthening at the systems level

Most of the capacity strengthening initiatives which operated at a systems level were linked to value chains, innovation platforms or networks associated with specific agricultural commodities. In Mexico, the Sustainable Modernization of Traditional Agriculture (MasAgro) programme implemented by the International Maize and Wheat Improvement Center has established hubs as spaces for collaboration, learning and reflection on maize and wheat-based systems. Actors in the maize and wheat value chains interact to discuss new technologies, share information and form new partnerships. The initial focus of the programme was to strengthen the technical capacities of farmers through training, workshops and the provision of hybrid seeds as part of a strategy to sustainably intensify cereal production. As the hubs developed, emphasis was also placed on the development of functional skills to facilitate the engagement of innovation actors in the hubs. The programme has been in operation since 2010 and the Mexican government has continued to provide financial support; a strong indication of the value it attaches to the programme.

New business models are being developed to support market-places for the provision of agricultural services, including training and advice to farmers with a view to make them more financially sustainable. The Syngenta Foundation for Sustainable Agriculture developed a programme of Farmers' Hubs in Bangladesh. The concept is now being applied in Senegal, Indonesia and Kenya and an e-platform was recently added. The aim of the Hubs is to enhance the access of smallholder farmers to advice, input and output markets and other services. The Hubs act as aggregators for the purchase of inputs and the sale of outputs and provide agricultural knowledge and machinery. Each hub serves 500-1000 farmers and is owned and managed by rural entrepreneurs, agribusiness suppliers or farmers' cooperatives under a



franchise system. The Foundation is the Master Franchisor and provides technical support to the franchisors. Fees are charged for the services, with the exception of farmer training and advice which is free. Hub operators generate most of their revenue (60-80 percent) by trading farmers' products and the bulk of remaining revenue comes from farm input sales. The Farmers' Hub system is reported to increase yields and income for farmers, whilst buyers benefit from the aggregation of products and a reliable supply of quality produce.

A small number of capacity strengthening initiatives were designed to operate at different levels within national agricultural innovation systems. One example of this is the Programa Nacional de Innovación en Pesca y Acuicultura (PNIPA) in Peru which started in 2017 and is due to continue until 2022. PNIPA funds innovation and capacity development projects and supports multi-stakeholder alliances and innovation networks. It combines calls for proposals with the mobilization of multi-innovation networks and this facilitates collaboration and capacity development at the regional level. At the same time, the programme provides guidance to government entities on the development of sectoral policies which create an enabling environment for innovation. The Platform for an Africa-Europe Partnership for Agricultural Research for Development (PAEPARD), implemented jointly by FARA and Agrinatura, strengthened the capacities of demand-led multi-actor partnerships to work together to develop innovative solutions to problems in specific value chains or agricultural systems. It also sought to influence decision makers to give higher priority to agricultural research for development and to support multi-actor innovations initiatives in their policies and programmes.

The CDAIS project, discussed earlier in relation to capacity needs assessment, sought to strengthen innovation capacities in niches at a sub-national level and used a variety of approaches to support this aim (see Box 2). The project also convened policy dialogues which were viewed as reflective processes that bring together people from different interest groups to discuss issues of mutual concern. The dialogues were a way to find common ground among people and organisations with different perspectives, and sometimes divergent interests, on an issue. Dialogues were held at local and national levels, depending on the objective, and the outputs included recommendations on actions to enhance the enabling environment for innovation. In some cases, evidence generated from experiences in the innovation niches was used to inform recommendations for policy change and so the project components were mutually reinforcing.



BOX 2



The Capacity Development for Agricultural Innovation Systems (CDAIS) project was funded by the European Commission and co-managed by Agrinatura and FAO. It operated in eight countries in Africa, Asia, and Central America from 2015-2019. At the global level, CDAIS provided support to the Tropical Agriculture Platform and developed a Common Framework on Capacity Development for Agricultural Innovation Systems. This framework incorporates concepts, approaches and tools which were tested in the eight target countries and these were enhanced through lessons learned during implementation. At the national level CDAIS used a series of learning cycles to improve the functional capacities for innovation in Africa, Asia and Central America. Working with innovation 'niches' (in most cases these were commodity value chains) which were identified as priorities by stakeholders in the target countries, the project went through a series of steps designed to enhance innovation performance. Facilitators were trained to support the development of functional capacities among niche actors; capacity needs, constraints and opportunities were appraised through a participatory process; coaching plans were drawn up to address the needed capacities and innovation partnerships were established among producers, processors, traders, researcher, extension officers and other relevant stakeholders. In addition to training and coaching activities, innovation market-places were held to connect value chain actors and policy dialogues were convened to discuss areas in which improvements could be made to innovation performance. Whilst the primary aim was to enhance functional capacities of actors in the innovation niches this went hand-in-hand with strengthening technical capacities. The novelty of the approach was in its strong systems orientation and this brought benefits which were recognised by participants. This is exemplified in the assessment of a participant in the cacao niche in Honduras who stated that "CDAIS is strengthening the coordination between actors in the cocoa chain. It brings many benefits for all, including access to new information through training, sharing experiences between producers, understanding legal frameworks, and it helps to develop capacities in many other ways." (see also: https://cdais.net/2018/06/20/honduras-a-story-of-change-on-cacao)

3.2.6 Actors providing capacity strengthening services

Farmer training was usually given by agricultural extension officers or NGO staff. In some training initiatives supported by the private sector, companies used their own staff but public sector extension officers may have played a part in mobilizing farmer groups. Training provided by private sector organisations included guidance on the use of inputs and the application of good agricultural practices to enhance productivity and conform to standards. In some programmes, staff from research institutes or universities were involved in training farmers; for example, in ways to identify priority issues for research and methods for farmer participatory research. Researchers and extension officers received training from university staff in technical skills related to their subject matter specialisation and also in research and extension methods and in soft skills.

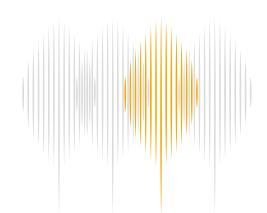


The regional reports drew attention to limitations in university curricula and, in many cases, the persistence of outdated teaching methods. The consequence of this inertia in the education system is that students graduate without having acquired the soft skills that are needed to equip them for the workplace. There are universities with more modern approaches to teaching and learning and these can serve as models for wider reform within the university system. In LAC, the Zamorano Pan-American Agricultural University in Honduras and EARTH University in Costa Rica have programmes which incorporate experiential learning for students and equip them with the skills needed to become agro-entrepreneurs. The Global Confederation of Higher Education Associations for Agricultural and Life Sciences and the American University of Beirut are promoting the EARTH University model to selected universities in Mexico and Haiti. There are also examples from other regions, including the Future Classroom programme at the Universiti Putra Malaysia which uses a service-learning pedagogy based on experiential learning. Students are encouraged to develop skills in communication, problem-solving, team-work, decision making, and to explore other areas of expertise which will assist them to make quick adjustments when in employment or self-employment (Omar et al., 2018).

The development of functional skills among innovation actors is heavily dependent on the availability of people with appropriate facilitation skills. This role is often played by researchers and agricultural extension officers and many of them lack the expertise required to carry it out effectively. Deficiencies in higher and further education systems contribute to this situation but other factors are also involved. The incentive structures in public research and extension organisations tend to overlook the importance of support for the development of functional skills. In addition, limited resources are allocated to enable staff to acquire these skills in capacity development programmes. This issue is discussed further in the section on constraints below.

Most of the capacity strengthening initiatives described in the reports were carried out at the sub-national or national level with inputs from NARIs, agricultural extension agencies, in-country networks, civil society groups, private sector organisations or farmers' organisations. There were fewer examples of regional initiatives but these included interesting initiatives such as the Programa Regional de Investigación e Innovación por Cadenas de Valor Agrícola (PRIICA) programme in Central America and the Asia Pesticide Residue Mitigation Project which are coordinated by IICA and APAARI, respectively. These initiatives have strong capacity development components which the RREO are instrumental in guiding. RREO are also playing an important role in connecting national actors and national-level capacity strengthening initiatives and facilitating knowledge sharing and learning through their platforms. In Africa, AFAAS and FARA have online platforms to support their knowledge management programmes and the same applies to other RREO.





Success factors

Factors influencing successful outcomes from capacity strengthening interventions were described in some of the case studies and additional information was obtained from respondents in the stakeholder surveys. The following factors were identified as making a contribution to success.

A supportive policy framework. This was not sufficient in itself to guarantee success, but the existence of a supportive policy framework facilitating public investments in new programmes, which were more closely aligned with innovation systems thinking, was considered to be important. This was especially evident in the LAC region where programmes such as Programa Nacional de Transferencia de Tecnología Agropecuaria (PRONATTA) in Colombia, INCAGRI in Peru, Programme for International Student Assessment (PISA) in Bolivia and Red de Gestión de la Innovación en el Sector Agroalimentario (INNOVAGRO) networks in Mexico were cited as examples. In some countries, it was noted that national innovation policies had been drawn up but that there was a gap in translating these into a coherent set of innovation programmes capable of significantly enhancing the existing research and development systems.

Rigorous and participatory needs assessments. Where thorough and consultative capacity needs assessments were conducted, a sound basis was laid for designing appropriate capacity strengthening measures. The assessments ensured that priority capacity gaps were included in action plans and that the target beneficiaries felt a degree of ownership in the process.



Needs assessments are required for individual training exercises as well as more complex initiatives with a broader set of capacity development interventions. In Indonesia, national guidelines have been issued for conducting training needs assessments for agricultural extension staff and farmers. Good practice guidelines on capacity needs assessments have been developed in some projects, notably CDAIS (Agrinatura and FAO, 2019).

Suitably qualified capacity development staff. Initiatives in which suitably qualified persons delivered training or provided coaching, mentoring or other types of capacity strengthening support were considered to be the most effective. This was especially true for persons acting as facilitators where the specialist skills needed are in short supply. Facilitators tended to be people with a technical background who lacked the expertise to support the development of functional skills. Where facilitators had a socio-economic background they were more likely to contribute to positive outcomes. In the CDAIS project, it was noted that beneficial outcomes were evident more quickly in countries where facilitator training was given high priority. The time and expense of investing in training facilitators was repaid by the greater efficiency with which they were able to carry out their functions.

Active intermediary organisations. Intermediary organisations played an important role in connecting innovation actors, facilitating the exchange of knowledge and information, contributing to the design of solutions to problems and supporting the development of functional capacities. When supporting innovation network activities, the intermediary organisations were instrumental in helping to ensure that appropriate services were provided to the right people at the right time. This role was often played by international organisations, including CGIAR Centres. It will be important in the future to develop capacity within the countries to carry out this function.

Multi-actor participation. The opening up of traditional linear agricultural research and development systems to involve other actors brings clear benefits in capacity strengthening initiatives. However, different types of organisations have their own perspectives, cultures and working practices and they may have their own priorities regarding the anticipated outcomes from a partnership. Therefore, it is necessary to spend time at the start of the collaboration to understand the interests and motivations of the partners and clearly define their roles and responsibilities. Private sector involvement brings in additional resources for capacity strengthening, especially for farmer training and support, and allows many more beneficiaries to be reached. In initiatives driven by private sector interests, it is important that adequate consideration is given to social and environmental outcomes as well as economic benefits. The growing interest in the use of standards and third-party certification schemes is a positive development, which can help to ensure sustainable outcomes.



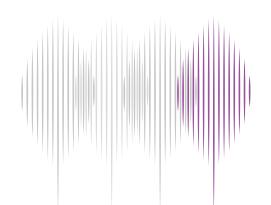
Adaptive management. Flexibility in project design and implementation is needed in initiatives which include capacity strengthening activities as issues arise which may require new or modified approaches to be introduced. There were several cases where the primary focus was on the transfer of technical skills to beneficiaries and activities to strengthen functional skills were brought in as the work evolved. This was made possible by the use of adaptive management where priorities were regularly reviewed and action was taken to address emerging needs. An example of this type of flexible management was evident in the MasAgro project. The project initially had a relatively limited technological focus and moved towards an innovation system approach as the needs and perspectives of the different actors were identified.

Strong information and knowledge management processes. Information and knowledge platforms were formally established in several capacity strengthening initiatives. The timely exchange of information was important for aligning services to user needs. In some cases knowledge sharing provided lessons that helped to inform the design of new activities. The platforms act as a useful collaborative space to bring actors together and help to cement partnerships between them. The increased use of virtual meeting spaces, which has taken place due to restrictions on physical meetings during the COVID-19 pandemic, is a positive development which can facilitate regular interaction with savings in time and expense. Networks such as the Agricultural Extension in South Asia platform are making valuable contributions in this regard.

Built-in sustainability mechanisms. Capacity strengthening interventions, especially those which are delivered through projects, are often delivered over a short time period. Since financial resources are usually limited, only a relatively small number of people can be reached and capacity strengthening approaches may not be mainstreamed in institutional arrangements. There are examples from several of the cases studied in the regional reports of approaches which are designed to sustain the benefits of the interventions beyond the lifetime of the projects. These measures include strengthening the capacity of innovation actors to engage in policy dialogues and policy analysis (e.g. ReSAKSS); capacitating skilled facilitators (e.g. CDAIS); facilitating the role of the private sector in capacity strengthening and developing new business models (e.g. the Syngenta Foundation's Farmers' Hubs).



5



Challenges and opportunities

The regional reports identified certain challenges which constrain the effective implementation of capacity strengthening initiatives to enhance innovation. On the positive side, they also highlighted emerging opportunities which may help to create a more favourable environment for capacity strengthening. These challenges and opportunities are summarised below.

5.1 Challenges

Inadequate funding. Governments have difficult choices to make about the allocation of resources to different sectors and funding for agriculture is below what is needed to support agricultural transformation in each of the three regions. The pressure on public finances has been magnified as a result of the COVID-19 pandemic. Public sector support for capacity strengthening tends to be channelled into small programmes and projects of relatively short duration. This means that the number of beneficiaries is generally low and there is limited potential for activities to be sustained when the programmes and projects end.



Lack of suitably qualified staff. The absence of people with the soft skills and experience needed to contribute to capacity strengthening initiatives is a common theme across the regions. In public sector agencies there are few examples of in-house capacity strengthening programmes. This is partly due to funding constraints but it also reflects the low priority given to enhancing staff soft skills. Incentives for staff to engage in capacity strengthening activities are not well developed and this has a negative effect on staff motivation and morale, particularly in agricultural extension agencies. The situation is different in some large NGOs and private companies which have an increasingly important role to play in capacity strengthening initiatives.

Inertia in public agencies. It has been noted earlier in some countries that the policy environment is becoming more supportive of multi-actor approaches to agricultural innovation. However, institutional structures in the public sector have been slow to respond to policy change. Centralised and supply-driven approaches to supporting innovation persist in many countries and there is little evidence of systems thinking. Examples from Latin America and South Asia, in particular, suggest that there is a move towards multi-stakeholder collaboration but organisations stick to rigid mandates, reinforced by their separate sources of funding. Nevertheless, the establishment of entities such as AGROSAVIA in Colombia illustrates what can be done.

Communication deficiencies. The experience of several programmes and projects, notably CDAIS, revealed that participants found the concept of functional capacities difficult to grasp. The concept appeared to be rather abstract and there was disagreement among professional staff on how to interpret specific capacities and convey to others what they mean. One lesson arising from this is that time is needed to train facilitators at the start of any capacity strengthening initiative and this process has to be reinforced by learning by doing.

Limited monitoring, evaluation and learning. Even in cases where adaptive management was used, few capacity strengthening initiatives had rigorous monitoring and evaluation and systems to review progress and share lessons to support learning. This is an aspect of programme and project design which is sometimes neglected. It is common for the roles and responsibilities of staff involved in monitoring activities to be inadequately defined and for insufficient resources to be allocated for data collection, analysis and lesson learning.

Gender, youth and diversity. The regional reports included several examples of capacity strengthening initiatives specifically targeted at youth. Some initiatives also focussed on women as beneficiaries. However, based on the information presented many of the initiatives did not take into account the varying needs of men and women and tended to overlook marginalised groups. Capacity needs assessments should be designed in a way that covers the contexts of different groups and leads to actions which address their specific requirements.



5.2 Opportunities

Increasing interest in AIS approaches. Findings from the stakeholder surveys in the regional reports showed that there is growing awareness of AIS approaches. This is reflected at the policy level, as discussed above, also among practitioners who recognise the benefits of multi-actor collaboration and are becoming more involved in these processes. This is starting to generate a momentum for change which should translate into more multi-actor initiatives which can be better supported by professionals with relevant experience. RREO can contribute to this process by sharing knowledge and good practice in strengthening technical and functional capacities for innovation through webinars and other mechanisms.

Emergence of new markets. As a greater proportion of smallholder farmers become more strongly oriented towards supplying produce for markets, hence the demand for innovation support services is growing. These services are increasingly being provided by the private sector, including agri-input suppliers, processors and buyers. The growth of third-party certification schemes also creates further scope for public and private sector organisations to work together to strengthen innovation capacity. RREO and other networks can assist these developments by facilitating collaboration and partnerships between the various innovation actors.

Growth of local innovation networks. Local innovation networks have been established through formal programmes and projects in many countries and these are showing positive outcomes. They offer a convenient space for different actors to share ideas and plan collaborative activities. This process benefits from strong facilitation and researchers and extension workers are playing key roles in this. Some of the networks continue to function independently after programme or project support is withdrawn. An example of this is the PRIICA initiative which operates in several countries in Central America.

New information and communication technologies. Information and communication technologies (ICTs) are starting to have a significant impact in connecting buyers with sellers in smallholder agriculture. They are also being increasingly used as a means of sharing information and knowledge in virtual spaces and this process has been accelerated by the COVID-19 pandemic. Reliance on ICTs can reinforce and widen inequalities between small-scale and more technologically advanced farming and this may make it difficult to ensure an inclusive process for capacity development. On the other hand, improved connectivity and falling costs are enhancing access of smallholder to ICTs. As mentioned above, RREO can make use of these technologies to engage with stakeholders in webinars and through other channels.

Learning from recent experience. As experiences are gained from implementing capacity strengthening initiatives, the lessons learned may be used to improve current and future programmes. For example, the testing of the Common Framework on Capacity Development for Agricultural Innovation Systems in eight countries has generated valuable insights into what



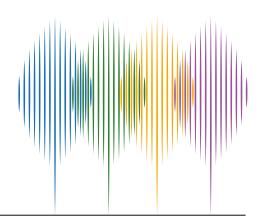


works in different contexts. It has also highlighted certain deficiencies in the Common Framework and in the way it was implemented. This learning is now informing revisions to the Common Framework and the improved approaches and tools will be shared on the global TAPipedia database and through initiatives such as the DeSIRA programme. The regional reports list other projects in which approaches and tools in the Common Framework can be integrated.

Digital training materials. Options may be explored for developing digital training materials on strengthening functional capacities to enhance agricultural innovation. This might be done by the RREO in collaboration with the FAO eLearning Academy or with the Global Confederation of Higher Education Associations for Agricultural and Life Sciences. An e-learning course on CD for AIS will be developed by the TAP-AIS project in 2021.

Monitoring, evaluation and learning (MEL). MEL systems in capacity strengthening initiatives are generally limited in scale and scope. This is partly due to the low priority attached to monitoring progress and learning lessons to inform future activities; and to the limited funding allocated for these purposes. It also reflects the absence of suitable guidelines for designing and implementing MEL systems. This has been recognised by agricultural research and extension communities and more attention is now being given to this. One example is the MEL system developed in CDAIS which includes tools for monitoring technical and functional capacities at three levels: individuals, organizations, and the enabling environment as well as deployment of outcome mapping in MEL. RREO can promote the use of such systems, making use of initiatives such as the IFAD-funded Last Mile project to share the approaches.

6



Conclusions

The three regional studies which were conducted using a rapid appraisal methodology revealed a large amount of useful information about the current status of capacity strengthening in support of agricultural innovation in the three regions. There was considerable variation between countries in the innovation environment which reflected differences in economic, political and socio-cultural dimensions. In some countries, a centralist, top-down approach to innovation exists and capacity strengthening initiatives are driven by the public sector with limited engagement from other actors. At the other end of the spectrum, innovation policies in some other countries, create space for multi-actor collaboration and new mechanisms for enhancing agricultural innovation have emerged. Even in this latter group of countries, traditional linear approaches to technology transfer have not been completely displaced and institutional reform sometimes lags behind policy change. Overall, there is a growing appreciation of the value of AIS approaches and this provides a foundation for further progress.

The studies revealed a clear need for the wider integration of functional capacities into innovation processes. There are relatively few capacity strengthening initiatives which provide substantial support for the development of functional capacities and many tend to be 'add-ons' to programmes which focus primarily on technical capacities. Integrating technical and functional capacities in a common approach is necessary but adequate attention needs to be given to both aspects. Functional capacities are not always well understood by innovation actors and it is



not always evident which capacities are most important in a given context. The approach taken in the Common Framework and in several other capacity strengthening initiatives has been to present functional capacities as a package, whereas what is often required, is to identify those capacities which are relevant in a particular situation. The Common Framework is currently being reviewed and this is an area where revisions are likely to be made. RREO have a key role to play in promoting the use of new approaches, methodologies and tools.

Expanding the support for strengthening functional capacities will require a cadre of people with relevant experience and skills to act as trainers and facilitators. Currently, there are few suitably qualified people in the countries covered in the studies, there is a lack of dedicated funding to support training and this is being done largely in specific projects. Training through projects is valuable but the limited resources do not enable enough people to participate and this is not sustainable in the long term. Curricula in universities and colleges have been slow to respond to emerging needs but there are examples of good practice, which can be replicated elsewhere. Good practice in curricula and teaching and learning approaches is found more in regular courses for students and less so for specialist training of trainers. RREO have a role to play in advocating for change in educational systems and in coordinating the development of training materials for facilitators, taking advantage of advances in eLearning which is becoming more interactive and can reach large numbers of people.

In most of the countries studied, there are examples of local innovation networks which are fostering the sharing of information and knowledge and facilitating collaboration between different actors. This is an encouraging development and there is evidence that some of the networks are continuing to operate after programme or project support is withdrawn. However, other networks rely on external funding and on the involvement of international organisations for coordination and management. New business models are needed to ensure local management and ownership of the networks. This is likely to involve a combination of public and private finances and contributions from members.

Annex

A typology of capacity strengthening interventions to support agricultural innovation

Background

In each region (Africa, Asia-Pacific and Latin America and the Caribbean), the RREO devised a typology to categorise the capacity strengthening initiatives they described, based on specific criteria. This provided a convenient framework for presenting different types of intervention and describing their key attributes. The criteria used to conceptualise the typologies differed between each region and in subsequent discussion among the regional team members it was agreed that it would be worthwhile to construct a standardised framework. The typology presented in this annex draws on the ideas developed by the RREO teams. The purpose of the typology is to guide decision makers, project and programme design and implementation teams and service providers to analyse and compare different capacity strengthening approaches and inform future planning.

Flements in the framework

A fuller description of the typology is in preparation (Chancellor *et al.*, forthcoming). The typology is developed around seven key elements identified from the regional studies carried out by Regional Research and Extension Organizations in Africa, Asia and Latin America. They include *purpose, strategy for implementation, actors and their roles, approaches and methods/tools, sources of funding, strategy for sustainability,* and *potential for scaling*.



A summary of the framework and its seven elements is presented below:

1. Purpose

This concerns the overall aims of a capacity strengthening initiative and the expected outcomes. The purpose reflects the context in which the initiative operates and how it arose. Each capacity strengthening initiative has its own drivers and these may come from specific stakeholder groups. For example, it may be associated with government policy to enhance agricultural productivity or with the requirements of agribusiness for regular and sustainable supplies of quality produce. In some cases, different drivers may converge and capacity strengthening initiatives will then address multiple objectives.

The purpose of the capacity strengthening initiative will define whose capacities need to be strengthened. It will also determine the scope and scale of interventions that are envisaged. Which components of the agricultural system should be targeted? For example, is the intention to focus on enhancing the efficiency of a specific value chain or is the aim to simultaneously strengthen the enabling environment so that the overall system becomes more effective? Does the initiative operate at a local, district or national level? To what extent does the initiative target individuals, organizations or the institutional and policy environment?

Based on an analysis of the information presented in the three regional reports and reported in the wider literature on agricultural innovation, capacity strengthening initiatives may have a range of broad objectives, directly or collectively linked to the purpose of the intervention, as outlined below.

Objectives of capacity strengthening initiatives to support agricultural innovation:

- Equip smallholder farmers, small agri-entrepreneurs and other innovation actors with the technical skills required to enhance agricultural productivity and improve the quality of their produce.
- Strengthen the capacities of smallholder farmers to develop business skills, enhance their bargaining power, and access to markets, inputs and services.
- Strengthen the capacities of relevant organisations and their staff to engage in and facilitate innovation processes such as multi-stakeholder collaboration in networks and innovation platforms through enhanced leadership skills, coaching, mentoring and other methods.
- Enhance the capacities of innovation actors to document and share good practices and facilitate learning and exchange for scaling up based on strengthened monitoring, evaluate and learning systems.
- Enhance the capacities of policy makers to engage innovation actors in policy dialogues, design and implement relevant, inclusive and evidence based innovation policies.
- Strengthen linkage among agricultural research organizations, smallholder producers, and service providers to improve research relevance and quality using demand driven participatory research approaches.
- Strengthen agricultural higher education institutions to empower youth with practical skills that would enable them to create and participate in innovative opportunities for agri-business and entrepreneurial activities.



2. Strategy for implementation

This concerns how to set up the initiative in order to achieve the objectives within the scope and scale defined by the purpose. Who needs to be consulted and how should a consultation be organised so that the views of all relevant actors are gathered? Is a programme or a project the most appropriate mechanism for addressing the purpose of the capacity strengthening initiative? Is it sufficient to incorporate a capacity strengthening component within a programme or project to contribute to enhanced innovation? Or should a specific programme or project be established to deliver the capacity strengthening support? Should capacity building for innovation be embedded in organizational strategies under regular institutional budgets? Are there other ways in which capacities for innovation can be enhanced? For example, by providing incentives to encourage organisations to invest in capacity strengthening or supporting the introduction of professional qualifications for individuals who carry out capacity strengthening.

3. Actors and their roles

This refers to the actors engaged in capacity strengthening and their respective roles. It relates to both the 'suppliers' and 'users' of capacity strengthening, both of whom should be identified and their roles in the process defined. This distinction is necessary, but there may sometimes be overlap between the two groups as co-learning among actors is likely to be an important ingredient in many initiatives. Do the resource persons who will be trainers, facilitators, coaches or mentors, have relevant qualifications, knowledge and experience for the tasks they have been assigned? What is their specific expertise? How are they identified as being the most suitable organisations and individuals for the task? Is there a pool of trainers, facilitators, coaches or mentors which has been built over a period of time to enhance local capacities?

4. Approaches and methods/tools

There is a wide range of approaches and methods which may be used to support capacity strengthening to enhance innovation processes such as coaching, mentoring, learning cycles and many others. Details of these approaches and methods are available on the TAPipedia website (https://tapipedia.org). Depending on the objectives, more than one method may be selected and the choice will be guided by considerations such as:

- a. **Available resources:** this may include funds and the presence of suitably qualified staff to support the chosen method(s);
- b. **Timeframe:** if, for example, the support has to be provided within a limited period of time, targeted training through a short course or workshop will be more appropriate than a method which relies on a series of learning cycles;
- c. **Reach:** to maximise the efficiency of the capacity strengthening, methods should be chosen which engage the largest number of users, whilst not compromising the quality of the support which is provided (different face-to-face and/or online methods should be considered);



- d. **Access:** the chosen method(s) should not disadvantage any group in terms of their ability to participate in, and benefit from, the capacity strengthening support. Points to consider include:
 - Geographical location: are some groups not considered due to the remoteness of their location?
 - Selection of participants: are there opportunities for equitable representation of men and women and of persons with differing social and economic status?
 - Physical or virtual methodologies: is access to support among different groups likely to be influenced by their ability to engage in face-to-face or virtual meetings?
 - Language: will the support be provided using a language in which all participants are competent?
- e. **Participatory quality:** to what extent do participants contribute to setting the agenda, sharing ideas and experiences, engaging in lesson learning and making recommendations for future capacity strengthening? Is suitable provision made for this or is the agenda defined in advance without consultation and the approach used purely directed? Have appropriate interactive learning and knowledge facilitation and management methods been considered? For example, training calendars are drawn after proper consultation and in a systematic manner rather than designed as a routine exercise without following requisite principles.

5. Sources of funding

The source of funding for capacity strengthening initiatives is of interest in the typology for several reasons. Does financial support come from national or local governments under formal policies or strategies and is it a one-off provision or one that involves recurrent expenditure? Where public funds are involved, accountability is especially important as value for money is a primary consideration. If funding is from the private sector does the agenda of the funder align with the vision of all the innovation actors and, if not, how can these differences be reconciled?

The source of funding may have an important bearing on the sustainability of capacity strengthening initiatives. Co-funding or matching funding models involving public and private finance may provide more scope for the continuation of initiatives. Also, the investment of resources by the users of support indicates that enhanced capacity is a priority for them and that they have a commitment to maintain this in the future.

6. Strategy for sustainability

Sustainability in this context refers to the sustaining of a capacity development process beyond the lifetime of the initiative, taking into account factors such as staff turnover. As discussed above, the potential for sustainability may be influenced by the nature and source of funding, as well as the extent to which innovation culture has already been built in different organizations. Does the capacity strengthening initiative require external resources to sustain the desired change once a specific programme or project has ended? If so, has provision been made for this and is there a realistic expectation that resources will be provided over the required timeframe?



Have the basic innovation prerequisites been established across innovation actor institutions, especially in public research, with an integrated and well-functioning innovation system?

The strategy for sustainability is not solely related to the availability of resources. It is associated with the way that a capacity strengthening initiative has been designed. Was this a top-down or a demand-led process and is the maintenance of the target capacities a key priority for the users in the future? Is the enabling environment sufficiently supportive to ensure an organizational culture and climate where organisations and individuals will continue to engage in capacity strengthening activities?

7. Potential for scaling

The design of a capacity strengthening initiative should take into account the specific needs of the users and the characteristics of the locations where it is being implemented. These will reflect socio-cultural, economic and agro-climatic aspects and this may affect the scope for applying a similar approach to other areas. Is the approach sufficiently flexible to allow it to be adapted for use elsewhere and what are the main factors which need to be taken into account to facilitate this?

Conclusions

The analysis of initiatives carried out by the RREO covered varied geographies, scales and social and cultural approaches to development, applied to capacity strengthening of agricultural innovation systems. The typology outlined here serves as a framework for analysis of the CD initiatives to enable comparisons to be made across the diversity of cases. This is the first attempt at developing such a typology, and it is hoped that it will prove useful for learning. It may be used in tandem with the descriptions in the TAPipedia of specific methods and tools for CD in agricultural innovation systems.



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