



# Integrated Agricultural Research for Development ...from concept to practice





# **Integrated Agricultural Research for Development ...from Concept to Practice**

Adekunle A Adewale, Fatunbi A Oluwole, Robin Buruchara  
and Sospeter Nyamwaro



**Forum for Agricultural Research in Africa**

12 Anmeda Street, Roman Ridge,

PMB CT 173, Accra, Ghana

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**Forum for Agricultural Research in Africa (FARA)**

12 Anmeda Street, Roman Ridge

PMB CT 173, Accra, Ghana

Tel: +233 302 772823 / 302 779421

Fax: +233 302 773676

Email: [info@fara-africa.org](mailto:info@fara-africa.org)

Website: [www.fara-africa.org](http://www.fara-africa.org)

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## Author contact list

<b>Authors names</b>	<b>Institutional affiliation and address</b>
Abenakyo A	International Food Policy Research Institute, Washington DC, USA.
Adekunle AA	FARA, 12 Anmeda Street, Roman Ridge, Accra, Ghana
Bahiga L	DIOBAS, Democratic Republic of Congo.
Bikuba G	PRONAPLUCAN Industries, Goma, Democratic Republic of Congo
Birachi E	CIAT Rwanda, PO Box 1269, Kigali, Rwanda
Buruchara R	CIAT Africa, National Agricultural Research Laboratories at Kawanda, PO Box 647, Kampala, Uganda
Chiuri W	CIAT Rwanda, PO Box 1269, Kigali, Rwanda
Farrow A	CIAT Rwanda, PO Box 1269, Kigali, Rwanda
Fatunbi AO	FARA, 12 Anmeda Street, Roman Ridge, Accra, Ghana
Fungo B	Makerere University, Department of Natural Resources, PO Box 7062, Kampala, Uganda
Kalibwani R	Kyambogo University, Department of Economics and Statistics, PO Box 1, Kyambogo, Uganda
Kamugisha R	World Agroforestry Centre (ICRAF), Uganda Office, PO Box 26416, Kampala, Uganda
Karume K	Goma Volcano Observatory, Geochemistry and Environment Department, Goma, Democratic Republic of Congo.
Kashajja NI	National Agricultural Research organization, Plot 3, Lugard , Avenue, Entebbe
Kuule M	National Agricultural Research organization, Plot 3, Lugard, Avenue, Entebbe
Lubanga L	INSTITUT NATIONAL POUR L'ETUDE ET LA RECHERCHE AGRONOMIQUES (INERA-DRC)
Majaliwa M	Makerere University, Department of Natural Resources, PO Box 7062, Kampala, Uganda
Mandefu P	Syndicat pour la Défense des Intérêts Paysans (SYDIP) Farmers Union, North Kivu, Democratic Republic of Congo
Mapatano S	DIOBAS, Democratic Republic of Congo.
Mgabe J M	FARA, 12 Anmeda Street, Roman Ridge, Accra, Ghana
Mugabo J	Institut des Sciences Agronomiques du Rwanda, PO Box 5016, Kigali, Rwanda
Murorunkwere F	Rwanda Agricultural Board, Kigali Rwanda.
Mutabazi S	Ministry of Agriculture, Uganda
Ndatira D	World Agroforestry Centre (ICRAF), Uganda Office, PO Box 26416, Kampala, Uganda
Ngaboyisonga CM	Rwanda Agricultural Board, P. O Box 5016 Kigali-Rwanda
Njeru R	Rwanda Agricultural Board, P. O Box 5016 Kigali-Rwanda
Njuki J	International Livestock Research Institute, Nairobi, Kenya.
Nkonya E	International Food Policy Research Institute, Washington DC, USA.
Nyamwaro SO	CIAT Africa, National Agricultural Research Laboratories at Kawanda, PO Box 647, Kampala, Uganda
Nyamurinda B	National University of Rwanda, Butare, Rwanda
Oduol J	Kenya Agricultural research Institute, Nairobi, Kenya.
Opondo C	World Agroforestry Centre (ICRAF), Uganda Office, PO Box 26416, Kampala, Uganda
Pali P	International Livestock Research Institute, Nairobi, Kenya.
Ramazine MA	DIOBAS, Democratic Republic of Congo.
Rao KPC	International center for Research in Semi Arid Tropics (ICRISAT), Nairobi
Tenywa MM	Makerere University, Soil Science Department, PO Box 7062, Kampala, Uganda
Tukahirwa JMB	World Agroforestry Centre (ICRAF), Uganda Office, PO Box 26416, Kampala, Uganda
Wimba B	DIOBAS, Democratic Republic of Congo.

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The Integrated Agricultural Research for Development (IAR4D) concept represents a paradigm change in the way agricultural research and development activities are carried out in Africa. The concepts build on other models conducting agricultural research and development. The concept has its main root in the innovation system approach; which is a multi-institutional, multi-stakeholder framework that has been successfully used in the industrial development era of the West. The biggest problem with the concept was how to practically use it agriculture considering the sector uniqueness and dissimilarity from the industrial sector. The Forum for Agricultural Research in Africa (FARA) developed the IAR4D concept as a way to implement the innovation systems approach for agricultural development, this concept was packaged as a project and presented to the Consultative Group in International Agricultural Research (CGIAR) for funding. The CGIAR council accept the project proposal for implementation as the Sub Saharan African Challenge Program (SSA CP) and requested that the first part of the project should aim conducting a proof of the IAR4D concept.

The SSA CP proof of concept was carried out using a rigorous research methodology and was implemented in eight countries of the sub Saharan Africa. The project work involved many agricultural research and non-research organizations, with the core implementation in three pilot learning sites. These include; (a) Western Africa (Kano-katsina- Maradi); (b). Southern Africa (Zimbabwe, Malawi and Mozambique) and (c). Eastern Africa (Uganda, Rwanda and Democratic Republic of Congo) around the Lake kivu regions. The debut knowledge on the practice of the IAR4D concept as documented in this book was largely drawn from the jointly developed framework which is consistently refined by FARA staff; and the implementation of the concept under the socio-economic and cultural conditions of the Lake Kivu pilot learning site.

The authors therefore wish to acknowledge the contribution of the following institutions to the development and implementation of the IAR4D concept. The contribution of the sub-regional organization viz., Conseil Ouest et Centre Africain pour la Recherche et le Développement Agricole / West and Central African Council for Agricultural Research (Senegal) (CORAF/ WECARD) and Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA), the Centre for Coordination of Agricultural Research and Development for Southern Africa (CCARDESA) is recognized in coordination of the pilot learning sites. The relentless contributions of the task force institutions viz., International Institute of Tropical Agriculture (Nigeria) (IITA); International Fertilizer Development Center (IFDC); Institut National

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Lastly the contribution of over 200 researchers and development practitioners that contributed to the SSA CP project is highly recognised. You will agree with me that the number is too high to be listed in this one pager.



## ..... Foreword .....

Transforming the subsistence farming practices into commercial enterprises through market integration is a prerequisite for improving income generation for the smallholder farmers in Sub-Saharan Africa. This integration could provide the needed levers for intensification of the farming systems, improvement of labor productivity and reduction of poverty in rural communities. The Forum for Agricultural Research in Africa (FARA) has played a significant role in catalyzing the necessary changes in agricultural research and development to improve the availability of food for the population and increased income for farmers while conserving the natural resource base in Sub-Saharan Africa. FARA is actively supporting market integration, policy development and competitiveness drive for the African smallholders.

This publication presents a synthesis of methods and lessons learnt in the implementation of the Integrated Agricultural Research for Development (IAR4D) concept within the Sub-Saharan Africa Challenge Program (SSA CP). It relates lessons learnt and impact gained from the program between 2005 to 2010. The SSA CP is the only Challenge program of the Consultative Group on International Agricultural Research (CGIAR) program that is targeted at a particular region and it represents an important partnership between the stakeholders in African Agriculture, represented by FARA, and the CGIAR. The IAR4D concept utilizes the principles of innovation systems approach to foster significant changes in agriculture through wholesome engagement of stakeholders in useful partnership, market integration and participatory innovation along technological, institutional and infrastructural realm.

The central concept for engineering change in the process of production, processing and marketing of agricultural products in this program is the IAR4D concept. The concept applies a new theory of change to the sector where participatory action research is used to tap into local, entrepreneurial, managerial and scientific knowledge in order to generate innovative solutions fitting the needs of highly heterogeneous and complex stakeholders group. Accordingly, IAR4D promotes changes in skills, mindsets and attitudes of stakeholders in view of improving performances and returns from investment in the production chain. Fair sharing of benefits and risks from the added value resulting from the improved production chain is adequately taken care of within the IAR4D framework as it admits a balance in contributions and rewards through a good value chain analysis and agreed business plan. The operational frame for the IAR4D concept is the Innovation Platform (IP). This is a physical or virtual platform that brings all concerned stakeholders together into an effective dialogue for problem diagnosis,

generation and implementation of solution for a change. The IP could have formal contractual arrangements for progress as it engages private-sector actors, policy makers, and others as part of the process. This will ensure a good combination of public investments and regulations with the innovative commitment of private stakeholders in a fair, inclusive and equitable manner.

This book provides the needed guidelines to put the IAR4D concept into motion by setting-up effective Innovation Platforms; it also illustrates the pathway for the functioning of the innovation platform and the achievements of the SSA CP project in the Lake Kivu Pilot learning sites.

Through this publication the FARA Secretariat provides an evidenced based guide for the application of IAR4D concept in order to foster progress for the African farmers, input dealers, agricultural service providers and market agents in agriculture.

**Dr 'Yemi Akinbamijo**  
Executive Director, FARA

## CHAPTER 1

# Integrated Agricultural Research for Development: An Introduction

Buruchara, R, A A Adekunle, A O Fatunbi, M M Tenywa, J Mugabo, W Chiuri,  
S O Nyamwaro, M Majaliwa, J M B Tukahirwa, R Kalibwani

### 1.1 Introduction

Agriculture has high potential for stimulating economic growth in Sub-Saharan Africa (SSA) (Pengali 2006, Delgado 1995). Currently, the sector provides livelihoods for over 80 percent of the population (Falkenmark and Rockström 2005, World Bank 2000) and accounts for 70 percent of employment, 40 percent of exports and 33 percent of the gross domestic product (World Bank 2003).

Despite this potential, agriculture is largely dominated by smallholder farmers practising subsistence farming and is largely undeveloped in several countries due to a range of technical,



institutional and infrastructural constraints. *Technical* constraints often affect agricultural productivity, such as developing high-yielding, disease-resistant and resilient varieties and breeds, controlling diseases and pests, and on-farm natural resources management, including soil, water and biodiversity. They can also limit the capacity for storage, processing and product development. *Institutional* constraints include inappropriate policies, ineffective markets, and constraints related to the underdevelopment of support services, such as input supply chains, extension services and research organisations. These issues also relate to governance and management rules and how these apply to both intra- and inter-organisational interaction. *Infrastructural* constraints include a lack of roads, markets and storage facilities, among others.

Over the past several years, promising steps have been made towards overcoming some of these hurdles by proponents of agricultural research for development. These players have largely come from inchoate national institutions at the country level and international institutions at the sub-region level. Recently, sub-regional research coordinating agencies have complemented the efforts of these two types of institutions. A good number of technologies have been developed for various commodities – some receiving international, regional and local awards. However, despite their high potential, many of these technologies have not spread beyond the areas where they were developed, resulting in what many term ‘islands of success’ across the region. Consequently, the number of poor and hungry people has continued to rise (Amoako 2003). About a third of SSA countries cannot produce adequate food to support at least half of their populations (World Bank 2009, World Bank 2004), and there is a great danger that the region will not achieve the target of 6 percent annual growth, agreed by African leaders as the rate needed to reverse the downward economic trend (NEPAD 2003).

Quick analysis of the outcomes of research in the recent past has shown that while significant attention has been showered on technical problems, the attention paid to both institutional and infrastructural problems has been either negligible or non-existent. This has led, through a gradual process, to the introduction of integrated agricultural research for development (IAR4D) as an approach that enables simultaneous work on all categories of agricultural problems through innovative partnerships. Various IAR4D-related concepts are explored in this chapter. Section 2 reviews past efforts to address the poor performance of the SSA agriculture sector, while section 3 examines some of the theoretical underpinnings of the IAR4D approach and section 4 draws some conclusions.

## **1.2 Efforts towards addressing the poor performance of the agriculture sector in SSA**

Since the 1950s, there have been several waves of enthusiasm for new approaches to address the aforementioned constraints. Socio-political conditions in SSA and changes in approaches to solving the global food problems have prompted donors, development partners and scientists to revise their assumptions about the mediocre performance of agricultural research and development in the region (Rhoades 1990). Various approaches have emerged ever since, as described below. Among others, these have included: farming systems research, farmer

participatory research and integrated natural resources management (INRM) (Norman and Matlon 2000, Schiere et al. 2000, Norman et al. 1994, Chambers and Conway 1992, Norman and Lightfoot 1992, Chambers et al. 1989).

**Farming systems research** was developed in response to the dismally low rate of adoption by resource-poor small farmers of the crop and livestock technologies developed in research stations. A systems perspective was needed for the identification, design, development and evaluation of improved technologies and for the creation of new types of partnerships between farmers and researchers. This approach requires greater involvement of farmers – and can lead to their empowerment. Also required were broader implementation strategies, including new forms of partnerships between the different developmental stakeholders and institutions, and a greater liberalisation of political structures and processes.

**Farmer participatory research** mainly emphasised production research, and was planned and carried out by and with the farmers on their own fields (Haverkort et al. 1988, Ashby 1987, Farrington and Martin 1987, Tan 1985, Harwood 1979). Although experimentation by farmers could not entirely replace conventional scientific research, a ‘synergistic relationship’ existed between the two types of research. This arrangement could benefit the small resource-poor farmer and also contribute to the scientific knowledge base.

Analysis of innovations in **natural resources management (NRM)** in Sub-Saharan Africa, show that most soil and water conservation approaches are supply- rather than demand-driven and largely use the linear ‘research–extension–farmer’ technology transfer model as opposed to the economic and institutional approach. But over time there has been an evolution in this approach to one referred to as ‘**integrated natural resources management**’ (INRM) where processes of adaptive management and innovations are increasingly stakeholder-driven (Thomas 2002). This is showing useful results. In 2006, Dormon showed that where farmers got higher prices, they were motivated to work together to collectively maintain the natural environment and reap the joint benefits. However, a key question revolves around the balance in terms of directing efforts towards the institutional vis-à-vis environmental dynamics.

One of the major weaknesses of the above approaches is that they fail to analyse the complex relationships among actors and innovation processes. This called for new approaches that went beyond the simple conventional linear research–extension–farm model, which was being used by many professionals (Hall 2007, Spielman 2005, Campbell et al. 2001, Edquist 2001, OTA 1988, Edquist 1997). These are described as follows:

- Rapid Appraisal of Agricultural Knowledge Systems (RAAKS) introduced a new perspective, providing a framework for soft analysis of the different perceptions and interrelationships among stakeholders. The approach advocated a redefinition of complex problems as ‘better’ problems (ie, more narrowly defined), as well as the identification of a common objective by all stakeholders. This constituted a significant change from the conventional approach.
- The sustainable livelihoods approach was championed by the United Kingdom (UK) Department for International Development (DFID), the United Nations Development Programme (UNDP) and international non-governmental organisations (NGOs). It stressed

the need to focus on the range of available assets (human, social, infrastructural, financial and physical assets such as land), and the risks and vulnerabilities that poor people are subjected to. The approach sought to build policy and institutional environments that would support the livelihoods of the poor without undermining the integrity of the natural resource base.

- The Agro-enterprise Development Approach (ADA), developed by the International Center for Tropical Agriculture (CIAT) and its development partners, added a market dimension to the sustainable livelihoods approach. By linking farmers to expanding markets, it placed fresh emphasis on the issues of social organisation and the policies affecting market access and trade opportunities. ADA identified markets, conducted analysis for improvement of marketing chains, and strengthened business support services.
- The advantage over the ADA of the Competitive Agricultural Systems and Enterprises (CASE) approach, developed by the International Fertilizer Development Center (IFDC) and its partner institutions, is the fact that it is grounded in experimental learning in addition to market development. The central principle behind this approach is that the competitive advantages of particular regions can be greatly increased through a threefold strategy: (a) focusing on well-targeted regional 'industry' clusters involved in particular commodity value chains; (b) strengthening technical, managerial and organisational capacities of the major stakeholders involved in the chain and in related business development services; and (c) facilitating efficient linkages among them.
- The Client-Oriented Research Management Approach (CORMA) was developed by L'Institut d'Economie Rurale in Mali and the Department for Research and Development of the Ministry of Agriculture and Food Security in Tanzania, in collaboration with the Royal Tropical Institute in the Netherlands. It recognised that participatory approaches practiced by agricultural research centres are often not institutionalised, and therefore fail to reach their objectives. A more comprehensive approach was required to achieve the organisational change needed to reorient research towards clients' needs.

### **1.3 The integrated agricultural research for development approach (IAR4D)**

The inability of research efforts to produce tangible developmental outcomes, especially in Africa, has been the concern of scientists, donors and policy makers in recent years. Naturally, this matter attracted the interest of the new Forum for Agricultural Research in Africa (FARA).

Shortly after its inauguration in 2002, FARA began an intensive consultation, drawing inputs from a wide range of scientists from research institutions across the world. As expected, this extensive process identified many potential constraints, three of which were most frequently given highest priority: failures of agricultural markets, inappropriate policies and natural resource degradation. But other issues were also prominent, including productivity, product development, nutrition and gender. FARA recognised that treating these issues in isolation was the main flaw of past approaches. A new paradigm was needed to address these issues as well as the aforementioned categories of constraints in a holistic and integrated manner.

FARA proposed integrated agricultural research for development (IAR4D) as a new, holistic way to tackle these problems. IAR4D aims to break from the conventional linear approach of agricultural research and development by engaging multi-stakeholder actors, principally from along the commodity value chains. IAR4D is an evolving concept, aiming to foster synergies among disciplines and institutions to renew commitment to change at all levels, from farmers to national and international policy makers.

Consequently, the Sub-Saharan Challenge Programme (SSA CP), coordinated by FARA, has adopted the IAR4D paradigm. The programme's mission is to add value to, and enhance the impact of, on-going agricultural research for development in SSA. The SSA CP aims to provide examples of how processes for systemic innovation can be organised among researchers, practitioners, policy actors, market chain actors and rural communities. This is done in a way that demonstrates how the new technologies, strategies, techniques and policies can be useful, affordable and accessible to end users, and can have positive impacts on their livelihoods. The goal of IAR4D is to improve rural livelihoods and increase food security and sustainable natural resource management throughout SSA. The SSA CP is meant to foster synergies among disciplines and institutions, coupled with a renewed commitment to change at all levels.

### **1.3.1 What is IAR4D?**

IAR4D is an innovation-based approach involving many stakeholders and partnerships. It is a continually evolving approach that relies on on-going interactions among actors to identify, analyse and prioritise problems, and find and implement solutions using feedback, reflection and lesson-learning mechanisms from different processes. This requires drawing on knowledge from relevant actors at each stage. IAR4D creates a network that considers technical, social and institutional constraints, in an environment that facilitates learning. Its ultimate aim is to generate innovative solutions rather than mere research products or technologies. IAR4D involves complex mechanisms that may require fundamental changes in the broader policy and institutional framework.

The approach largely builds on the experiences of previous approaches, including integrated soil fertility management (ISFM) and integrated natural resource management (INRM), and encompasses market and policy domains (von Kaufmann 2007). IAR4D is an action research approach that integrates the technological, natural resource management policy and institutional components, for various actors. The goal is to find innovative commercial, social and institutional solutions to agricultural development challenges in the face of changing market and policy conditions (Hall and Yoganand 2004, Monty 2004). Its strength lies in its ability to capture policy and market factors, in addition to fostering systemic linkages among actors under diverse contexts. Therefore, these actors can have a stake in the process of generating, disseminating and using knowledge for socio-economic impact.

Although as an iterative process IAR4D resists precise definition, there have been attempts to encapsulate the concept. As summarised by Hawkins et al. (2009b), 'IAR4D comprises a set of individual and organisational behaviours that promote the integration of stakeholder concerns,

knowledge, actions and learning around a theme of mutual interest'. On the other hand, FARA (2007) describes IAR4D as an action research approach for investigating and facilitating the organisation of groups of stakeholders (including researchers) to innovate more effectively in response to changing complex agricultural and NRM contexts for improved developmental outcomes.

In general terms, IAR4D is seen as a broad set of processes that, through their interactions, lead to the generation and use of knowledge (Hawkins et al. 2009b). The following features apply:

- IAR4D is evolving and brings together a number of trends and ideas.
- IAR4D is about change and innovation as an outcome, not just about information, knowledge or technology as a product. It precisely aims at the use of information, knowledge, technology and inventions to generate socio-economic benefits.
- IAR4D places research as one of the components contributing to the development process, rather than as its only pivotal point.
- IAR4D focuses on processes and performance rather than on products (technologies, policies); to put it another way, improved processes lead to the ultimate product, termed innovation.

To achieve the desired outcomes, the conceptualisation and practice of IAR4D needs to go beyond methods to include changes in personal skills, mindsets and attitudes, organisational practices and culture, and the ways in which organisations interact as part of the wider 'innovation system'.

### 1.3.2 Some IAR4D principles and concepts

The IAR4D approach is based on the following four defining principles that are described in more detail elsewhere (Hawkins et al. 2009b).

- a. IAR4D integrates the perspectives, knowledge and actions of different stakeholders around a common theme or 'entry point'.** The theme represents a research and development challenge, identified by one or more stakeholders. In identifying the challenge, the stakeholders recognise that a broader working alliance is needed to achieve the desired development impact. The interests and actions of the different stakeholders are diverse, ranging from information and technology to business, politics, policy, finance, organisation and management. It is also assumed that there are existing or potential links among these interests. This principle is supported by the theories of positivism and constructivism, as well as by experiences from indigenous knowledge and farmer innovations, participation and participatory research, stakeholder analysis, agricultural knowledge and information systems, and innovation systems (Hawkins et al. 2009b).
- b. IAR4D integrates the learning that stakeholders gain from working together.** Given that all stakeholders in an innovation system have relevant knowledge based on their roles, this knowledge is potentially available among the stakeholders through interactive learning and joint actions. In addition to being a concerted *action* process, IAR4D is also seen as



a mutual and interactive *learning* process, with stakeholders learning from each other and from their joint experience. For this social and experiential learning to be effective, it requires a conscious and interactive process of planning, action and reflection, monitoring and evaluation, and subsequent re-planning. Reflection is particularly crucial; participating stakeholders become engaged in analysing the outcomes of their own behaviour and the processes in which they are involved.

This 'learning cycle' is fundamental to the IAR4D approach and focuses primarily on the processes of stakeholder interaction themselves, rather than on the specific solutions to research and development challenges. Learning takes place at individual, organisational and institutional levels. At the *individual* level, participants become aware of how their own personalities, attitudes and mindsets may affect their interaction with others. At the *organisational* level, group members of organisations collectively learn how their administrative and management practices and incentive structures, etc., affect or limit the interactions between individuals within the organisation and between the organisation and other stakeholders. At the *institutional* level, individuals and organisations collectively learn how they can interact to facilitate innovation. Here individuals and organisations learn how to collectively create an enabling environment that encourages interactions, and how to share information and manage knowledge across networks. As well, local systems learn from other local systems (eg, through national learning platforms), and national innovation systems learn through international platforms. The theory of adult and experiential learning as well as experiences with knowledge management, action research, farmer field schools, learning cycles and learning alliances all support this concept.

- c. **IAR4D integrates analysis, action and change across the different dimensions of development (eg, environmental, socio-economic).** This principle is premised on the general and current concepts of sustainable development and multi-functional agriculture that require the interlinked dimensions of such development. These interlinked dimensions include economic growth (linking farmers to markets), conservation of natural resources (soil fertility, biodiversity and limited carbon dioxide production), social inclusion and equity (pro-poor development) and food security. Integrating analysis, action and change across the different dimensions will ensure that IAR4D achieves impact in terms of poverty and pro-poor development. The theory of rural livelihoods as well as experiences with INRM, value chains, social equity and gender frameworks, inter-disciplinary research and development, and agricultural development goals all give support to this principle.
- d. **IAR4D integrates analysis, action and change at different levels of spatial, economic and social organisation.** This concept follows the notion of an agricultural innovation systems perspective that implies that research is not the only driver of development, as was implied in the 'national agricultural research system' perspective, or that it even has the central role, as was still implied in the wider 'agricultural knowledge and information system' perspective. Agricultural innovation is an emergent property of the broader 'innovation system'. The agricultural innovation systems perspective sees research as only one of the sub-processes of a framework that encompasses the value chain and the knowledge and information system, as well as policies and institutions that determine the

interactions between the components. To be effective at promoting innovations, IAR4D therefore needs to promote change and enhance learning throughout the innovation system, at all levels of organisation. These include spatial (field, farm and watershed), economic (product, firm, value chains and business clusters) and social (individual, group, community, organisations and innovation systems) levels. The systems theory and experiences with farming systems research and client-oriented approaches, as well as with integrated rural development, scaling up and out, agriculture sector policies and strategies, and new institutional economics, have all informed this concept.

Over and above these principles, Hawkins et al. (2009a) argue that IAR4D requires a set of individual, organisational and institutional capacities that enables the principles to be put into practice.

At an *individual level*, competencies need strengthening in meta-disciplines (systems thinking, knowledge management, strategic planning, knowing how to learn, effective writing, and use of information and communications technology), in social skills (communication, teamwork, networking and facilitation) and in mindsets (empathy, self-awareness, self-regulation, self-motivation and social awareness).

At an *organisational level*, structures and processes need to provide the performance and incentives systems that encourage inter-disciplinary teamwork, partnerships with other stakeholders, an emphasis on mutual learning, and effective knowledge management that, combined, work to promote change. Also needed are approaches to impact assessment that go beyond economic returns to include and encourage a broader view of human development.

At an *institutional or system-wide level*, capacity needs to be developed to allow different stakeholders (individuals and organisations, from the public and private sectors) to come together on a level playing field. Currently, there is often an institutional vacuum in this regard, although innovation intermediaries and competitive-funding committees can convene and articulate stakeholders to fill this vacuum. Finding an appropriate way to manage and finance inter-institutional space and the needed intermediaries is crucial, as is ensuring the neutrality of these intermediaries. It is also vital to build trust between the intermediaries and the different stakeholders, as well as among the stakeholders themselves.

The IAR4D principles imply that it requires a new way of doing research and development. The IAR4D systems approach involves four dimensions: (a) intensification of subsistence-oriented smallholder farming systems; (b) prudent management of natural resources while intensifying their use; (c) development of more efficient markets; and (d) creation of enabling policies. To foster the integration of these dimensions, IAR4D requires additional supportive mechanisms or pillars: (i) promotion of organisational and institutional changes to enable cross-disciplinary research and development and multi-institutional collaborations; (ii) capacity building for project teams, farmers and scientists; (iii) information and knowledge management; and (iv) continuous monitoring and evaluation and a systemic approach to impact assessment.

### 1.3.3 Implementing IAR4D: the case of the Lake Kivu Pilot Learning Site

In an effort to test the IAR4D approach, the SSA CP identified three pilot learning sites, including the Lake Kivu Pilot Learning Site (LKPLS), where Africa-wide IAR4D experiments would be implemented.

The LKPLS is located astride the boundaries of north-western Rwanda, the Kivu region of the Democratic Republic of Congo (DRC), and south-western Uganda – around the famous Virunga chain of volcanic mountains. The site covers roughly 20,000 km<sup>2</sup>, comprising the administrative districts of Kabale, Kisoro, Ntungamo and Rukungiri in Uganda; all or parts of the provinces of Byumba, Gisenyi, Gitarama, Kibuye, and Ruhengeri in Rwanda; and the territories of Goma, Rutshuru, Masisi and Minova in eastern DRC.

Physically, the terrain of the LKPLS is dominated by hills and valleys, with most slope gradients ranging between 12 percent and 50 percent, but some as great as 80 percent. Its climate provides for two cropping seasons each year, with bi-modal rainfall distribution; the long rains occur from mid-February through early June, while the short rains occur from mid-September to mid-December. The average annual rainfall in the entire region ranges from 800mm to 2000mm. Most soils of the pilot learning site are volcanic Andosols, except in some parts in Uganda north of Kisoro and south and east of Ruhengeri, where deeply weathered, lateritic Ferralsols occur. Andosols are relatively fertile and can support intensive farming in the absence of fertiliser inputs; however, they are very susceptible to soil erosion. The Ferralsols are considerably lower in potassium and other cation bases (Pali et al., 2009).

Each of the countries in the LKPLS has a unique historical background and operates under a different policy and institutional framework. For example, Uganda has not seen active armed conflict for over 21 years. Policies have been revised but are lacking rigorous enforcement to make them work for the poor. DRC is still regarded as being in active conflict and having policies that have not been revised for decades, if they ever existed. The centralised governance system in Kinshasa has very poor linkages with the provinces. Rwanda has been out of active armed conflict for nearly 16 years, and it has revised many policies to meet the development challenges the country faced after the 1994 genocide.

The institutional and policy environment for agricultural research and development must change in order to provide an enabling environment for IAR4D to take off. This also means that the IAR4D concept needs to be prominent on the agenda of ongoing debates on agricultural development issues within the policy, academic and operational communities.

### 1.3.4 How IAR4D was implemented at the Lake Kivu Pilot Learning Site

At the LKPLS, implementation of IAR4D occurred in phases. The first phase was the *inception* phase, during which all of the institutional structures and the governance framework were put in place. The task forces were identified, the expected outcomes spelt out and the pilot sites identified. This was followed by the *research* phase, based on a randomised study designed to prove the effectiveness of the concept of IAR4D.

During the inception phase, a validation team was formed to identify critical entry points for cutting-edge research, with a focus on new opportunities and how the site would respond to development challenges. The team was also tasked with: (i) validating the hypotheses proposed by the FARA Secretariat in terms of their relevance to the pilot learning sites, refining them where necessary and suggesting additional hypotheses; (ii) examining capacities within the pilot learning sites to determine how different stakeholder groups could be involved; and (iii) preparing a logical framework with an impact pathway that shows how to integrate the four pillars of the SSA CP – namely, poverty alleviation, food security, environmental sustainability and wealth creation.

The validation team found critical entry points for the LKPLS in low productivity, low input use, failed markets, limited access to agricultural credits, lack of (or limited) policy implementation, widespread natural resource degradation and limited adoption of improved natural resource management technologies and methods (FARA 2005). A call for proposals was sent out and three proposals were selected. These addressed the identified developmental challenges and had potential to stimulate the generation of the greatest returns with regards to land, water, labour, capital and tropical livestock units, increased diversification of agricultural and other natural-resource-based enterprises, improved quality of differentiated products including environmental services, and increased market information, market access, and competitiveness for agricultural inputs and outputs. The three projects were integrated into one programme to improve efficiency and provide for a multi-stakeholder and multi-disciplinary environment in which the targeted long- and short-term development impacts could be delivered.

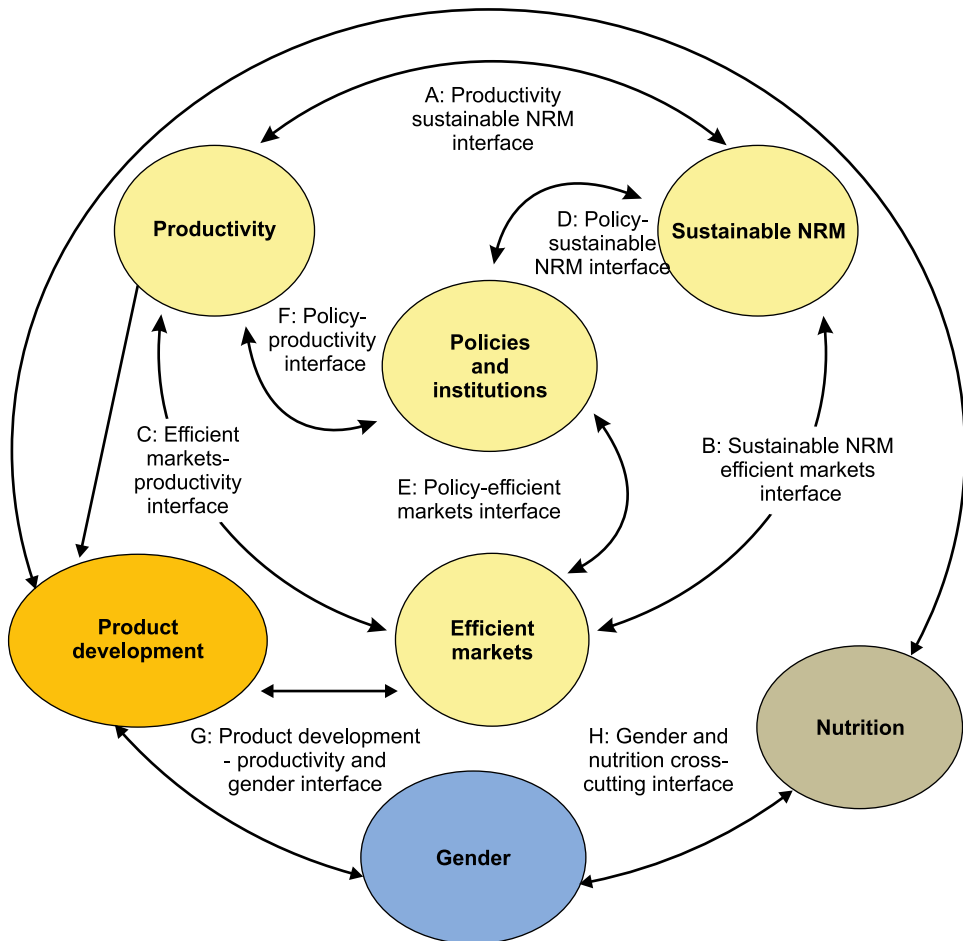
The CGIAR Science Council review of the programme, however, recommended that evidence be provided to show that the IAR4D approach is better than conventional approaches (CGIAR Science Council 2005). This required changes to the stated issues and questions, the research design, activities, work plans and budgets. It also implied a need for a joint implementation approach. The integrated programme was then centred on research and facilitation to prove the IAR4D concept, addressing the three research questions posed by the Science Council:

- Does the IAR4D concept work and can it generate and deliver international and regional public goods for the end users?
- Does IAR4D deliver more benefits to end users than conventional approaches? (ie, assuming that the conventional research and development [R&D] and extension approach had access to the same resources)
- How sustainable and usable is the IAR4D approach outside the test environment? (ie, can it be scaled out for broader impact?)

Some of the research activities undertaken were tailored along traditional lines and included innovative research on the interfaces between and among IAR4D's four components: (i) technologies for improving productivity; (ii) sound natural resource management; (iii) accessibility and efficiency of markets for smallholder and pastoral products; and (iv) formulation and adoption of policies and institutional arrangements that foster innovation to improve livelihoods of smallholder farmers (see Figure 1.1).

To actualise the IAR4D, innovation platforms were initiated across the LKPLS. An innovation platform is a physical or virtual forum that brings together different stakeholders along the value chain of a commodity of interest and/or a system of production. These stakeholders include: individual farmers, farmer organisations and/or rural communities; researchers; non-governmental organisations (NGOs); extension departments; the private sector; and policy makers. The groups should have a common entry point or theme and serve as a forum through which all stakeholders identify issues and/or opportunities, develop joint action plans, share roles, responsibilities and resources, exchange information, track the progress of action plan implementation, and monitor the processes and outcomes of their interactions. A more comprehensive description of an innovation platform has been reported recently (Adekunle et al. 2010, Adekunle and Fatunbi 2012). Twelve innovation platforms (four per country) were

**Figure 1.1: Interactions and linkages between markets, sustainable natural resource management, productivity, product development, nutrition, gender and supportive policies**



formed and are operational in the LKPLS. The use of innovation platforms in IAR4D brings on board various stakeholders, technologies and coordination procedures to generate innovative solutions to community challenges (Pali et al. 2009).

## 1.4 Conclusion

This book presents the process of how the IAR4D concept was translated into practice, and highlights the results to date. The concept of IAR4D has been discussed in this introductory chapter. The next six chapters examine the use of IAR4D practices in the Lake Kivu Pilot Learning Site (LKPLS). Strategies for setting up innovation platforms are described in chapter 2. Chapter 3 summarises innovation platform (IP) operations. Chapter 4 provides the story of institutionalisation and sustainability of innovation platforms, while policy and institutional frameworks in the LKPLS are presented in chapter 5. Chapter 6 gives selected success stories in the LKPLS, and finally, chapter 7 describes some operations and lessons learnt.

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## CHAPTER 2

# Strategies for Setting up Innovation Platforms in the Lake Kivu Pilot Learning Site

Tenywa M M, A Farrow, R Buruchara, J M B Tukahirwa, J Mugabe, K P C Rao, C Wanjiku, S O Nyamwaro, N I Kashaija, M Majaliwa, S Mapatano, J Mugabo, C M Ngaboyisonga, M A Ramazine, S Mutabazi, B Fungo, P Pali, J Njuki, A Abenakyo, C Opondo, E Nkonya, R Njeru, L Lubanga, B Wimba, F Murorunkwere, M Kuule, P Mandefu, R Kamugisha, AO Fatunbi, AA Adekunle

### 2.1 Introduction

The emergence of integrated agricultural research for development (IAR4D) presents an opportunity to address development problems. IAR4D involves innovative principles and an integrated research agenda, while recognising the need for greater organisational capacities among stakeholders in agriculture. Actualising IAR4D revolves around the successful



establishment of innovation platforms (IPs), as mentioned in chapter 1. These are being implemented in the Lake Kivu Pilot Learning Site (LKPLS) of the Sub-Saharan Africa Challenge Programme (SSA CP) to address agricultural development challenges. This chapter presents the stages and experiences of establishing IPs in the LKPLS.

IPs can serve as multi-level and multi-stakeholder forums, allowing participants to identify, understand and address complex challenges and concomitant emerging issues. This mutual learning process can mobilise members to achieve an agreed vision. IP formation is a dynamic and highly context-specific process that incorporates all of the essential ingredients for successful innovation. It recognises the value of indigenous technical knowledge (ITK) and capitalises on prevailing policies and institutional settings, while involving local leadership.

The evolution and timing of IP formation depends on the particular conceptual and local context, specifically the quality of facilitation and the socio-economic, cultural, biophysical, and political environments in which common challenges and/or opportunities are identified, as well as on the capacity of stakeholders to grasp the innovation systems approach, described below. Creating win-win situations with market-led interventions accelerates the process of IP formation. Strong leadership, strategic and operational partnerships, two-way information flows, and dealing with recurrent challenges are all critical to fostering innovation. Some of the major challenges experienced during the IP formation processes included the daunting task of building capacity among stakeholders and dealing with the persistent ‘handout syndrome’ – a phenomenon where communities (especially those coming out of conflict, which have been receiving food aid) expect to subsist on what is received as aid instead of working to produce food and generate income.

## **2.2 Contextual environment**

Innovation platforms were formed in the LKPLS with the understanding that African agriculture is still uncompetitive, mainly due to low adoption of essential technologies for increased productivity (IAC 2004). This low uptake is a result of several factors: inappropriateness of many technologies for the biophysical and socio-economic conditions of smallholder farming; high cost; weak linkages among farmers, extension agents, access to credit and markets; poorly implemented policies; poor infrastructure; and unfair competition from open market operations (Kirsten et al. 2009). The net result of these constraints is the continued practice of subsistence agriculture, which is characterised by minimal inputs and low productivity. This leaves farmers unable to tap the potential of the region for creating wealth through agriculture. As a result, the vast majority of end users remain vulnerable to poverty, food insecurity, environmental shocks and malnourishment – culminating in ill health and a low life expectancy (OECD–FAO 2006, Thorpe et al. 2004).

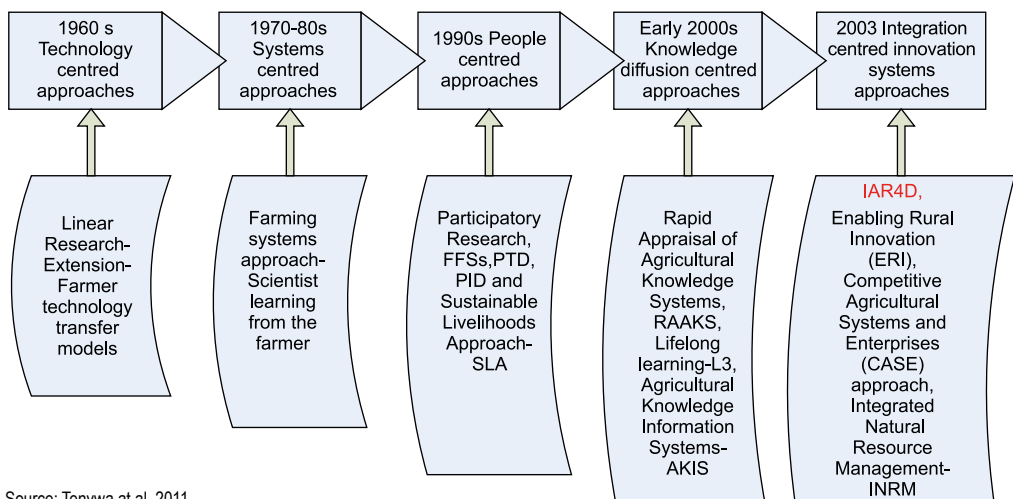
Past agricultural research and development (ARD) efforts have failed to respond to these challenges. This is primarily because interventions are not tailored to address the particular problems of highly heterogeneous complex traditional smallholder farming systems, or because they fail to give due consideration to local knowledge and local biophysical and socio-economic

constraints and opportunities. Proponents of ARD focus on the one-way flow of knowledge from researchers to farmers; there are no mechanisms for nurturing the innovative capacity of multi-stakeholders along the value chains, or to allow markets to address the recurrent production and environmental risks inherent in complex farming systems (see Figure 2.1). The current approach to agricultural research is often described as sectoral and fragmented, with little or no involvement of relevant stakeholders. Strengthening linkages among ARD actors is key to improving the efficiency and effectiveness of efforts to raise the economic performance of rural communities (Hall et al. 2006). This requires technology generation that takes into consideration the opportunities and constraints associated with input and output markets. An enabling policy environment is also critical. What is needed is a true paradigm shift from the supply-based ARD approaches to a more demand-driven approach (Figure 2.1).

The innovation systems approach (ISA) has emerged as a promising alternative framework to guide ARD work in Africa (Akullo et al. 2009, Hawkins et al. 2009, OECD 2005). It entails systemic analyses to support organisational learning and change at strategic and operational levels. It focuses on institutional change and systemic innovation processes, and how they contribute to economic growth and sustainable development (Lundvall 2006, Edquist 1997, Foray 2000). The functional aspect of ISA is the integrated agricultural research for development (IAR4D) approach, described in chapter 1.

Recognising the potential of the IAR4D approach for Africa, the Forum for Agricultural Research in Africa (FARA) developed, funded and implemented the Sub-Saharan Africa Challenge Programme (SSA CP). The programme sought to prove the IAR4D concept in three widely differing agro-ecologies in Sub-Saharan Africa (SSA), in three regions: West Africa, Eastern and

**Figure 2.1: Reforms in the agricultural research and development approaches**



Source: Tenywa et al. 2011

Central Africa, and Southern Africa. The aim was to assess the usefulness of IAR4D in generating international and regional public goods, as well as technologies that are better adapted to the needs of end users (FARA 2008).

The LKPLS, described in chapter 1, is the pilot learning site for the Eastern and Central Africa region, involving three countries: Uganda, the Democratic Republic of Congo (DRC) and Rwanda. While the three countries share a uniformly mountainous terrain in the study region, their socio-economic and political environments differ significantly. For example, while the DRC is just beginning to emerge from political conflicts, Rwanda has been at relative peace for over 16 years, and Uganda for 21 years. These contrasting situations have proven that implementing IAR4D cannot follow a one-size-fits-all approach. What has been lacking are clear steps on how to identify and involve different stakeholders in problem-solving exercises as stepping stones to IAR4D.

Spielman (2006) emphasised the need to make ISA operational in order to foster innovation capacity in a systematic way. Note that a major component of the IAR4D concept – and that which differentiates it from other approaches – is the establishment of IPs. IPs are useful tools for building social capital, widely increasing stakeholders' knowledge and strengthening their capacity to mitigate the diverse risks associated with complex farming systems. As such, they aim to circumvent obstacles to better livelihoods by stimulating multi-stakeholder innovation processes, rather than relying on chance learning. Like the IAR4D approach, IPs engender clear stages of formation, including how to identify and involve different kinds of stakeholders in constructive problem-solving strategies and action plans. The next section of this chapter describes the phases and stages of formation of IPs in the Lake Kivu Pilot Learning Site (LKPLS), which is one of the three pilot learning sites in Africa, the other two being in the Kano-Katsina-Maradi areas of Nigeria and Niger (West Africa region) and in the Mozambique-Malawi-Zimbabwe corridor (Southern Africa region).

## **2.3 Innovation platform formation processes**

In the LKPLS, IPs were formed around chosen value chains (eg, sorghum, potatoes) selected in a participatory process based on perceived importance by the stakeholders. The selection of sites was dependent on a number of factors, including a range of biophysical characteristics, the network density of development agencies (high or low), soil and water conservation requirements, and the (in)accessibility to markets from a given location. Therefore, a total of 12 IPs were formed in the LKPLS, four in each of the three participating countries (Uganda, DRC and Rwanda). The institutional arrangements of each IP differ depending on the factors surrounding its formation.

The formation and operationalisation of IPs in the LKPLS was carried out through a multi-phased participatory action learning approach. This involved a combination of iterative, participative, reflective and integrative desk modelling and field activities, elaborated in three phases: (a) pre-formation, (b) formation, and (c) post-formation. This chapter describes the

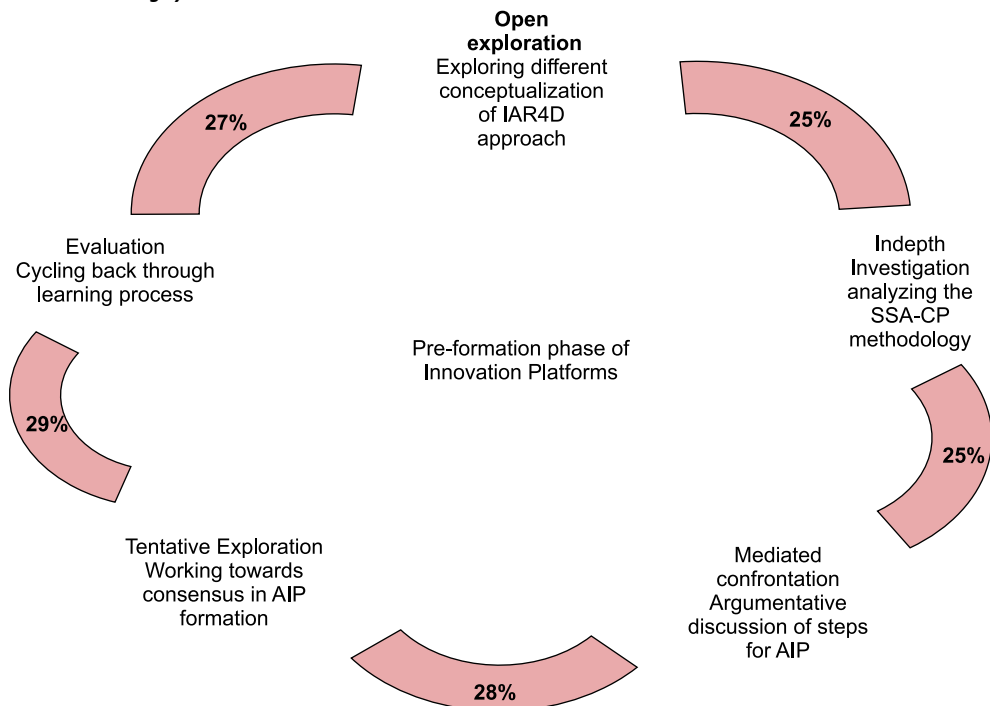
pre-formation and formation phases. While it is beyond the scope of this chapter to detail the operational processes conducted in each of the 12 IPs in the LKPLS, we refer to them when necessary.

### 2.3.1 Pre-formation phase

The pre-formation phase was carried out in five stages, adapted from the Network for Agriculture, Forestry, Aquaculture, and the Environment (AFANet) research learning cycle (see Figure 2.2). These stages include:

1. open exploration of different concepts of the IAR4D approach (see Table 2.1)
2. in-depth investigation and analysis of the SSA CP research and development methodology (FARA 2008)
3. mediated confrontation, engaging in argumentative discussions of IP formation processes (LKPLS annual report 2008/09, FARA no date)
4. tentative exploration, working towards consensus in IP formation
5. evaluation, cycling back through the IP formation learning process and preparing for practical implementation in the field.

**Figure 2.2: Adaptation of the Network for Agriculture, Forestry, Aquaculture and the Environment (AFANet) research learning cycle.**



Source: Bawden and Wals 2000, Wals and Bawden 2000

**Table 2.1. Different conceptualisations of the IAR4D approach**

Phase	SSA CP methodology	Discipleship approach	ICRA	COL-L3
1	Preparing to organise for innovation	Relationships (creating rapport)	Planning	Analysis of stakeholder needs, identification of partners
2	Innovation action	Teaching and mentorship	Acting	Social mobilisation for action
3	Testing the comparative advantage of IAR4D	Self-examination	Reflection	Participatory M&E

Notes: ICRA = International Centre for Development-oriented Research in Agriculture; COL-L3 = Commonwealth of Learning – Lifelong Learning; M&E = monitoring and evaluation.

Source: Tenywa et al. 2011

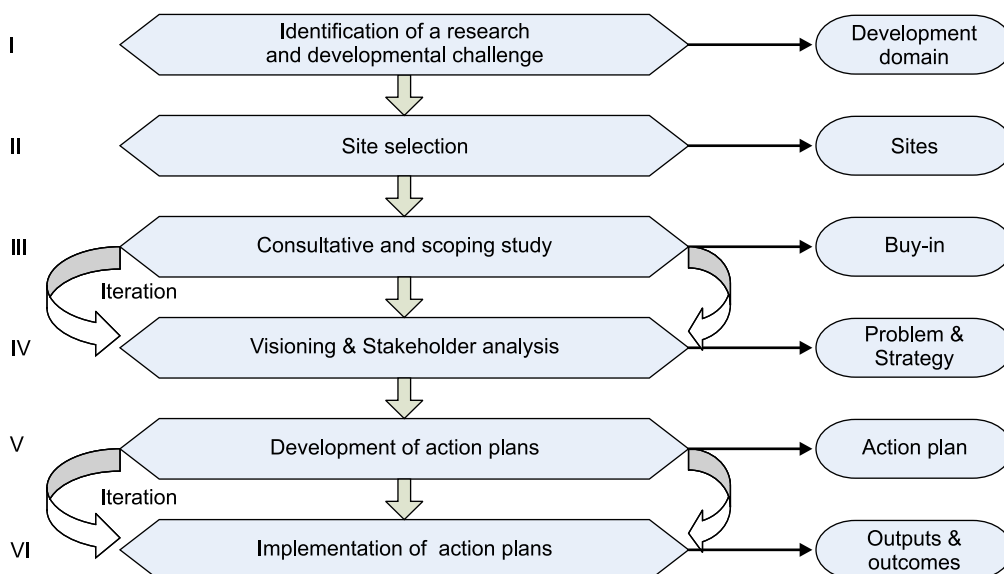
### 2.3.2 Formation phase

The formation phase was divided into six iterative stages:

1. identification of research and developmental challenges
2. site selection
3. consultative and scoping study
4. visioning and stakeholder analysis
5. development of action plans
6. implementation of the action plans.

Only the first four stages are discussed in this chapter; the last two are described in chapter 3. All six stages are represented in Figure 2.3.

**Figure 2.3: Stages of innovation platform formation**



## **Stage 1: Identification of research and developmental challenges**

Identifying challenges required an understanding of the research and development constraints affecting the productivity and profitability of a region. Detailed information about this was obtained from literature reviews, secondary data, key informant interviews, focus group discussions, case studies, market chain analysis, institutional capacity assessments, spatial analyses and expert information. In addition, the LKPLS relied greatly on information acquired from a validation study (Mateete et al. 2005) in which five challenges had been identified: producing more food at the lowest cost; diversifying agro-enterprises for wealth creation among the poor; improving markets; sustaining agricultural and natural resources; and refocusing on policies, institutional capacity development and organisational change.

## **Stage 2: Site selection**

The agricultural production functions of each IP are based in a particular territory, which for the purposes of the SSA CP are named 'sites'.<sup>1</sup> Site selection was thus a very important stage in the IP formation processes, and was driven by project-specific criteria. Selection could be straightforward, such as in cases where the aim of the project was to alleviate the impacts of a certain biophysical constraint (eg, poor soil fertility) in a given area. However, in situations that sought to capitalise on existing and/or emerging market opportunities, site selection entailed analyses of socio-economic conditions, as well as the biophysical conditions and, of course, the willingness of the local communities to participate.

In the LKPLS, the criteria and methods used in the selection of IP sites differed somewhat from those described by Farrow et al. (2009). The LKPLS selection process required the development of an understanding of the biophysical characteristics, accessibility to markets, and main crop enterprises of a range of potential sites (see Figure 2.4). General steps included: establishing a census of political units; defining low and high market access; modelling of market access; identifying candidate sites; developing a diagnostic tool for site selection; appraising candidate sites; and finally selecting the most appropriate sites.

Next, we outline the methodology used for site selection in the LKPLS, highlighting the implications of the SSA CP research design. Some important characteristics of the LKPLS and the stratification of candidate sites are also reviewed. Across the three pilot learning sites, a consensus emerged that each site should be located within a local governmental unit. Local government units offer potential for dialogue with local policy makers; they also ensure positive spill-over effects, entailing utilisation of the experiences gained for up-scaling to other areas outside the study site during the project implementation phase.

## **Sites as part of the SSA CP research design**

The sites where IPs were established had a governance structure at multiple levels (regional, national, district and local/sub-county). At the regional level in the LKPLS, three task forces –

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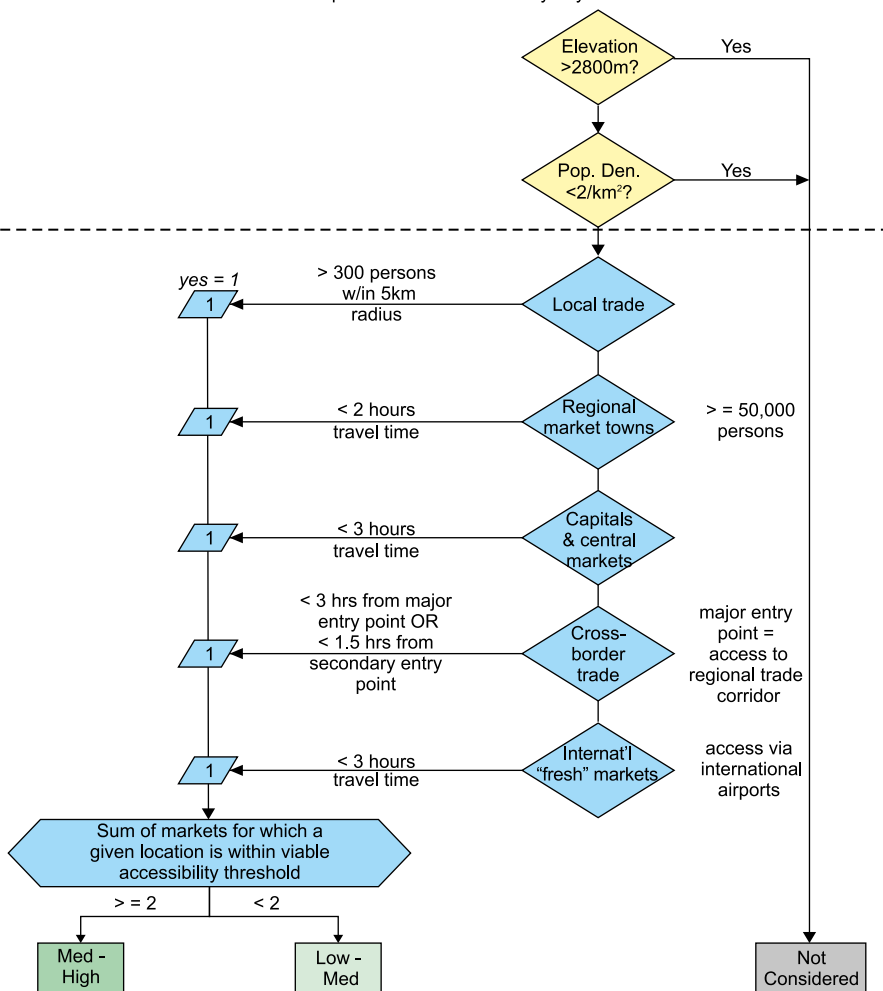
1. These IP sites are different from the pilot learning sites.



Landscape Context

Development Domains:  
Generation of Composite Market Accessibility Layer

Physical access to market opportunities



See accompanying notes for detailed description of datasets used and rules applied

Source: Farrow et al. 2009

**Figure 2.4: Development of criteria based on initial site conditions: relief and population for multi-scales (local, regional, cross-site, international)**

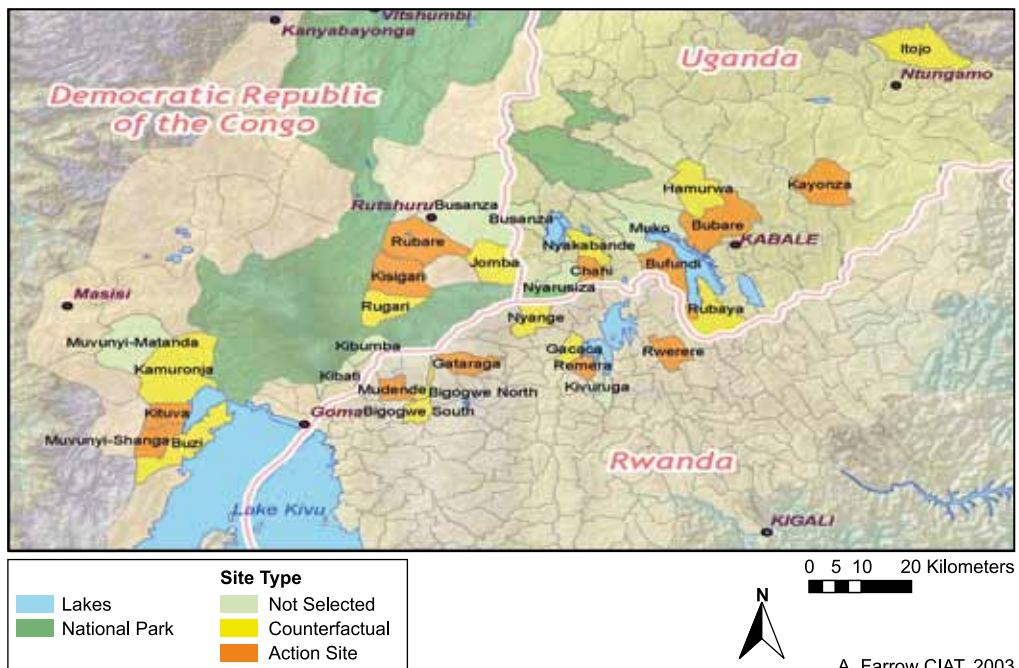
consisting of partner scientists from CGIAR centres and NARS (national agricultural research systems), local government and the private sector – were working closely on the interactions between agricultural productivity, natural resource sustainability, markets and policy themes. The interactions between these themes implied that the task forces worked in common sites and potentially with common partners. At the same time, the research design asserted that each of the three task forces in the LKPLS worked with four IPs, giving a total of 12 IPs in each pilot learning site. However, because of the challenges the mountainous terrain posed for

communication among the IPs, it was decided that more than one IP would be formed in each site. Each IP was considered unique, and the problems and entry points (eg, poor soil fertility) were likely to be different for each task force, even though they would have some partners in common. Therefore, the number of sites was increased one year after the start of project implementation to ensure that 12 IPs were established in 12 distinct action sites (Figure 2.5). Initially seven sites had been selected, then five more were added the following year to meet the requirement for the statistical degree of freedom (FARA 2008). These additional sites were selected based on market opportunities (eg, value addition to sorghum and potatoes to target new market niches) that could lead to significant improvements in the income of smallholder farmers in the LKPLS.

The SSA CP research design also required the identification of counterfactual sites for each action site to act as control sites. These sites should be as similar as possible to the action sites with respect to agro-ecology, farming systems, market linkages, culture and demography. Therefore, in each country four sites were chosen: two action sites where a full compliment of IAR4D was used and two counterfactual sites that were left under the conventional extension system (Figure 2.5).

Given the limited number of districts (3<sup>rd</sup>-level administrative units) within the LKPLS administrative structure, it was difficult to find suitable counterfactuals at that level. The most appropriate size for a site was thus found to be the 4<sup>th</sup>-level administrative unit, which is a sub-county in Uganda, a *secteur* in Rwanda and a *groupement* in DRC.

Figure 2.5: Map showing action sites and counterfactual sites in the LKPLS



Although the SSA CP research design anticipated that action and counterfactual sites would be randomly selected from a full census of the potential sites within the LKPLS, certain issues necessitated a deviation from this research design in the LKPLS, including policy issues, market access and agro-ecological considerations. Major differences in policies warranted investigation in the three countries, which were at different post-conflict stages, variably reflecting the degree of stability and economic activities that influence access to capital (social, human, financial, physical and natural resources). This implied a first level of stratification to ensure that the same number of IPs was formed in each country. A further stratification was made based on access to a diverse set of markets: candidate sites were grouped as having either good or poor market access. A final level of stratification was required to ensure that candidate sites were characterised by the same agro-ecology, as well to exclude some areas deemed extremely remote, or unsafe, especially in DRC.

From the resulting lists of sites a random selection was made for field visits and site characterisation, as well as for needs diagnosis and village identification. It was clear that even after the three levels of stratification the sites were far from homogeneous, with different marketing capacities, agricultural productivity rates and NRM issues. For this reason, action and counterfactual sites were deliberately paired to ensure that they belonged to the same population. Differences in levels of agricultural research for development (ARD) were also identified. In the end, action sites and counterfactual sites were assigned on the basis of having enough villages of the 'clean' and conventional ARD to provide satisfactory control for the 'IAR4D proof of concept'.

As a result of these specific considerations, the complete process of site selection in the LKPLS required seven steps: (a) census of the sub-counties, *secteurs* and *groupements*; (b) definition of low and high market access; (c) modelling of market access; (d) random selection of candidate sites; (e) development of diagnostic tools for site selection; (f) appraisal of candidate sites; and (g) final selection of the sites.

### **Characterisation of the LKPLS**

Much information regarding the characteristics of the LKPLS can be found in the report about the original choice of pilot learning sites (Thornton et al. 2006) and the LKPLS validation report (Mateete et al. 2005). It was felt, however, that the characteristics ought to be revisited and the quantitative approach of the validation report combined with the qualitative assessment of the stakeholders. Consequently, in a partner workshop held in Kigali in October 2007, the members of the three task forces listed criteria that could affect productivity, environmental sustainability and the success of agricultural enterprises. The criteria identified for the site characterisation and variability assessment consisted of: project partners that directly received funds from FARA, farmer organisations and networks; access to markets; rainfall; population density; infrastructure (roads, hospitals and schools); production systems; sources of income; terrain; soils; food security situation; settlement patterns; gender issues; conflict resolution; and land tenure systems. The most important criteria considered for site selection were those that exhibited large variation within the LKPLS, but which were relatively homogeneous within a sub-county, *secteur* or *groupement*, to ensure that the design maintains scientific validity.

One critical research question was the degree to which the biophysical and socio-economic conditions at the sites affected their engagement with markets, the enhancement of productivity and the investment in NRM. According to López (1992), if institutional factors (eg, access to market, policy) dominate environmental dynamics, new institutions that invest and protect the land emerge, and consequently livelihoods of farmers improve. However, if a technology-supply-driven approach is used farmers are usually reluctant to adopt new technologies. Market access was a key hypothesis for many of the interventions that were being planned for the LKPLS (FARA 2008); therefore, it was considered a key variable in the stratification of sites.

The LKPLS was then stratified into sites with good (diverse) market access and those with poor (limited) market access. Selection ensured that each country would have one site with good market access and another with poor market access; counterfactuals were also selected for each of these sites.

### **Choice of markets**

In choosing markets, the LKPLS followed the methodology developed by the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA 2005) for a regional perspective on access to multiple markets. The spatial distribution of access to markets was based on models rather than observations but was augmented with expert opinion. Four types of markets were chosen: regional markets; cross-border markets or transit points (including minor and major cross-border transit points); national markets; and local markets. All partner institutions were requested to identify markets of each type.

### **Characterisation and selection of candidate sites**

The purpose of the characterisation of the candidate sites was to be able to choose sites that would allow the investigation of the efficacy of the IAR4D principles and compare their results with conventional agricultural research and development (ARD) approaches. The action sites and counterfactual sites were stratified according to market access, with one action site having good market access and another with poor market access. This was repeated for the counterfactual sites.

Action sites were chosen from the list of candidate sites according to the level of ARD between 2003 and 2008. All villages in each site were classified into two types: (a) 'clean' villages that had neither IAR4D nor conventional projects in the last 2–5 years; and (b) conventional villages that had projects identifying, promoting and disseminating technologies in the past 2–5 years. Sites with the most clean villages were chosen as action sites, while sites with a mixture of clean and conventional villages were chosen as counterfactuals.

### **Diagnostic tool**

Final site selection relied on local leaders from the candidate sites and at the next-higher administrative level (district and *territoire*). Participants completed a semi-structured questionnaire as part of a focus group discussion, and the results were compared using

triangulation methods. There were greater differences in the ARD activities between sites than between the three countries. It was also evident that in DRC the counterfactual sites had fewer interventions than the action sites. Differences between poor and good market areas were also not particularly large, but there were fewer interventions and stakeholders in the poor market access areas in all three countries.

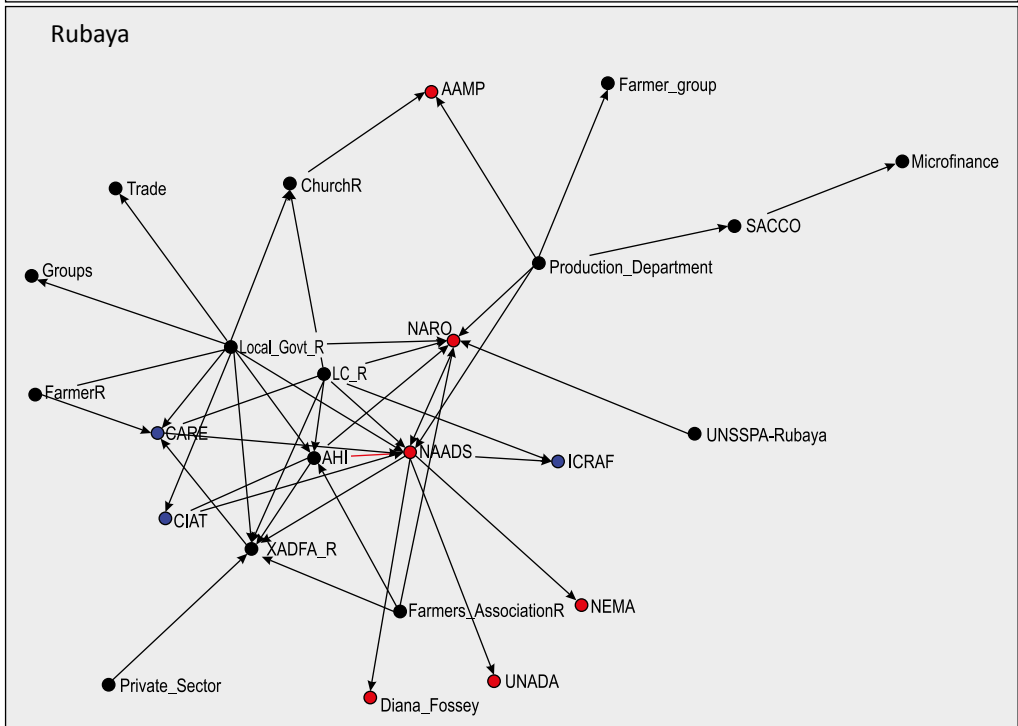
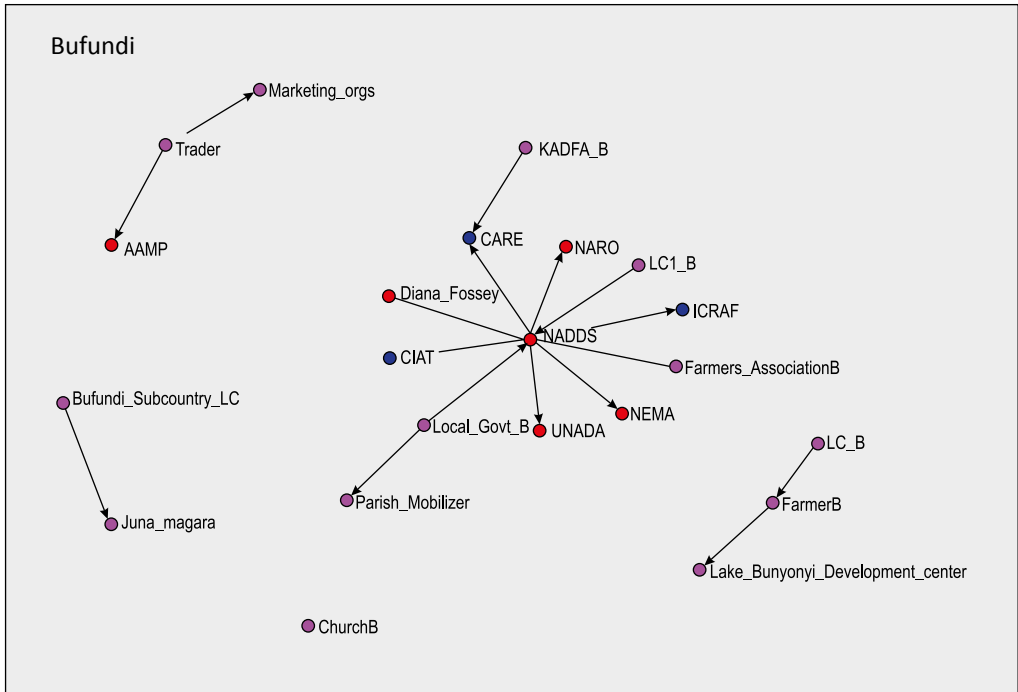
As presented in Figure 2.6, the choice of action sites aimed to demonstrate the value of bringing together multi-stakeholders to address complex challenges. For example, the Bufundi-Kabale district and Chahi-Kisoro district in Uganda had a low network density of development agencies compared to the counterfactual sites of Rubaya-Kabale and Nyakabande-Kisoro, which had high network density. In the action sites, more work was required to bring the relevant stakeholders on board to address existing or emerging challenges, compared with counterfactual sites. The choice of the three countries, namely Rwanda, DRC and Uganda (Figure 2.7) also presented an opportunity to address agricultural development problems under diverse socio-economic, political, cultural and environmental circumstances. The social network density of the three LKPLS countries was highest in Uganda, moderate in Rwanda and lowest in DRC, reflecting the post-conflict status of each country (about 24, 16 and 2 years respectively). Also, the ease with which relevant stakeholders were brought together to address these challenges corresponded to the length of the respective post-conflict periods.

### **Stage 3: Consultative and scoping study**

The stage for consultations and scoping involved mobilising and building interest among stakeholders including policy makers, farmers, opinion leaders and research and development (R&D) partners at the district level. Key to this process is getting buy-in by local leaders, something which was optional in past approaches. One leader remarked that ‘our involvement can make the initiative live or die’. This approach facilitated collaboration, networking and mobilisation of social capital and talent for knowledge-sharing among the stakeholders. For instance, farmers and other stakeholders (including extension workers, local leaders, private sector) met with researchers to better understand the nature of R&D activities as well as biophysical, socio-economic, technological, policy and institutional arrangements. Situation analysis was also undertaken to capture current knowledge, attitudes and practices of stakeholders; as part of the IAR4D approach, this helped explain the region’s ‘islands of success’ and past failed approaches. Table 2.2 and Figure 2.8 outline the key stakeholder groups in addressing problems related to agriculture and rural livelihoods.

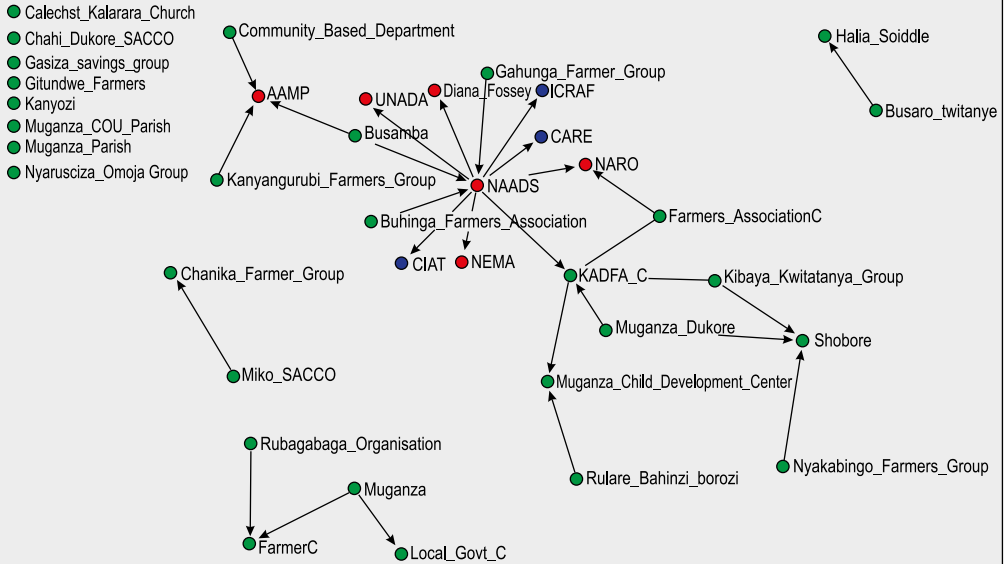
### **Stage 4: Visioning and stakeholder analysis**

A key incentive for many actors was being part of an effort to achieve a dream. It helped unleash fresh energy when the going got tough. The visioning process was either researcher-led or market-led. For the first generation (seven) IPs, the researcher-led processes were used. These involved inviting stakeholders to talk about the agricultural problems facing them and the potential roles they could play in resolving them. The market-led processes were used for

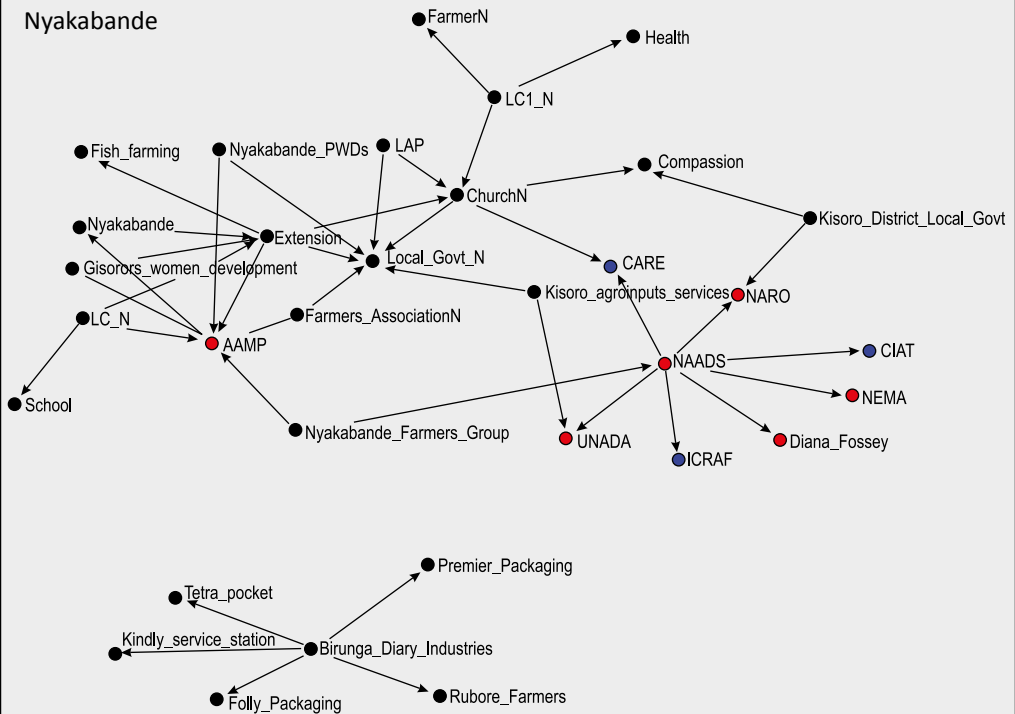


**Figure 2.6: Social network map of two action sites (Bufundi and Chahi) versus counterfactual sites (Rubaya and Nyakabande) in Uganda**

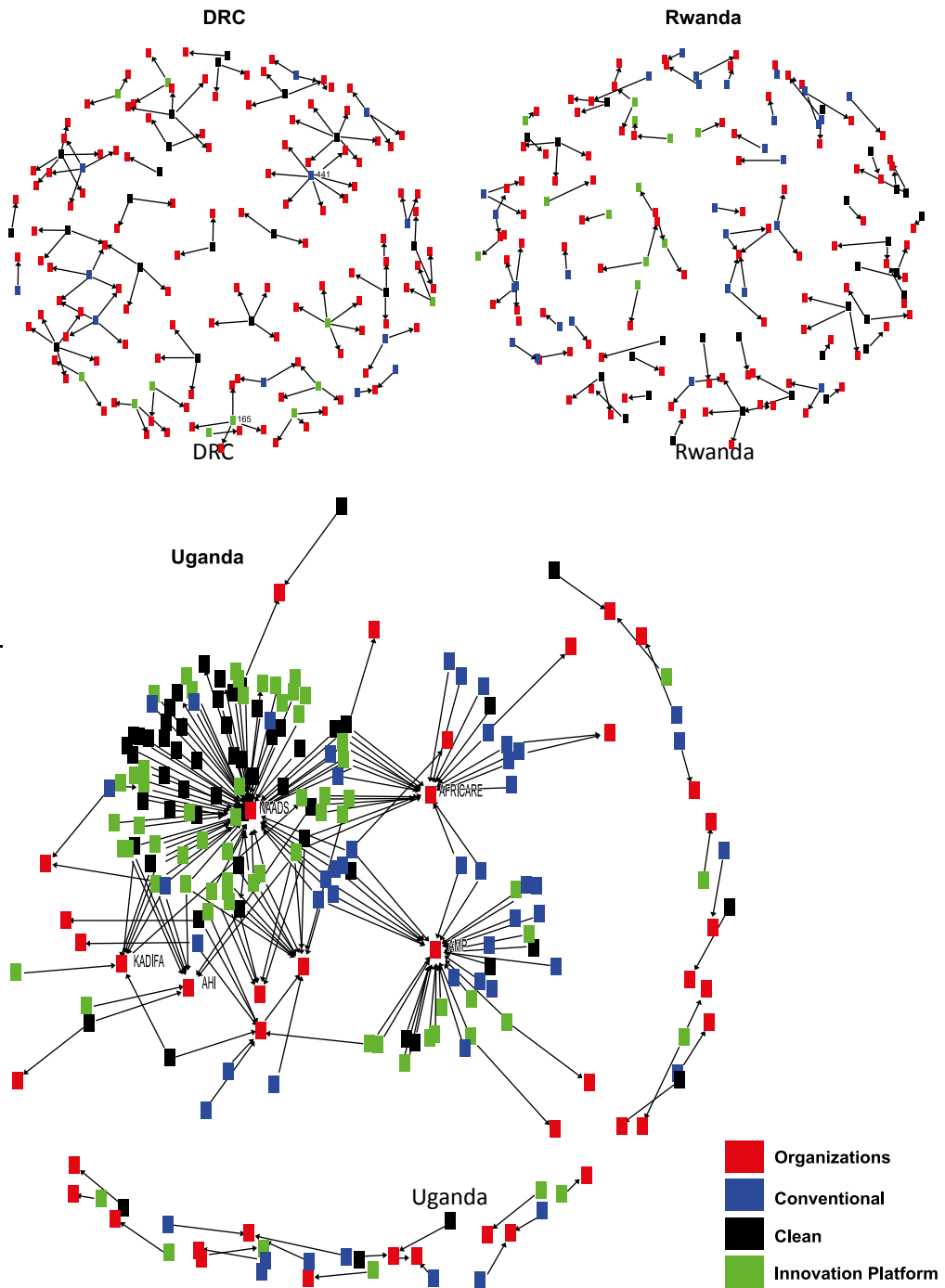
## Chahi



## Nyakabande



Source: LKPLS annual report 2008/09, FARA



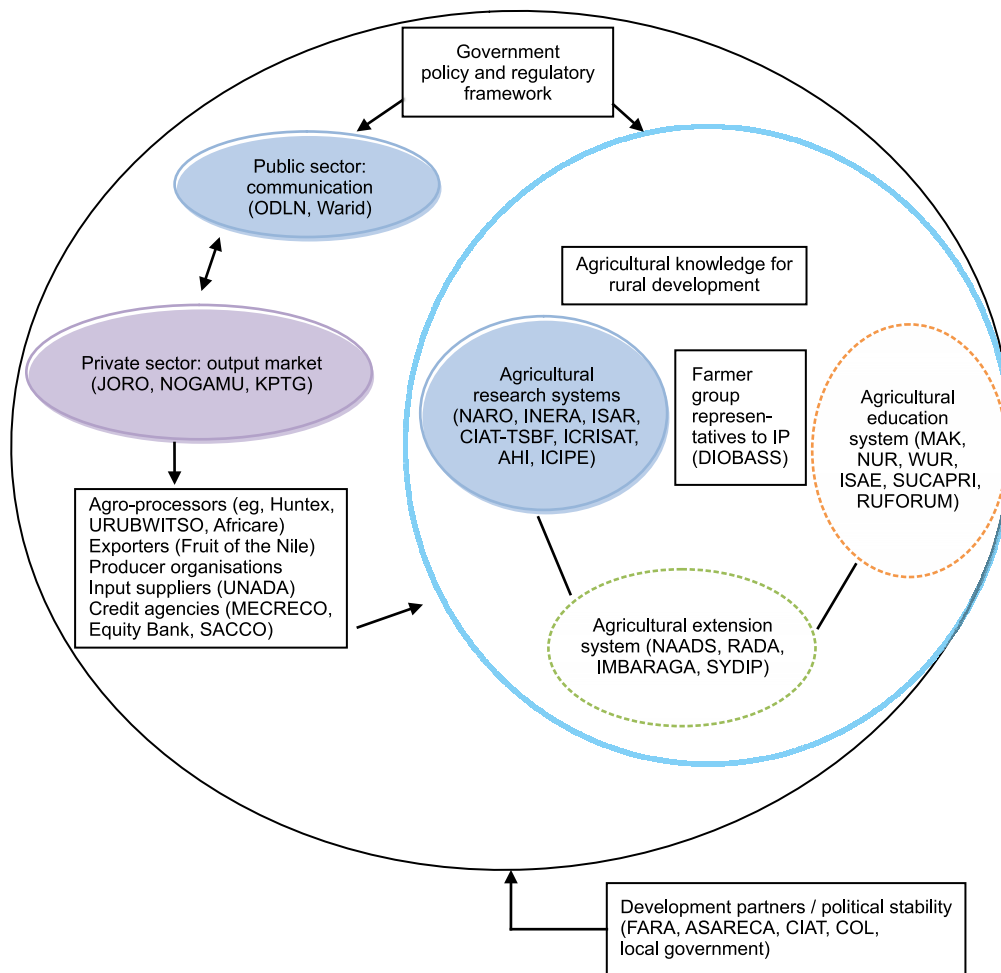
Source: Bonabana-Wabbi et al. 2010

**Figure 2.7: Social network analysis maps in DRC, Rwanda and Uganda**



**Table 2.2. Stakeholder groups and their potential contributions to agriculture and rural livelihoods**

Category of stakeholders	Potential contribution
1. Farmers (men, women and youth)	<ul style="list-style-type: none"> <li>• Identify problems</li> <li>• Indigenous technical knowledge (ITK)</li> <li>• Develop solutions</li> <li>• Test and evaluate solutions</li> <li>• Adopt the solutions</li> </ul>
2. Input suppliers <ul style="list-style-type: none"> <li>• Stockists (seeds, fertilisers, pesticides, herbicides, veterinary drugs)</li> <li>• Manufacturers and dealers (farm tractors and implements)</li> <li>• Crop/livestock boards</li> <li>• Cooperative societies</li> <li>• Other agri-business enterprises</li> </ul>	<ul style="list-style-type: none"> <li>• Timely delivery of quality and affordable inputs/information</li> <li>• Commercialise the supply of inputs/tools that support agricultural risk management</li> <li>• Package hardware and software (eg, after-sale service)</li> <li>• Participate in prospecting and promotion of appropriate inputs</li> </ul>
3. Output handling and market support agents <ul style="list-style-type: none"> <li>• Crop and livestock traders</li> <li>• Agro-processors</li> <li>• Transporters</li> <li>• Other agri-business players</li> </ul>	<ul style="list-style-type: none"> <li>• Provide strategic market/system linkages to support producers</li> <li>• Guarantee systems/contract farming systems</li> <li>• Develop strategies that improve shelf-life of agricultural products</li> <li>• Develop strategies that improve the quality of products</li> </ul>
4. Financial institutions (especially those providing savings, credit and insurance services)	<ul style="list-style-type: none"> <li>• Develop financial products/services that support interventions</li> </ul>
5. Extension agents (from local and national governments, NGOs and other farmers' support organisations)	<ul style="list-style-type: none"> <li>• Provide information on identification, development and implementation of projects</li> <li>• Support communication and promotion of end products</li> </ul>
6. Research institutions	<ul style="list-style-type: none"> <li>• Critical problem analysis</li> <li>• Provide solutions to problems</li> <li>• Conduct new research where necessary</li> </ul>
7. Policy makers	<ul style="list-style-type: none"> <li>• Mobilise the farmers</li> <li>• Support formulation of appropriate policies</li> </ul>



**Figure 2.8: Example of a Ugandan innovation platform (IP) structure, with key stakeholder organisations**

**Legend:**

AHI: African Highland Initiative  
 ASARECA: Association for Strengthening Agriculture Research in Eastern and Central Africa  
 CIAT: International Center for Tropical Agriculture  
 COL: Commonwealth of Learning  
 DIOBASS: Plate-Forme DIOBASS au Kivu  
 FARA: Forum for Agricultural Research in Africa  
 ICIPE: International Centre for Insect Physiology and Ecology  
 ICRISAT: International Crop Research Institute for Semi Arid Tropics  
 IMBARAGA: Rwanda National Farmers Union of the Northern Rwanda  
 INERA: Institut National pour l'Etude et la Recherche Agronomique  
 ISAE: Institute of Agriculture and Animal Husbandry  
 ISAR: Institut des Sciences Agronomiques du Rwanda  
 JORO: JORO Merchandise Distributors Ltd  
 KPTG: Kampala Potato Traders Group

MAK: Makerere University  
 MECRECO: Mutuelle d'Epargne et de Crédit au Congo  
 NAADS: National Agricultural Advisory Services  
 NARO: National Agricultural Research Organization  
 ODLN: Open Distance Learning Network  
 NOGAMU: National Organic Movement of Uganda  
 NUR: National University of Rwanda  
 RADA: ??  
 RUFORUM: Regional University Forum  
 SACCO: Saving and Credit Cooperative Societies  
 SUCAPRI: Strengthening University Capacity for Promoting Rural Innovations  
 SYDIP: Syndicat de Défense des Intérêts Paysans  
 URUBWITSO: ??  
 UNADA: Uganda National Agro-Input Dealers  
 WUR: Wageningen University and Research

the second generation (five) IPs. They involved introducing market opportunities to the target communities and organising stakeholders to learn to tap them. In both approaches, visioning included: defining the desired expectations; developing an inventory of NRM–market–technology–policy interface constraints and their rankings; and identifying IAR4D-derived ways of overcoming those constraints.

During the visioning phase, stakeholder analysis was also conducted to determine the skills, weaknesses, strengths and opportunities of different stakeholders. Then, potential roles were identified for them in addressing the constraints and harnessing opportunities. In addition, the rationale for establishing IPs, including their functions; their principles and guidelines; critical analysis of challenges; capacity building; facilitation; teamwork/collective action and framework; and planning, monitoring and evaluation were all articulated in the context of the SSA CP.

Further, through an iterative process, stakeholders internalised the process of forming IPs. Our experience shows that the market-led approach to formation of IPs created quick win-win scenarios that unleashed an innovative capacity, compared with IPs where the members were allowed to deliberate on their problems in relation to their vision. This is because in the market-led approach, stakeholders could easily identify the immediate benefits of being an IP member. Table 2.3 summarises the resources required for the various processes of IP formation.

Following the processes described above, much effort and resources were expended to eventually establish the 12 IPs in the LKPLS. For every IP initiation, a scoping exercise was conducted on-site to identify potential meeting participants and to obtain more information on agricultural practices and livelihoods in general. In addition, key NGOs and cooperatives –

**Table 2.3. Resources required for the various processes of innovation platform (IP) formation**

Resources	Process
<b>IP initiation meetings</b>	<ul style="list-style-type: none"> <li>• Conduct a stakeholder interaction survey.</li> <li>• Build awareness at the local administration level.</li> </ul>
<ul style="list-style-type: none"> <li>• Time resources for the different stakeholders to meet</li> </ul>	
<ul style="list-style-type: none"> <li>• Financial resources</li> </ul>	<ul style="list-style-type: none"> <li>• Identify different stakeholders and their potential roles in the IP.</li> </ul>
<ul style="list-style-type: none"> <li>• Expertise of the different stakeholder categories</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure adequate financial resources to finance the meetings.</li> </ul>
<ul style="list-style-type: none"> <li>• An issue to deliberate about</li> </ul>	<ul style="list-style-type: none"> <li>• Arrange and implement an IP meeting for the buy-in of the local community.</li> </ul>
	<ul style="list-style-type: none"> <li>• For a researcher-led IP process, allow the IP to deliberate issues on its own and to make a decision to reject or accept.</li> <li>• For market-led process, sell the market opportunity upon which the IP can be organised (eg, USD200,000 per month worth of market demand for organic pineapple).</li> </ul>
	<ul style="list-style-type: none"> <li>• If stakeholders reject the researcher-led process, initiate the market-led process to get buy-in.</li> </ul>
M&E to track the IP formation process	<ul style="list-style-type: none"> <li>• Prepare and plan meetings between stakeholders prior to and after the meetings.</li> </ul>

**Table 2.4. Twelve established innovation platforms (IPs) in the LKPLS by country and entry enterprises**

Action sites by country and district	IP name	Entry enterprise
<b>Uganda</b>		
Kabale	Bufundi	Potatoes/beans
Kisoro	Chahi	Potatoes/bean
Kabale	Bubare	Sorghum
Ntungamo	Ntungamo	Organic pineapples
<b>Rwanda</b>		
Burera	Remera	Snap beans, beans, maize and passion fruits
Musanze	Gataraga	Potatoes
Rubavu	Mudende	Milk
Burera	Rwerere	Chilli peppers
<b>Democratic Republic of Congo</b>		
Masisi	Buuma	Cassava/beans
Rutshuru	Musanganya	Bananas
Rutchuru	Maendeleo	Beans
Masisi	Muongano	Irish potatoes

as well as some champions – were invited to the initiation meetings. Representatives of NGOs and cooperatives, private sector (banks, microfinance institutions, agro-dealers), and farmers were also invited to establishment meetings. The meetings resulted in the selection of entry enterprises perceived to be of major economic importance.

## 2.4 Conclusion

Agricultural innovation arises from various sources: researchers, farmers, development agencies, NGOs, private companies, entrepreneurs and agricultural artisans, among others. To get the most from each stakeholder, there is need for a common platform where interactions among actors are multiple, iterative and evolving, and where the mix of participants reflects the strength of political and institutional interest groups in the area. Innovation platforms (IPs) provide an opportunity to bring together all of the different actors in an area – be they farmers, traders, researchers, NGOs, local government, and universities – to create technical, economic and institutional change. This is normally done in systemic terms, where the flow of knowledge between actors and institutions, and the factors that condition the flow, are central to innovation performance (Hall 2001).

In the LKPLS, the situational analysis and visioning processes allowed stakeholders to become aware of the value of participation in IPs. The participatory manner in which IPs were formed empowered the actors to come up with innovations based on their own unique situations. This made it possible to implement IPs in three countries with different socio-economic circumstances, and showed that the process can be applied to areas outside the test environments. Hall (2001) noted that participatory approaches applied in appropriate

institutional contexts are key to increasing knowledge flows between farmers and other parts of the innovation systems. This is not the case with the current R&D approach, in which knowledge is packaged and delivered to farmers by extension agents.

Naturally, where social hierarchies are strong, professional and institutional hierarchies will develop simultaneously. The constituents of such structures have organisational ability and experience in policy making, which is necessary for IP formation. Sites where local leaders were involved in the process formed IPs in less time, compared with those where leaders did not participate. However, in the use of such hierarchies, caution must be taken to protect the IPs from being hijacked by leaders seeking to promote their personal interests. The heterogeneous nature of IPs brings together a wealth of experience, allowing the different groups to build on their knowledge. However, this can also bring discontent to the IPs if they are not well nurtured. Facilitators must strive to build trust among the various groups. Once the social fabric, consisting of relevant value chain actors, is developed, the operationalisation of the IPs is dependent on how well the multi-stakeholders are facilitated to access resources to address the existing and emerging challenges. These processes are described in detail in chapter 3.

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## CHAPTER 3

# Operationalisation of Innovation Platforms in the Lake Kivu Pilot Learning Site

Tenywa M M, A A Adekunle, A O Fatunbi, S O Nyamwaro, R Buruchara,  
J M B Tukahirwa, J M Mugabe, C Wanjiku, K P C Rao, N I Kashaija, M Majaliwa, A  
Farrow, S Mapatano, J R Mugabo , C M Ngaboyisonga, M A Ramazine, S Mutabazi, B  
Fungo, P Pali,  
J Njuki, A Abenakyo, C Opondo, E Nkonya, J Oduol, R Njeru, L Lubanga, B Wimba,  
F Murorunkwere, M Kuule, P Mandefu, R Kamugisha

### 3.1 Introduction

Operationalisation of integrated agricultural research for development (IAR4D) revolves around the successful establishment and functioning of agricultural innovation platforms (IPs). In chapter 2 it was stated that the IP formation phase involves the following six iterative stages: (1) identification of research and development challenge(s); (2) site selection; (3) consultative and scoping study; (4) visioning and stakeholder analysis; (5) development of action plans; and





(6) implementation of the action plans. The first four stages of IP formation were described in detail in chapter 2, and stages 5 and 6 will be described in this chapter (section 3.3).

After IPs have been set up, the next logical step is to ensure their proper functioning. In the Lake Kivu Pilot Learning Site (LKPLS), IP operationalisation was made possible by first ensuring that each IP was composed of a threshold number of members and that the members were registered, as evidence of their commitment. The membership of each IP was required to include relevant stakeholders and/or partners representing a selected enterprise or value chain. The entire membership forms a body called a 'general assembly'. The general assembly is entitled to elect an executive committee to run the affairs of the IP on behalf of the entire membership. The executive committee has the power to co-opt other members with specialised skills or expertise. In addition, the executive committee is mandated to form other committees to assist it in running various sectors or specialised fields of interest for the IP. The composition of the executive committee is balanced in its representation of area coverage, fields of expertise and gender. An important responsibility of the executive committee is to call and convene general meetings on a monthly basis. At these general meetings, major policies, findings and other issues are announced and discussed, work plans are formulated, duties are allocated, and solutions are suggested and discussed with regards to future implementation activities.

The functional multi-stakeholder IPs in the LKPLS have formed roughly similar skeletal organisational structures and constitutions, but have tailored these to their local contexts to facilitate smooth functioning when addressing common interests and challenges. Some of these IPs require payment of a one-time membership registration fee and monthly contributions. Some have developed action plans with clear roles, and they meet monthly to review past activities (eg, training, exposure visits, negotiations, policy formulation, monitoring and evaluation) and to make plans for achieving their objectives. However, success breeds new challenges. As these new challenges emerge, new partners and stakeholders with relevant expertise are brought aboard to form task force teams that can look in depth at the issues and devise appropriate solutions.

This chapter focuses on the last two stages of the IP formation phase, which focus on IP operationalisation (section 3.3). But before IP operationalisation can take off, certain mechanisms must be put in place to drive the operationalisation processes. These driving mechanisms involve the constitution of committees.

## **3.2 Constitution of committees**

Having first agreed to form IPs by assembling relevant stakeholders and partners together, in order for the IPs to start functioning the next step is to constitute committees. To initiate this process, a facilitator must organise a meeting and invite all participating farmers. Other relevant stakeholders and partners from a selected enterprise of common interest should also be invited to attend.

One of the main agenda items for this meeting is to elect an executive committee at the lowest local government level (sub-county) to manage the affairs of the IP on behalf of the general assembly (ie, all IP members). In the LKPLS, each IP has elected an executive committee that is generally representative of its membership, in terms of geographic distribution, stakeholder groups and gender. These elected committees are not permanent; they are elected for a one-year term. In addition, depending on circumstances (eg, mistrust), an elected committee member can be replaced.

After it has been formed, the executive committee has the mandate to manage the affairs of the IP. The executive committee must first lead the members in compiling the bye-laws and/or the constitution of the IP, which will guide the management of the IP. The executive committee is allowed to co-opt additional members with specialised skills or expertise into the committee. When any significant problem arises, the executive committee can elect or appoint an *ad hoc* committee or task force team to investigate and make a report of the findings and their suggested solutions, which should be submitted to the executive committee or the general assembly.

The executive committees of the IPs in the three countries in the LKPLS are similar in size and composition, but they vary in the way they manage their affairs. For instance, in the Democratic Republic of the Congo (DRC), the executive committee can also form other committees, sub-committees or commissions to assist in running the technical operations of the IP. These technical commissions address the following issues: (a) research, especially on productivity and natural resource management (NRM); (b) markets; (c) credit and audit; and (d) monitoring and evaluation. Because of the vast distances between sites in the DRC, these committees also have 'branches' in villages, which serve as antennae for the executive committee. Currently, each executive committee in the DRC has five or six branches.

### **3.3 Innovation platform operationalisation**

The moment the executive committee is in place, the IP is ready to become operational. There is no particular formula for starting operations, but one of the initial activities should be to compile bye-laws and a draft constitution, which will be used to guide the IP operations. There should also be a members' register. Once these are in place, IP activities can begin.

Initiation of activities starts with planning meetings. These planning meetings include periodic sub-county-level executive committee meetings, monthly general assembly meetings and district-level monthly partner meetings. What happens at these meetings is illustrated by the DRC case (see section 3.4 of this chapter). Two of the most important activities at these meetings are the development of action plans and their implementation – the final two stages of IP formation<sup>2</sup>.

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2. Stages 1, 2, 3 and 4 were described in chapter 2.

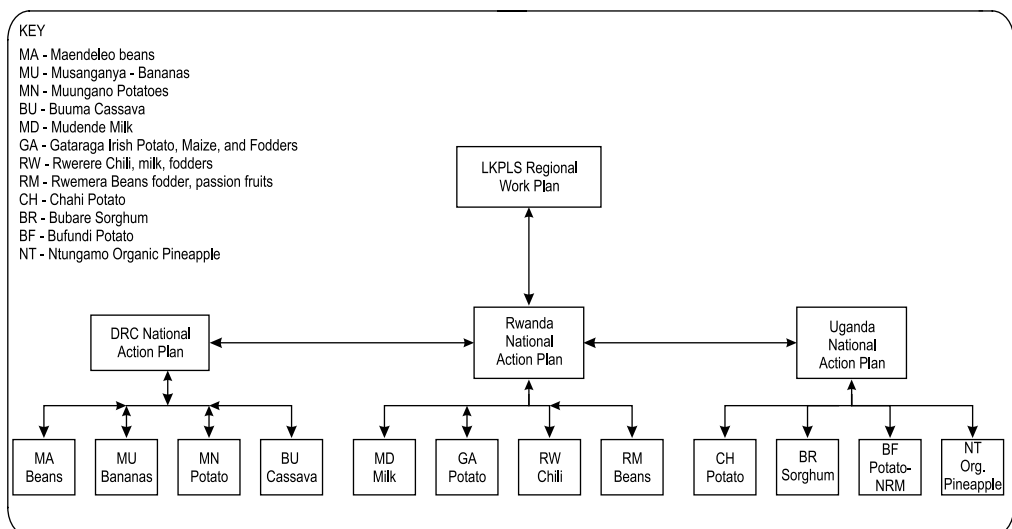
## Stage 5: Development of action plans

Action plans, or work plans, are developed at all levels: at the grassroots level (ie, IP level), at the national level and at the regional level (ie, the LKPLS). It is at the regional level that the action plans are harmonised (see Figure 3.1).

In the LKPLS, generally the stakeholders and partners representing various organisations and knowledge groups come together at their monthly planning meetings and develop the IP-level action plans, through a participatory approach. Within these action plans, the roles, responsibilities and site-specific timelines (eg, governance, capacity building, facilitation, experimentation, monitoring and evaluation), methods of implementation and input requirements are all defined. The final work plan (operational plan) of Uganda’s Chahi IP is presented in Table 3.1 to illustrate activities and roles at the grassroots level. Some of the input requirements for IP functioning are described in Table 3.2.

All site-specific action plans are harmonised with the national-level work plans for site coordination. This is usually done during the monthly national-level site-coordination planning and review meetings. Partners of IPs in each country also conduct monthly meetings for planning and review. The different work plans at the national level are further integrated at quarterly regional planning and review meetings, when common elements are defined and harmonised, and synergies are forged. Emerging issues raised at the IP level, such as the lack of disease-free and pest-free ‘clean’ planting materials and access to credit, are addressed by task force teams (including relevant stakeholders) at the regional level. The regional-level work plans are in turn submitted to FARA for review and follow-up action (eg, funding).

**Figure 3.1: Levels of development, harmonisation and implementation of action plans in the LKPLS**



**Table 3.1. Example operational plan (Chahi IP, Uganda) showing identified issue, activities and implementing institutions**

Innovation platform (IP) site and issue	Log-frame activity	Sub-activity	Expected output	Indicators	Institutions	Timeline	Status
Chahi IP, Uganda – Low bargaining power	Smallholder producers assisted to form producer marketing groups to enhance collective bargaining, improve economies of scale, and coordination of production and marketing activities	Enhance capacity in bargaining skills (participative market analysis to operationalise the linkage between farmer and trader associations; input and output markets)	IP members empowered with bargaining skills	Number of IP members trained	MAK-NRM, ICRISAT, LG, AHI, CIAT, ISAR, SACCO, MECRECO	March 2010	Preparatory meetings held and training sessions planned – end of July 2010
		Explore and facilitate access to credit (eg, Equity Bank) to support daily cash needs	MoU agreed and implemented	Number of people/ associations accessing credit	MAK-Mkts, MAK-NRM, HUNTEX, AHI, LG	January 2010	Ongoing
		Evaluate different potato varieties for consumer acceptability	Potato varieties with acceptable consumer qualities selected	At least two potato varieties evaluated, selected and put on market	MAK-WK, HUNTEX, AHI, LG, MAK-Mkts	May 2010	Completed
		Evaluate market demand for potato varieties for product development	Potato varieties with processing qualities selected	At least four potato varieties with processing qualities evaluated and selected	MAK-WK, HUNTEX, LG, MAK-Mkts, IMBARAGA	April 2010	Ongoing
		Facilitate development and implementation of the IP business plans	Economic returns to IP members improved	Number of IP members benefitting from implemented business plans	MAK-WK, HUNTEX, AHI, LG, MAK-Mkts	November 2010	Four draft business plans are being reviewed and will be refined by a consultant. Brief on this to be prepared and review of progress towards the finalisation of business plans

Innovation platform (IP) site and issue	Log-frame activity	Sub-activity	Expected output	Indicators	Institutions	Timeline	Status
		Facilitate completion of MoU signing between traders, the bank and the IPs, and monitor the implementation	MoU agreed and signed	MoUs discussed, approved and signed by relevant parties (and this process well documented)	MAK-Mkts, MAK-NRM, HUNTEX, AHI, LG	March 2010	Some MoUs have been signed between traders and farmers and are being implemented
		Conduct training of trainers (ToT) on marketing management	Capacity in marketing management increased	15 ToTs conducted for traders (men and women) Marketing committee members trained in marketing management Training manual developed for marketing management	MAK-Mkts, MAK-NRM, HUNTEX, AHI, LG	May 2010	Planned for end of July 2010
		Conduct market surveys on market demand for key crop varieties	Market requirements for key varieties of potatoes identified, and the process of fulfilling market requirements initiated	Market demand for at least four potato varieties established	MAK-Mkts, MAK-NRM, HUNTEX, AHI, LG	May 2010	Survey already conducted

**Legend:**

AHI	African Highland Initiative	MAK-NRM	Makerere University – Natural Resources Management
CIAT	International Center for Tropical Agriculture	MAK-Mkts	Makerere University – Markets
HUNTEX	Huntex Industries Ltd.	MAK-WK	Makerere University – Food technology
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics	MECRECO	Mutuelle d'Epargne et de Crédit au Congo
IMBARAGA	Rwanda National Farmers Union of the Northern Rwanda	MoU	Memorandum of understanding
ISAR	Institut Des Sciences Agronomiques du Rwanda	SACCO	Saving and Credit Cooperative Societies
LG	Local governments		

**Table 3.2. Summary of issues and associated processes required for innovation platform (IP) functioning**

Issues	Processes
<ul style="list-style-type: none"> <li>General meetings on IP functioning</li> </ul>	<ul style="list-style-type: none"> <li>Election of committees for the grassroots-level IPs (ie, executive committee, and sub-committees for M&amp;E, NRM, market and production)</li> </ul>
<ul style="list-style-type: none"> <li>Planning meetings by partner organisations</li> </ul>	<ul style="list-style-type: none"> <li>Deliberation on IP work plans, results of which should be shared with the groups</li> </ul>
<ul style="list-style-type: none"> <li>Pilot learning site-wide planning meetings</li> </ul>	<ul style="list-style-type: none"> <li>Create the IP constitution for the grassroots-level IPs, which should be shared with and endorsed by the IP members</li> </ul>
<ul style="list-style-type: none"> <li>Financial resources</li> </ul>	<ul style="list-style-type: none"> <li>Determine IP operational procedures (ie, number, frequency, type and financing of meetings)</li> </ul>
<ul style="list-style-type: none"> <li>Expertise to facilitate the capacity building and functioning of IPs</li> </ul>	<ul style="list-style-type: none"> <li>Revolving issues around the common issue to discuss</li> </ul>
	<ul style="list-style-type: none"> <li>Experimentation to test new varieties of produce under local conditions</li> </ul>
	<ul style="list-style-type: none"> <li>Capacity building on M&amp;E, improved production, NRM practices and markets, including market visits by farmers to determine the market requirements</li> </ul>
<ul style="list-style-type: none"> <li>Monitoring and evaluation (M&amp;E) of IP functioning and progress over time</li> </ul>	<ul style="list-style-type: none"> <li>Preparation and planning meetings among stakeholders periodically after the meetings</li> </ul>

## Stage 6: Implementation of the action plans

Action plans can be grouped into two types: operational and strategic. Operational action plans are implemented at an action site, while strategic plans are implemented outside an action site. Implementation of operational action plans is carried out at site, national and regional levels. There are provisions for cross-site input using a participatory action research approach involving planning, action and reflection at all stages (Susman 1983). These implementation activities are often done in a cascading or parallel manner, while other activities, sometimes referred to as ‘common activities’, are implemented jointly.

At the IP-level action sites, steering committees were elected, each consisting of a chairperson, vice chairperson (two in some countries, especially DRC), secretary and treasurer, in addition to members representing various end-user groups from different parishes (in Uganda) and *antennes* in the DRC. These committees were empowered to make operational decisions (eg, calling and scheduling meetings, drawing up the agenda, deploying staff) and also to liaise with national and regional partners. These committees were also supported by various sub-committees (eg, marketing, production, NRM and monitoring and evaluation).

Among other activities, training on various topics was provided for various IP members as requested by the IP, for the purpose of increasing capacity and empowerment. Training topics

and activities included participatory market research, business plan development, market management, value addition, experimentation, IAR4D, soil fertility management, regular and cross-site visits, exposure visits, post-harvest handling practices and mentoring. The actions implemented at site level included: collective marketing; facilitation of agreed action site activities (including monitoring and evaluation); establishing bulking centres; selection and evaluation of experimental and demonstration sites; meetings with partners; skill and competency enhancement; communication; accessing inputs; opening accounts; farmers' coalition; price negotiation; linkages with lower-level farmers; and conflict management and resolution.

At the national level, meetings were organised and stakeholders (eg, extension workers) participated to respond to issues raised by the executive committees at the action sites, to make strategic decisions and to raise issues that should be presented to the regional body. Other activities implemented at the national level included: coordination across action sites; facilitation of common activities; enhancement of synergies; and supervision of nationally-recruited staff (usually two people) in each participating country. In Uganda, the country-level action site coordination body also hosted postdoctoral fellows, adding value to IP processes at the national and regional levels.

At the regional level, task force teams were jointly responsible for both the research and facilitation functions of the vertical and horizontal integration of the IPs. At this level the actions of the task force teams included: developing and implementing overall plans; identifying common issues across countries; enhancing synergies and complementarities in resolving conflicts; advising the lead institution; making strategic decisions based on inter-country action documentation; and reporting on coordination across country action sites. Issues raised at the national level are handled by a regional-level team of three task force leaders representing the three implementing countries and responsible for the three main thematic areas: production technologies; NRM; and markets, policy and value addition. At this level, the International Center for Tropical Agriculture (CIAT) as the lead institution oversees the LKPLS and plays a pivotal role in championing the IP processes by responding regularly and promptly to emerging issues, providing feedback, conflict resolution, and by keeping the team together and focused. The lead institution is also instrumental in forging and maintaining linkages with both the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) and with FARA.

A common question about IPs is, at what level should they be convened? Our experience suggests basing both operational and strategic meetings at the sub-county level. Higher-level bodies at the district, national and regional levels should largely tackle strategic issues. Descriptions of some of the activities that have been implemented in the LKPLS are presented in Tables 3.3, 3.4 and 3.5. The next section of this chapter illustrates the routine functioning of the IPs, using the case of IP operations in the DRC and the example of the Maendeleo beans IP.

**Table 3.3. Market development and productivity enhancement innovations for culturally-entrenched agricultural products: sorghum (Uganda), bananas (DRC) and milk (Rwanda)**

Country and innovation platform (IP)	Interface challenge	Partners	Innovations	Outcomes
Uganda, Bubare, sorghum IP	Market-technology-policy interface: Low productivity and untapped market for a deeply culturally-entrenched crop, caused by unbranded, poor packaging of sorghum non-alcoholic porridge	Farmers (IP members), private sector (HUNTEX, Millers, grain traders, porridge makers, Muchahi SACCO), policy makers (Kabale LG, sub-county LG), researchers (Makerere University, KAZARDI, AHI, ICRISAT) and extension agents (NAADS)	Local government support for participatory evaluation of new market-preferred, line planted and fertilised sorghum varieties Market development of a packaged and branded product	Increased knowledge of improved production practices, yield and income Diversified markets and consumer acceptability Increased income for the producer: 1200 litres of <i>Bushera</i> brand sorghum porridge sold, generating UGS 3 million per month (approximately US\$1500) during incubation period
DRC, Musanganya, banana IP	Market-value addition-technology-policy interface: Disorganised market and low productivity of a culturally-entrenched banana due to disease caused by bacterial wilt, resulting in quarantines imposed by Rwanda – the bananas can be transformed into wine and juice, but there is a lack of clean planting materials.	Farmers (IP members), private sector (GAP-Pharmakina), researchers (INERA, CIAT-TSBF, CIAT, OVG), extension agents (SYDIP, IOBASS, ACF) and microfinance institutions (MECRECO, PRONAPLUCAN)	Market development of a packaged and branded product – <i>Kasiksi</i> wine Organising banana traders into an association in Bukavu Standardisation of packaging and pricing of banana varieties Linking producers and traders Collective marketing of bananas Facilitating access to clean planting materials through community 'greenhouse' macro-propagator	Increased knowledge of improved production practices Diversified markets Increased income



Country and innovation platform (IP)	Interface challenge	Partners	Innovations	Outcomes
Rwanda, Mudende, milk IP	Market-technology-policy interface: Disorganised and unreliable market, low price of milk	Farmers (cooperative societies), private sector (Inyange Industry, BRD), policy makers (local authorities), researchers (ISAR, ISAE, NUR, CIAT) and extension workers (IMBARAGA, SACR)	Cost-sharing access to credit to procure milk cooling system to meet the standards of Inyange Industry	Quality and quantity of milk improved Milk price increased from FRw90 to FRw180

**Legend:**

ACF	Action Contre la Faïm	KAZARDI	Kachwekano Agricultural Research and Development Institute
AHI	African Highland Initiative	LG	Local government
CIAT	International Center for Tropical Agriculture	MECRECO	Mutuelle d'Epargne et de Cr�dit au Congo
DIQBASS	D�marche pour une Interaction entre les Organisations � la Base et les Autres Sources des Savoirs	NAADS	National Agricultural Advisory Services
GAP-Pharmakina	Groupe Agropastorale Pharmakina	NUR	National University of Rwanda
HUNTEX	Huntex Industries Ltd.	OVG	Goma Volcano Observatory
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics	PRONAPLUCAN	Programme National de Pr�vention, de Lutte et d'Assistance Humanitaires aux Victimes des Catastrophes Naturelles
IMBARAGA	Rwanda National Farmers Union of the Northern Rwanda	SACCO	Saving and Credit Cooperative Societies
INERA	Institut National pour l'Etude et la Recherche Agronomique	SYDIP	Syndicat de D�fense des Int�r�ts Paysans
ISAE	Institute of Agriculture and Animal Husbandry	TSBF	Tropical Soil Biology and Fertility
ISAR	Institut Des Sciences Agronomiques du Rwanda		

**Table 3.4. Market development and productivity enhancement innovations for potatoes in DRC, Rwanda and Uganda**

Country and innovation platform (IP)	Interface challenge	Partners	Innovations	Outcomes
Rwanda, Gataraga IP, potatoes	Market-technology-policy interface: Low price, poor harvest and post-harvest handling procedures	Farmer groups, private sector (niche markets, input dealers, microfinance institutions, eg, SACCO), policy makers (local authorities), researchers (ISAR, ISAE, NUR, CIAT) and extension workers (IMBARAGA)	Potato washing, sorting, grading and packaging in woven sacks and bags made from banana fibres Facilitating access to good quality planting materials of market-preferred variety Dehauling before harvest	Improved quality and increased yield, as well as improved shelf life of the potatoes Increased access to niche market with good prices along the value chain
Uganda, Chahi IP, potatoes	Market-technology-NRM interface: Low productivity, lack of clean planting materials of market-preferred variety (Kinigi), lack of capital and limited access to market information	Farmers, private sector (UNADA, UNSPPA, Equity Bank, transporters, JORO, MECRECO), policy makers (sub-county LG, district LG, LC 1, 2), researchers (Makerere, KAZARDI, AHI, CIP, CIAT, ICRISAT, Kyambogo, Kabale University), extension workers (NAADS, KULIKA) and others (ODL, SUCAPRI)	Knowledge sharing to better understand the problems Linkages with traders, credit institutions (MECRECO, Equity Bank) Development of business plans, registration, constitution and proposals Participatory experimentation with three potato varieties (Kachpot 1, Victoria, Kinigi) fertilised Rotation with climbing beans Use of basic seed variety (selected by participatory approach) for training and demonstration on seed plot technique	Attitude change and increased growing of Victoria variety (demand for 120 bags) 120 farmers linked to market and wrote proposals to access credit to purchase Victoria potato seed worth US\$6000 (expected to raise 60 million tons of ware potatoes worth UGS 36 million (US\$18,000) Fast and timely information flow, facilitating price renegotiation

Country and innovation platform (IP)	Interface challenge	Partners	Innovations	Outcomes
DRC, Muungano IP, potatoes	Market-technology-NRM interface: Low productivity, diseases, poor seed varieties used for a long time, poor and disorganised markets and marketing	Farmers (IP members), private sector, policy makers (Chef de Poste, chefs de localités), researchers (INERA, TSBF, CIAT, OVG), extension agents (SYDIP, DIOBASS) and others (MICRECO Microfinance)	Demand for clean seed of new varieties Demonstrations on three potato varieties (Kinigi, Kahinga, local mixture) Participatory selection of the Kahinga variety Participatory selection of NPK fertiliser Crop management	Clean planting materials accessed Producers and traders linked Marketing associations formed Farmers gained knowledge in post-harvest technologies and disease management

**Legend:**

AHI	African Highland Initiative	LG	Local government
CIP	International Potato Center	MECRECO	Mutuelle d'Epargne et de Crédit au Congo
CIAT	International Center for Tropical Agriculture	NAADS	National Agricultural Advisory Services
DIOBASS	Démarche pour une Interaction entre les Organisations à la Base et les Autres Sources des Savoires	NUR	National University of Rwanda
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics	OVG	Goma Volcano Observatory
IMBARAGA	Rwanda National Farmers Union of the Northern Rwanda	SACCO	Saving and Credit Cooperative Societies
INERA	Institut National pour l'Etude et la Recherche Ag ronomique	SUCAPRI	Strengthening University Capacity for Promoting Rural Innovations
ISAE	Institute of Agriculture and Animal Husbandry	SYDIP	Syndicat de Défense des Intérêts Paysans
ISAR	Institut Des Sciences Agronomiques du Rwanda	TSBF	Tropical Soil Biology and Fertility
JORO	JORO Merchandise Distributors Ltd	UNADA	Uganda National Agro-Input Dealers
KAZARDI	Kachwekano Agricultural Research and Development Institute	UNSPPA	Uganda National Seed Potato Producers' Association

**Table 3.5. Market linkage innovations for organic pineapple in Uganda and beans in DRC**

Country and innovation platform (IP)	Interface challenge	Partners	Innovations	Outcomes
Uganda, Ntungamo IP, organic pineapple	Market–technology–NRM–policy interface: Lack of planting materials for an organic pineapple niche market (local, regional and international)	Farmers (IP members), private sector (Fruits of the Nile, NOGAMU), policy makers (LG), researchers (MBAZARDI, Makerere, AHI), extension workers (NAADS) and others (Africare)	Organic farming, planting in lines, mulching and solar drying Training in organic certification and inspection	Demonstrations set up Market linkages with Fruits of the Nile, and certification Planting material of specifically smooth Cayenne variety, and solar drying technology LG (policy makers), buy-in, collective action and decision-making
DRC, Maendeleo IP, beans	Market–technology–NRM interface: Poor market for the beans grown, demand for yellow bean varieties	Farmers (IP members), private sector (Goma-Kinshasa traders association, MECRECO Microfinance); researchers (INERA, TSBF, CIAT, OVG) and extension workers (SYDIP, DIOBASS)	Introduction of four improved varieties (Nguaku-nguaku, MORE, VCB, Kiangara) Collective actions Record keeping by individual farmers (using record book) Post-harvest technologies for cleaning and sorting	The Goma-Kinshasa traders have formed an association and farmers have formed a marketing association Access to credit from MECRECO Use of improved varieties, tested and selected using participatory approach Linkage with PABRA seed system

**Legend:**

AHI	African Highland Initiative	NAADS	National Agricultural Advisory Services
CIAT	International Center for Tropical Agriculture	NOGAMU	National Organic Movement of Uganda
DIOBASS	Plate-Forme DIOBASS au Kivu	OVG	Goma Volcano Observatory
INERA	Institut National pour l'Etude et la Recherche Agronomique	SYDIP	Syndicat de Défense des Intérêts Paysans
LG	Local government	TSBF	Tropical Soil Biology and Fertility
MECRECO	Mutuelle d'Epargne et de Crédit au Congo		

## **3.4 The case of innovation platform functioning in the Democratic Republic of Congo**

### **3.4.1 Introduction**

In the DRC, the Sub-Saharan Africa Challenge Program (SSA CP) was implemented on 1 March 2008. This came after many months of consultation and preparations, many stakeholder meetings and stakeholder analyses. Demonstration plots were established and conflicts that emerged were resolved. Since then, four innovation platforms (IPs) have been set up and operationalised in the DRC. The first IP to be formed in the DRC was the Musanganya banana IP, which was formed in December 2008, and the second was the Muungano Irish potato IP, formed in January 2009. The Maendeleo beans and Buuma cassava IPs were both formed in August 2009.

Before initiating any interventions, baseline surveys were carried out in July and August 2008. It took almost a year (11 months) after formation for the IPs to become operational. The first IP started operating in November 2009, while the other IPs started operating as recently as in January 2010. Currently, all four of the IPs in the DRC are operational, each dealing with one of the four major economic enterprises. These four crops, which are receiving technology and market interventions while preserving the environmental integrity of the resource bases, are beans in Maendeleo (both bush and climbing varieties), bananas in Musanganya (cooking, ripening and plantain varieties), cassava in Buuma (several varieties), and Irish potatoes in Muungano (also many varieties).

### **3.4.2 Operations of innovation platforms**

As already noted, each of the four DRC IPs operates one major crop enterprise (beans, bananas, cassava and Irish potatoes). Each of the IPs has four to six affiliated branches or antennae, for a total of 20 such IP branches in the DRC.

New members may join the IPs at any time, so membership is dynamic and variable. New members pay a non-refundable, one-time registration fee, and all members pay an agreed monthly contribution.

Each IP in the DRC is managed by an elected executive management committee composed of a president, vice president (usually two), secretary and treasurer, in addition to a number of advisors, and a representative from each antenna or branch IP. Each committee has four sub-committees or commissions, which assist with specific topics or tasks, including: (a) technical issues (research, productivity, NRM); (b) markets; (c) credit; and (d) monitoring and evaluation (M&E). The committees and sub-committees hold meetings to plan and discuss their respective activities.

Once a month there is a general IP meeting, attended by all registered members as well as partners and other stakeholders, particularly the research partners. The main purpose of these

general meetings is to discuss the activities accomplished during the past month and to plan activities for the next month. During these meetings, the research group responds to technical issues on productivity, NRM and markets. As an example, the next sub-section of this report describes a routine general meeting conducted by the Maendeleo beans IP.

### 3.4.3 A general meeting of the Maendeleo beans IP

One of the scheduled monthly general meetings was held at Rubare for the Maendeleo IP. These meetings are conducted either in the local or national language. They are managed by the executive committee and chaired by the President. On this occasion, the President called the meeting to order at about 10.30 AM, and the agenda was as follows:

- Prayers
- Introductions
- Discussions
- Matters arising
- Visitors remarks
- Any other business

After participants had introduced themselves, discussions were held on production, NRM, credit and M&E activities, led by the chairpersons of the four respective commissions. Discussions were centred on activities undertaken during the past month and plans for the next month, with technical backstopping from researchers and other partners. At the close of the meeting, those present were counted and grouped by branch and gender, as shown in Table 3.6. The meeting was adjourned at about 12.00 noon with a closing prayer.

### 3.4.4 Innovation platform partner functioning

There are approximately 27 partners associated with the 12 IPs of the LKPLS, about 11 of which are associated with the four IPs in the DRC. In collaboration with the IPs, the three task force teams (TF1 – production technologies, TF2 – NRM, and TF3 – markets) in the LKPLS are obliged

**Table 3.6. Maendeleo beans IP monthly general meeting attendance, by branch and gender**

Branch	Females	Males	Total
Kazuba	6	2	8
Rubare	4	11	15
Kako	8	6	14
Kalengera	3	4	7
Biruma	3	7	10
Katale	8	6	14
Hutres (Others)	2	8	10
<b>Total</b>	<b>34</b>	<b>44</b>	<b>78</b>

**Table 3.7. Selected partners and their roles in IP functioning in the DRC**

Partner	Attached to task force (TF) teams*	Contributions
1. INERA (NARS)	TF1 and TF3	<ul style="list-style-type: none"> <li>• IP management</li> <li>• Evaluation of production technologies</li> <li>• Market and marketing organisations</li> <li>• Participate in training for farmers and traders</li> </ul>
2. OVG	TF2	NRM issues: <ul style="list-style-type: none"> <li>• Climate change</li> <li>• Water analysis</li> <li>• Soils surveys</li> <li>• Composting manure</li> <li>• Agroforestry (tree nurseries and planting)</li> </ul>
3. SYDIP	All 3 TFs, but especially TF2	<ul style="list-style-type: none"> <li>• Training for IPs</li> <li>• Demonstrations</li> <li>• Planting of tree nurseries</li> </ul>
4. MECRECO	All 3 TFs	<ul style="list-style-type: none"> <li>• Microfinancing (two IPs have been given credit)</li> </ul>
5. CIAT-TSBF	TF1	<ul style="list-style-type: none"> <li>• Participatory community experiments/demonstrations for purposes of adaptation and adoption</li> <li>• Capacity building for farmers to adopt line planting</li> </ul>
6. GAP-Pharmakina	TF3	<ul style="list-style-type: none"> <li>• Linking IP farmers to markets</li> </ul>
7. DIOBASS	All 3 TFs	Project site coordination responsibilities: <ul style="list-style-type: none"> <li>• Site selection</li> <li>• Stakeholder/partner analysis and selection</li> <li>• IP formation and operationalisation</li> <li>• Baseline surveys</li> <li>• Partner facilitation</li> <li>• Conflict resolution</li> <li>• End-line surveys</li> </ul>

\*Task force teams: TF1 – production technologies; TF2 – NRM; TF3 – markets

to identify and incorporate partners who will assist IPs in their activities along the value chains. For illustrative purposes, some of the partners in the DRC and their roles are listed in Table 3.7.

### 3.5 Post-formation issues for innovation platforms

As discussed in chapter 1, IAR4D is a research-oriented approach to development that incorporates the various perspectives, knowledge and skills of different stakeholders around an issue of common interest. In the LKPLS, post-formation issues for the IPs were influenced by the nature and quality of the multi-stakeholder linkages and interactions, which led the IPs on various trajectories depending on the socio-economic, policy and cultural environments the IPs were operating in. Through joint analysis, planning, implementation, monitoring, research

**Table 3.8. Indicators and tools for monitoring the phases of IP formation and functioning**

Phase of IP development	Indicator	Tool
Formation	Inclusiveness / representativeness of the IP	IP register
	Baseline patterns of interactions among IP members	Interaction survey
Functioning	Frequency of participation of IP actors	IP register
	Use of knowledge-sharing channels	Inventory of knowledge, sharing mechanisms, IP evaluation tools
	Use of the planning–action–reflection cycle among the IP actors	Activity reports, post-activity reviews, IP evaluation tools
	Skills gained by actors	Training evaluation forms
	Linkages, quality of interactions and facilitation	Matrix documenting IP characteristics and functioning
Outcomes	Changes in individual/household mindset, income, food security	Outcome monitoring tool, pre-/post-intervention household survey
	Changes in institutions	Inventory of farmers/potential farmers who have been reached by information, technology, and linked to the market
	Inter-institutional/organisational changes	Inventory and description of innovations (eg, bye-laws, curriculum changes)
	Innovations and products, regional and international public goods	Inventory and descriptions of innovations (eg, MoUs), matrix of scores for evaluation of technologies and other innovations
	Changes at plot/village level (eg, NRM)	Pre-/post-intervention surveys at plot/village level

reflections, interactions and learning, the value chain-based multi-stakeholder engagements were drastically improved. This implies that it was important to the IPs to receive timely feedback on options for addressing emerging issues in the productivity–NRM–markets–policy interface, as provided by the relevant task force teams. As a result, such processes served to improve the performance of the IPs in meeting prevailing and projected market demands, and thus assisted them in realising their goals.

In the LKPLS, other post-formation IP activities included M&E, impact assessment, feedback and technical backstopping, with reference to the indicators, tools and resources required for the various phases of IP formation and functioning (see Table 3.8). These activities ensured timely identification of problems and solutions as well as timely provision of feedback from relevant stakeholders.

### 3.6 Conclusion

Successfully functioning innovation platforms (IPs) have facilitated the development and implementation of solutions to address the issues facing the IP members. But as these solutions



have been found and adopted, new challenges have emerged, requiring further reflection and action. Thus IP activities may continue indefinitely.

For example, at the Chahi potato IP in Uganda, initial analysis showed that lack of access to organised markets and inability to get competitive prices were the main constraints. Consequently, negotiations were initiated with the private sector for direct purchase of potatoes from the farmers and delivery to organised markets. After exhaustive negotiations with various actors along the potato market chain, a system of direct purchase from the producers by a group of retailers was established with clear guidelines and a memorandum of understanding (MoU). The assumption was that local farmers had enough produce to meet the market demand. When the arrangement was implemented, it soon became apparent that there were insufficient potatoes to meet the market demand. The situation was reviewed, with the conclusion that productivity must be increased. However, this required improved seeds and other inputs, which required financial support, but such credit was not easy to access from banks.

Similar situations have arisen for the Musanganya banana IP in the DRC with *Kasiksi* banana juice, and also for the Bubare sorghum IP in Uganda with *Mamera* sorghum porridge. Following successful processing, packaging and branding, and successful linkages to markets, new issues relating to patenting, standards, certification and licensing emerged for the IP members. Likewise, these new issues required dialogue and negotiations to devise appropriate solutions. In the Mudende milk IP in Rwanda, conflicts emerged among the IP members after the IP was linked to Inyange Industries through two competing cooperative societies. This problem required mediation to reach an understanding among the members.

Many difficulties have also been experienced in relation to the so-called ‘free handout’ syndrome in the LKPLS. There were high expectations of free funds and gifts from project personnel. These expectations were particularly high in the emergency areas. Considering that most of the LKPLS IPs are functioning in areas where most of the people are resource-poor due to historical conflicts and injustices, it was quite difficult for them to contribute towards funding the IP activities. Moreover, most of the local IP participants had been used to receiving free handouts (including money) and services from non-governmental organisations, politicians and even directly from the government. Considering this context, some IP activities are currently partially funded by the project. This is likely to continue until the IPs are self-sufficient.

Low capacity of partner organisations is another major constraint. It is clear that the IPs in the LKPLS are composed of stakeholders with varying capacities. For instance, the majority of retail traders have limited capital and have largely depended on intermediaries to assist their operations. Likewise, farmers in rural areas have low capacity to contend with the multitude of problems, risks and constraints they face due to low productivity, limited marketing and market forces. The national agricultural research system project personnel also have widely varying backgrounds and levels of experience. Therefore, it has taken a substantial amount of effort and resources to improve the low capacities among different stakeholders (individuals and groups) in order for them to grasp and implement the IP concepts and practices.

Clearly, the successful functioning of the IPs still requires continuous backstopping in terms of facilitation and funding support to address current and emerging IP problems, until the IPs are able to stand on their own. Without this ongoing support, the important gains that have been made will quickly dissipate and be lost.

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## CHAPTER 4

# Institutionalisation and Sustainability of Innovation Platforms

Tukahirwa JMB, SO Nyamwaro, R Kalibwani, R Buruchara, MM Tenywa, K Karume, JM Mugabe, R Kamugisha, C Wanjiku, AO Fatunbi, AA Adekunle

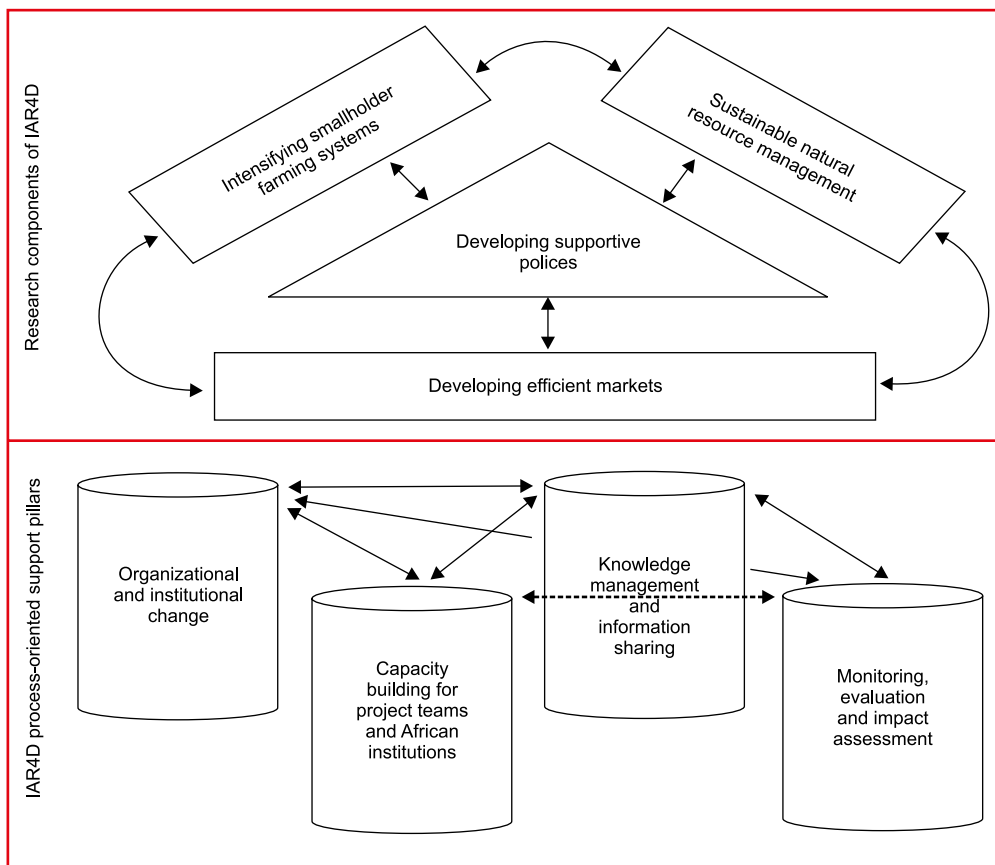
### 4.1 Introduction

The central challenge affecting agriculture in Sub-Saharan Africa (SSA) is the difficulty in catalysing equitable agricultural growth within a high-risk and sometimes fragile smallholder agriculture context. Smallholder agriculture in SSA is largely characterised by vulnerability to land degradation, inefficient and expensive agricultural production and marketing, insufficient investment by the private sector and an unsupportive policy environment. Consequently, in an attempt to improve the situation of SSA smallholder agriculture, the Sub-Saharan Africa Challenge Programme (SSA CP) – through the Forum for Agricultural Research in Africa (FARA) – engaged a new paradigm called integrated agricultural research for development (IAR4D) at the Lake Kivu Pilot Learning Site (LKPLS) and two other sites in West Africa and Southern Africa.



The rationale for IAR4D is to improve the capacity of stakeholders along agricultural value chains to respond to the rural farmers' needs, as well as to empower the stakeholders to adapt to changing conditions rather than focusing on delivering 'finished technologies' (Sayer and Campbell 2001). Further, the IAR4D paradigm recognises that the traditional approach to agricultural research and development has brought about significant advances, but also that its fragmented and reductionist nature makes it unable to cope with emerging complex challenges. As an approach as well as a process (Figure 4.1), IAR4D is a holistic tool for agricultural research for development, guided by a set of principles and operating within the agricultural innovation system framework. The IAR4D approach can foster synergy among disciplines and institutions, along with a renewed commitment to change at all levels – from farmers to national and international policy makers. As an action research approach, IAR4D facilitates groups of stakeholders (farmers, reserachers, extention agents, private sector and policy makers) to innovate more effectively in response to the changing and complex agricultural and natural resources management (NRM) contexts for improved development outcomes (FARA 2007).

**Figure 4.1: IAR4D process-oriented support pillars and research components**



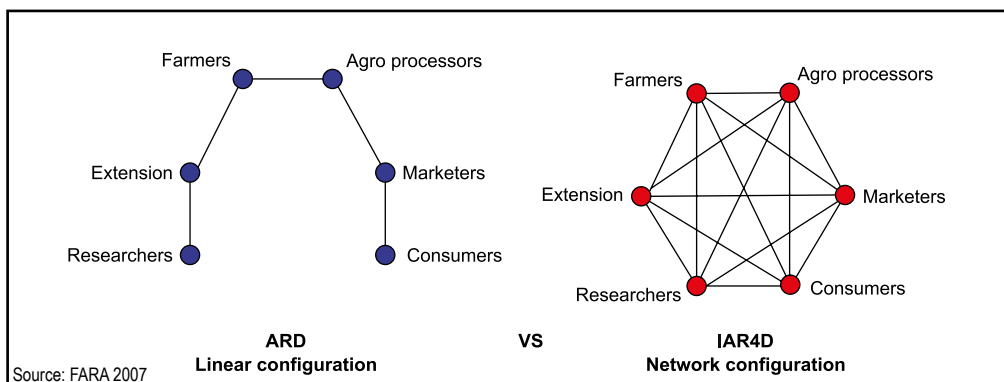
The IAR4D agenda meshes interventions in the agro-ecosystem domain with those that address political, economic and social constraints to promote innovations in agricultural systems. The following seven principles guides IAR4D implementation:

- a. innovation system perspective
- b. improvement in rural livelihoods and value chains
- c. integrating technological, organisational, institutional and policy options
- d. inclusive participatory multi-stakeholder partnerships
- e. inter-disciplinary functional teams
- f. knowledge generated and shared by all stakeholders
- g. learning by doing.

Integration is the main unique feature of IAR4D. As illustrated in Figure 4.2, IAR4D differs from the conventional agricultural research and development (ARD) approach because IAR4D embeds research within an innovation system or network comprising relevant actors who interact to develop, test and promote technological and institutional innovations along agricultural value chains. Hawkins et al. (2008) isolated four components that characterise IAR4D: (a) integration of the perspectives, knowledge and actions of different stakeholders around a common theme; (b) integration of the learning that stakeholders achieve through working together; (c) integration of analysis, action and change across different dimensions (environment, social and economic); and (d) action and change at different levels of spatial, economic and social organisation.

An innovation platform (IP), as described by Adekunle et al. (2010) is ‘a physical or virtual forum established to facilitate interactions and learning among stakeholders selected from a commodity chain, leading to: participatory diagnosis of problems; joint exploration of opportunities and investigation of solutions; promotion of agricultural innovations along the targeted value chain’. Forming the core of the IAR4D structure, an IP is an informal coalition, collaboration, partnership and alliance of ARD actors who may include, among others, public and private

**Figure 4.2: Organisation of actors in conventional ARD and in an IAR4D network**



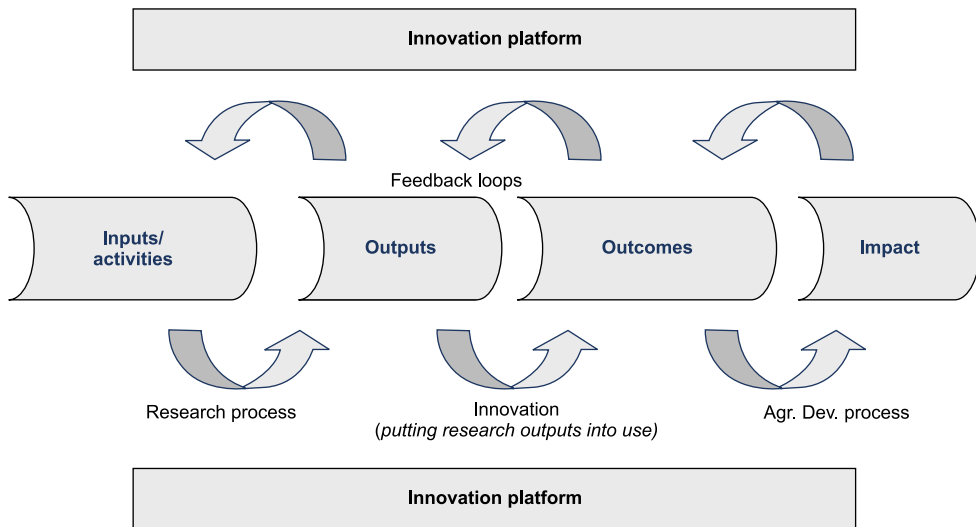
scientists, extension workers, representatives of farmers and farmers’ associations, private firms and non-governmental organisations (NGOs), and government policy makers who communicate, cooperate and interact to set priorities. Through partnerships, networks and linkages, IPs provide the platform for expanding spaces of engagement within and across sectors.

In practice, IPs in the LKPLS operate on at least two levels: (1) strategically at the district<sup>3</sup> level, as in the case of Ntungamo IP in Uganda; and (2) operationally at the sub-county level, as for the rest of the IPs (see Table 4.1). This hierarchical arrangement provides the basis for horizontal integration (across geographic locations) and vertical integration (institutional fusing at all levels) of IP innovative processes, thus creating an interface that facilitates both top-down and bottom-up feedback for policy formulation.

## 4.2 How is the IAR4D approach critical in the institutionalisation process?

First it should be made clear from the outset that institutionalisation refers to the permanent integration or mainstreaming of processes and perspectives within multi-stakeholder contexts for the purpose of guiding their mandated activities (Anandajayasekaram et al. 2009). In order to understand the process of institutionalisation of IPs, it is critical to appreciate that this does not only refer to the structures (hardware) but also to the IAR4D pathways, including principles, approaches and practices. In the LKPLS, the impact pathway for IAR4D (Figure 4.3) involved the establishment of 12 IPs (Table 4.1) – four each in the Democratic Republic of Congo (DRC), Rwanda and Uganda – and adoption of the IAR4D culture.

Figure 4.3: IAR4D impact pathway



3. A district is an important nexus for development and decision-making, with a unique and wide range of innovation scale-up opportunities.

**Table 4.1. Innovation platforms (IPs) in the LKPLS**

Country	Name of IP	Level of operation	Enterprise	Innovations
Uganda	Chahi	Operational	Potatoes	<ul style="list-style-type: none"> <li>• Market linkage with private sector</li> <li>• Participatory selection of quality seeds</li> <li>• Credit access</li> </ul>
	Bufundi	Operational	Potatoes and beans	<ul style="list-style-type: none"> <li>• Local government support</li> <li>• Collective action in NRM</li> <li>• Market linkages with private sector</li> </ul>
	Bubare	Operational	Sorghum	<ul style="list-style-type: none"> <li>• Local government support</li> <li>• Market development of value-added sorghum beverage – ‘Mamera’</li> </ul>
	Ntungamo	Strategic	Organic pineapples	<ul style="list-style-type: none"> <li>• Best agronomic practices</li> <li>• Value addition of certified organic pineapples for a niche market</li> </ul>
Rwanda	Gataraga	Operational	Irish potatoes	<ul style="list-style-type: none"> <li>• Value addition (dehauling, washing, sorting, grading and packaging) of potatoes for niche markets</li> </ul>
	Mudende	Operational	Milk, beans	<ul style="list-style-type: none"> <li>• Cost-sharing in accessing credit towards better quality milk and seeds</li> </ul>
	Remera	Operational	Beans and passion fruit	<ul style="list-style-type: none"> <li>• NRM linked to relevant government policies and increased yields and nutrition</li> </ul>
	Rwerere	Operational	Chillies and milk	<ul style="list-style-type: none"> <li>• NRM linked to relevant government policies and increased yields and nutrition</li> </ul>
DRC	Buuma	Operational	Cassava	<ul style="list-style-type: none"> <li>• NRM quality seed management, increased cassava production and post-harvest handling</li> </ul>
	Maendeleo	Operational	Beans	<ul style="list-style-type: none"> <li>• Quality seed management</li> <li>• Participatory selection of bean variety</li> <li>• Collective marketing and credit</li> </ul>
	Musanganya	Strategic	Bananas	<ul style="list-style-type: none"> <li>• Market development, standardisation and packaging of banana wine brand ‘Kasiksi’</li> </ul>
	Muungano	Strategic	Irish potatoes	<ul style="list-style-type: none"> <li>• Quality seed production</li> <li>• Participatory selection of potato variety</li> <li>• Post-harvest handling</li> </ul>

At each IP, priority research questions and objectives were jointly determined with the stakeholders, demand-driven plans of action were developed and the roles of stakeholders were clearly defined. The research processes included identification of common challenges and action research processes that could be engaged to generate output, innovation and impact. The enthusiasm created for IAR4D in the LKPLS was instrumental in developing a deep-rooted foundation for the institutionalisation process. Partners involved in the IAR4D processes demonstrated the value of synergies as they worked together with task force teams

on NRM, markets and technology, and collectively coordinated the research processes. The site-based International Agriculture Research Centers (IARC), World Agroforestry Center (ICRAF), International Center for Tropical Agriculture (CIAT), in addition to the national institutions (National Agricultural Research Organization [NARO] and Rwanda Agricultural Research Institute [ISAR]) and the NGOs (IMBARAGA, DIOBASS, UNSPPA) all provided critical day-to-day backstopping for the IPs, through nurturing, mentoring, documenting processes and facilitating partnerships, including conflict resolution. These experiences in turn allowed the development of a more coherent system for problem analysis at the IP level and sowed the seeds of integration, which are crucial for IAR4D.

### **4.3 Why institutionalise IPs?**

Implementation of IAR4D towards generating impact in African smallholder agriculture requires collective action by a range of stakeholders at the local, national, regional and international levels. These include policy makers at decentralised local governments, farmers and rural communities, service providers (advisory, credit provision, suppliers, traders, processors, agribusinesses, retailers, researchers, extension workers and other actors in the chain, such as water boards, water-user associations and other consumer organisations). The process of involving a broad and diverse range of stakeholders across different scales and levels and facilitating close collaboration in all phases of agricultural development has important implications for building institutional, social and human capital, including harnessing unique partnership synergies. To optimise the collective capacity of IP partners to work together requires new and innovative approaches beyond interactive learning, using holistic capacity building methods to meet the needs of different stakeholder groups in a coherent manner. For these approaches to work on a broader scale requires innovative advances in terms of institutions and capacity, to create an enabling environment.

Hagmann and Blackie (2010) observed that the divide between research and extension has become increasingly wide and that this inhibits effective feedback loops in the system. This applies to African research systems as evidenced by limited impact and by research agendas driven by supply and discipline rather than by an inter-disciplinary response to actual demands and challenges. Currently, with few exceptions in the LKPLS, notwithstanding individual capacities, the IP partner institutions are greatly lagging in terms of operationalising the appropriate IAR4D approaches and practices. Most of the research programmes in the national agricultural research systems (NARS) and the relevant sub-regional research organisations (SROs) are characteristically fragmented by their focus on commodity types and by their positivist traditions, as described in Table 4.2.

It has been noted that positivist traditions are characterised by their approach to understanding phenomena, which involves breaking them down into their constituent parts and then studying these simple parts in terms of cause and effect (Flood 2002). Sellamna (1999) observed that a reductionist science approach is at the heart of the teaching model for transfer of technology



**Table 4.2. Fragmented research programmes in the LKPLS**

No.	Country and research organisation	Research programmes
<b>Uganda</b>		
1.	National Agricultural Research Organisation (NARO) www.naro.go.ug	<p><b>National Agricultural Research Institutes:</b> manage and carry out strategic agricultural research that is of national importance on bananas, beans, cassava, cereals, coffee, horticulture and sweet potatoes</p> <p><b>Zonal Agricultural Research and Development Institutes:</b> manage and carry out applied or adaptive agricultural research relevant to specific agro-ecological zones</p>
<b>Rwanda</b>		
2.	Rwanda Agricultural Research Institute (ISAR) www.isar.rw	<p><b>High Altitude Agricultural Research Centre (HARC):</b> potatoes, maize, wheat, sorghum, horticultural crops (fruit trees and indigenous vegetables), entomology and crop protection, agroforestry, soil and water management, Phytopathology Laboratory, Technology Transfer Unit (Socio-Economics and Outreach programmes), bean programme.</p> <p><b>Semi Arid Research Center (SARC):</b> tubers (cassava and sweet potatoes), livestock (large and small ruminants, pastures and fodder crops), agronomy, soil and water management, maize at Karama, bananas, coffee and rice at Kibungo, and the bean programme.</p> <p><b>Mid Altitude Research Center (MARC):</b> banana, horticulture, coffee, rice, beans, soil and plant lab, sericulture, cassava, biotechnology/in vitro, post-harvest, maize, Rhizobium, livestock, and sweet potatoes; Technology Transfer Unit (Socio-Economics and Outreach) research programmes</p> <p><b>Livestock Research Centre (LIRC):</b> cattle improvement that involves cross-breeding (eg, Ankolé x Jersey; Ankolé x Freisian; Ankolé x Sahiwal; Ankolé x Brun Suisse); Technology Transfer Unit (Socio-Economics and Outreach); scientists at the stations plant and maintain different species of forages (mostly cereals and leguminous species)</p> <p><b>Land and Forestry Research Centre (LAFRC):</b> Tree Seed Centre, agroforestry, forestry management, wood technology, and soil and water management research programmes.</p>
<b>Democratic Republic of Congo (DRC)</b>		
3.	National Institute for Agronomic Study and Research (INERA)	<p><b>Support research programmes in natural resources:</b> soil sciences, agroforestry, agro-climatology, conservation of genetic resources, and research and development</p> <p><b>Staple food crops programme:</b> cassava, maize, rice, fruit, bananas, grains, legumes (common beans, soybeans, cowpeas and groundnuts), roots and tubers (potatoes, sweet potatoes, cassava, yam and taro)</p> <p><b>Industrial crops:</b> coffee, cocoa, palm oil, cotton, tea and quinquina (quinine tree); also forestry</p> <p><b>Animal production:</b> livestock and aquaculture</p>
<b>Eastern and Central Africa region</b>		

No.	Country and research organisation	Research programmes
4.	Association for strengthening Agricultural Research in Eastern and Central Africa (ASARECA) www.asareca.org	<p><b>Staple foods:</b> potatoes and sweet potatoes, cassava (root crops), maize and wheat, sorghum and millets, rice and bananas</p> <p><b>Non-staple foods:</b> horticultural crops, pulses and oilseeds as additional important commodities (like beans and coffee) whose improved production would have a significant impact on livelihoods and food security</p> <p><b>Livestock and fisheries:</b> livestock and fisheries products, milk and meat, animal and fisheries production, and new areas in fisheries.</p> <p><b>Agro-biodiversity and biotechnology:</b> integrates agricultural biotechnology, agro-biodiversity and biosafety by using biotechnology as a tool to enhance the use of agro-biodiversity</p> <p><b>Natural Resources, Forestry and Biodiversity:</b> agriculture (crops, livestock and trees), land, water and biodiversity, as well as land tenure and other policy and social issues</p> <p><b>Policy Analysis and Advocacy Programme (PAAP):</b> trend analyses, looking inside and outside – rationalisation, harmonisation and advocacy of policies and legislation; policy issues for natural resource management; options and opportunities for small scale-agricultural growth</p> <p><b>Up-scaling and knowledge management:</b> develops and promotes tools and methods for uptake and up-scaling of new technologies and innovations for the benefit of agricultural extension and farmer empowerment</p>

and more generally responsible for the ‘diffusion of innovation’ model that has dominated science. Chambers and Jiggins (1987) noted that the diffusion model is traditionally oriented towards products rather than towards clients. Another example is the local government setting, where critical components of the agriculture sector – such as NRM and land use – are fragmented; a situation that has created an urgent need for efforts to bring together stakeholders with interests in agriculture (IP partners).

Given this context, it is important to institutionalise the concept of IPs and move away from a fragmented ‘piecemeal’ approach. Working through IPs will ensure accelerated agricultural growth and development. Ways of promoting institutionalisation and sustainability are explored in subsequent discussions.

#### 4.4 What are the drivers of IP institutionalisation?

In order to make IAR4D the modus operandi among IP partner institutions, and in order for them to recognise and appreciate IP structures, core values, roles and functions, it is imperative

that these are mainstreamed in government and partner institutions and given the required policy and resource support to grow on a sustainable basis. Consequently, the key drivers of institutionalisation are capacity building and creation of an enabling policy environment to facilitate the necessary changes at the individual, organisational and institutional levels. The desired changes at these levels can be summarised as follows:

- a. *Changes in individual capacity:* To be effective, IP partners must possess competence that goes beyond traditional disciplines to include meta disciplines (eg, systems thinking, knowledge management, strategic planning, experiential learning) in addition to social skills and positive personal attitudes, behaviour and values that allow for successful social interactions when working with others (Hawkins et al. 2008). The aim is to enhance skills and competence towards promoting the science and practice of IAR4D.
- b. *Changes in organisational capacity:* Organisations must have standard resources but also organisational processes that facilitate interactions. The organisational change process requires strong managerial capacity in four areas: (i) human and functional linkage management; (ii) management of interactive planning and learning cycles, and outputs; (iii) management of resource investments aimed at process activities; and (iv) informal management (Hawkins et al. 2008). Capacity development and change management support the development of new competencies related to communication, facilitation, and mediation needed to work with diverse stakeholders in identifying and developing new opportunities for technical and institutional innovation.
- c. *Change in institutional capacity:* Strengthening capacity at the system or network level involves addressing factors that influence the management of organising and in particular the interactions between organisations and stakeholders. This includes efforts towards formalising the position of IPs in relation to local government structures, with increased roles and responsibilities and with access to respected local champions and government budgeting processes.

A holistic approach to capacity building and institutional change towards mainstreaming IAR4D essentially implies action at three levels:

*Educational institutions:*

- innovative learning partnerships with other stakeholders to create active and engaging interactive learning environments
- curriculum development towards building capacity to deal with complexity
- changing institutional culture, including systems of evaluation and reward
- strengthening capacity (knowledge, skills, perceptions and attitudes) to facilitate interactive processes for development of hard and soft skills needed for innovation
- developing a holistic approach to building human capacity and social organisation that meets the collective and diverse needs of stakeholders.

*Service providers and end users:*

- collectively developing capacity to set up and use multiple IPs
- collective action and decision-making
- empowering all stakeholders to participate actively in IP businesses.

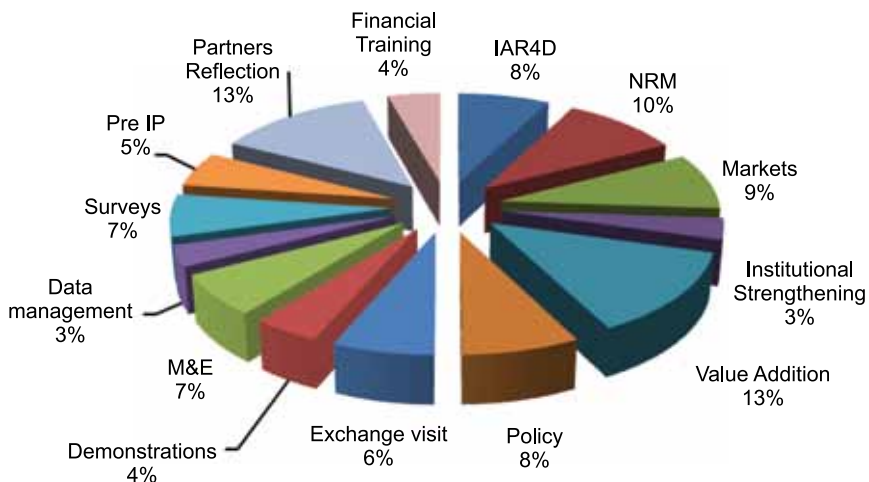
*Education and service providers:*

- interactive experiential and social learning emerging from networking
- linking education with rural innovations.

In response to the need for capacity building to support successful implementation of the IAR4D approach, an intensive and also extensive issue-based programme was instituted to train farmers and IP partners in the LKPLS. Over a period of less than three years, many training courses were provided in at least 14 different subject areas. As reflected by the percentages shown in Figure 4.4, the most popular courses were those on partners' reflections and value addition.

The comprehensive training courses provided in the LKPLS had the following results: (1) shared understanding among all partners of the principles and practices involved in IAR4D; (2) problem identification using iterative processes and development of action plans; (3) enhanced capacities of farmer organisations for effective involvement in communication flow, adaptive research and extension, and market aggregation and quality control; (4) enhanced learning by doing; (5) improved capacity of site-level partners for conducting participatory monitoring

**Figure 4.4: Capacity building training courses in the LKPLS, 2008–2010**



and evaluation (M&E) that feeds into decision-making at the IP level; (6) strengthened capacity in identifying gaps and addressing them within the IPs; and (7) effective and iterative communication strategies applied at all levels of the IPs.

## **4.5 What constitutes an ‘enabling policy environment’ for IPs?**

For sustainable functioning, growth and success, IPs require conducive and enabling policy environments that are supportive of IAR4D. Enabling policy environments must operate at the global, regional, national and local levels, and extend also to institutional mechanisms and frameworks. Supportive policies and institutions at the international level include treaties and conventions, while at the national level they include laws and declarations, at the district level they include ordinances, and at the grassroots level this refers to bye-laws. Pro-IAR4D policies are those that create and maintain an overall legal framework that supports IPs and their associated businesses. Hence, an enabling policy environment is one that focuses on relevant government actions such as competitive trade policies; supportive agriculture and NRM laws; removal of technical, legal and administrative barriers to adopting innovations; sound economic policies that trigger increased production; and regulatory frameworks that promote transparency. Put together, all of these elements create an enabling environment conducive to innovative partnerships that can work towards creating impact in the smallholder agricultural sector. Important policy components that would support the institutionalisation of IPs include:

- a. national strategies in line with the principles and practices of IAR4D
- b. national institutions as hubs for implementation of IAR4D
- c. national legal institutions that introduce codes and standards that help to reduce risks and protect intellectual property rights
- d. means for promoting partnerships while addressing equity issues and farmers’ needs and capacities.

At the global level, all three countries that are part of the LKPLS are also signatories to international multilateral agreements to mitigate the adverse effects of climate change, such as the United Nations Convention to Combat Desertification (UNCCD). The primary focus of the UNCCD is to halt the loss of natural vegetation and the deterioration of the physical, chemical, biological and economic properties of soil. Subsequent to signing and ratifying the Convention, signatory countries developed National Action Plans (NAPs) aimed at mitigating the adverse impacts of land degradation and climate change on local livelihoods and development. Further, the UNCCD promotes synergy with other multilateral agreements, specifically the Convention on Biological Diversity (CBD) and the United Nations Framework Convention on Climate Change (UNFCCC). This global policy framework provides a supportive context for IP institutionalisation since agriculture and the environment are closely linked with regard to issues such as climate and soil quality.

At the national level, in response high poverty levels, the three participating countries have developed policies aimed at poverty alleviation. Such policies also provide important

opportunities for adding value using the IAR4D approach. For example, the Government of Rwanda's Vision 2020 policy articulates a national road map to transform Rwanda's economy from that of a poor nation to that of a middle-income country. Among the seven objectives of this vision is the transformation of agriculture into a productive, high-value, market-oriented sector with forward and backward linkages to other sectors. The vision highlights relevant opportunities for nurturing IAR4D in the course of this transformation of the agriculture sector.

In the case of the DRC, the Government is committed to revitalising and developing its agricultural sector as the engine of the national economy. In this respect, the Strategy for Growth and Poverty Reduction (SGPR) has been developed with a focus on increasing rural incomes and diversifying agricultural exports. Consequently, a Council for Agricultural and Rural Management (Conseil Agricole Rural de Gestion, CARG) was set up under the Ministry of Agriculture and is responding to the structural requirements of the new agricultural policy. In tune with IAR4D principles, the Council's mandate is to address (among others things) the decentralisation and disengagement of the state in extension service delivery, including privatisation of public companies, and to promote the empowerment of farmers, market liberalisation and provision of incentives for private investment in rural areas.

Similarly in Uganda, the Government is making efforts to ensure a participatory and broad-based policy-making process that can create the required policy environment. The Government has formulated the National Development Plan (NDP), which envisions a 'transformed Ugandan Society from a peasant to a modern and prosperous country within 30 years' and presents Uganda's forward-looking road map. Central to the NDP is the restoration of agricultural growth as an engine for employment creation, poverty reduction and industrialisation. In line with the IAR4D objectives, under the theme 'Growth, Employment and Prosperity', the NDP aims to increase household incomes, enhance the quality and availability of gainful employment, improve the stock and quality of economic and trade infrastructure, and promote innovation and industrial competitiveness. Other national policy initiatives relevant to IAR4D include the National Agricultural Advisory Services (NAADS) Act of 2001, which formalises the national agricultural advisory services as a single government programme integrating all extension programmes for agricultural development. One critical focus of the NAADS is the provision of market-oriented services by contracted service providers based at the sub-county level and controlled by farmers themselves. The farmers are expected to form forums in every sub-county to work with district and sub-county officials in contracting private sector service providers for extension services. Farmers are expected to demand, manage and monitor the advisory services that meet their requirements. In this regard, the formation of an IP with farmers as IP members and also as members of the sub-county farmers' forum would ensure a vital linkage with the NAADS programme and access to agricultural extension services. Another supportive policy to consider is the Decentralisation Policy of 1981, aimed primarily at the promotion of good governance through strengthening of local institutions and improvements in service delivery. Through this policy, the Government of Uganda may be able to provide financial resources for the development of organised groups at the sub-county level. IPs can strategically position themselves to access such resources through local government institutions. Already the IPs of

Chahi and Bubare have integrated their work plans with those of their respective sub-counties. This puts the IPs in a good position to receive the available support and recognition from the sub-counties.

It is evident, therefore, that at the national level the policy frameworks of the three countries present important entry points for IAR4D. IP plans can be upgraded through synergy with government programmes, further enhancing the sustainability of the IPs.

## 4.6 How to institutionalise the IPs

Within the context of generating impact on smallholder agriculture, institutionalising IPs requires simultaneously developing the required institutional/social capacities while building an enabling institutional environment for learning, and application and mainstreaming of collective innovation approaches. These steps, however, cannot be implemented as blueprints but must be flexible and adaptive as the operationalisation and implementation of institutional innovations at national and regional levels are influenced by many local factors. Some of the critical influencing factors are considered to be: the prevailing institutional arrangements, existing levels of interests and experiences in both educational and implementing institutions for doing business as usual, and the willingness of both individuals and institutions to change. Consequently, institutionalisation is a process that is interactive, dynamic and evolving. There are important conditions that should be in place for successful institutionalisation to occur, namely: (i) clear demonstration of utility of the process; (ii) leadership commitment including the necessary resources; (iii) broader participation and effective linkages between stakeholders; (iv) a critical mass of trained actors, system thinkers and champions; and (v) continuous training.

Streamlined governance of IPs has emerged as one of the most important foundation requirements for institutionalising IPs. The governance structures of the IPs, especially in relation to the functions that the IPs establish for themselves and their members, are crucial to the institutionalisation of IPs, their relative effectiveness and their sustainability. In the LKPLS, establishing governance structures of the IPs was prioritised and some examples of governance structures for Ntungamo and Chahi IPs of Uganda and a generic governance structure for IPs in DRC are illustrated in Figures 4.5 and 4.6.

Overall, the 12 IPs in the LKPLS were developed outside of existing institutional structures through democratic processes. However, a good number of the elected IP leaders were also involved in steering government and other development programmes, further creating important linkages for sustainability. The IP leaders in the LKPLS, including executive and committee members, were popularly elected by the entire membership. Most IPs have constitutions that govern their operations and their business plans. As illustrated in Figures 5 and 6, the committee structures are elaborate, consisting of executive and various committees, such as technical or research advisory, finance and audit, marketing, and M&E committees. However, the committees vary across the IPs and countries depending on the core priority problems being addressed by the IPs.

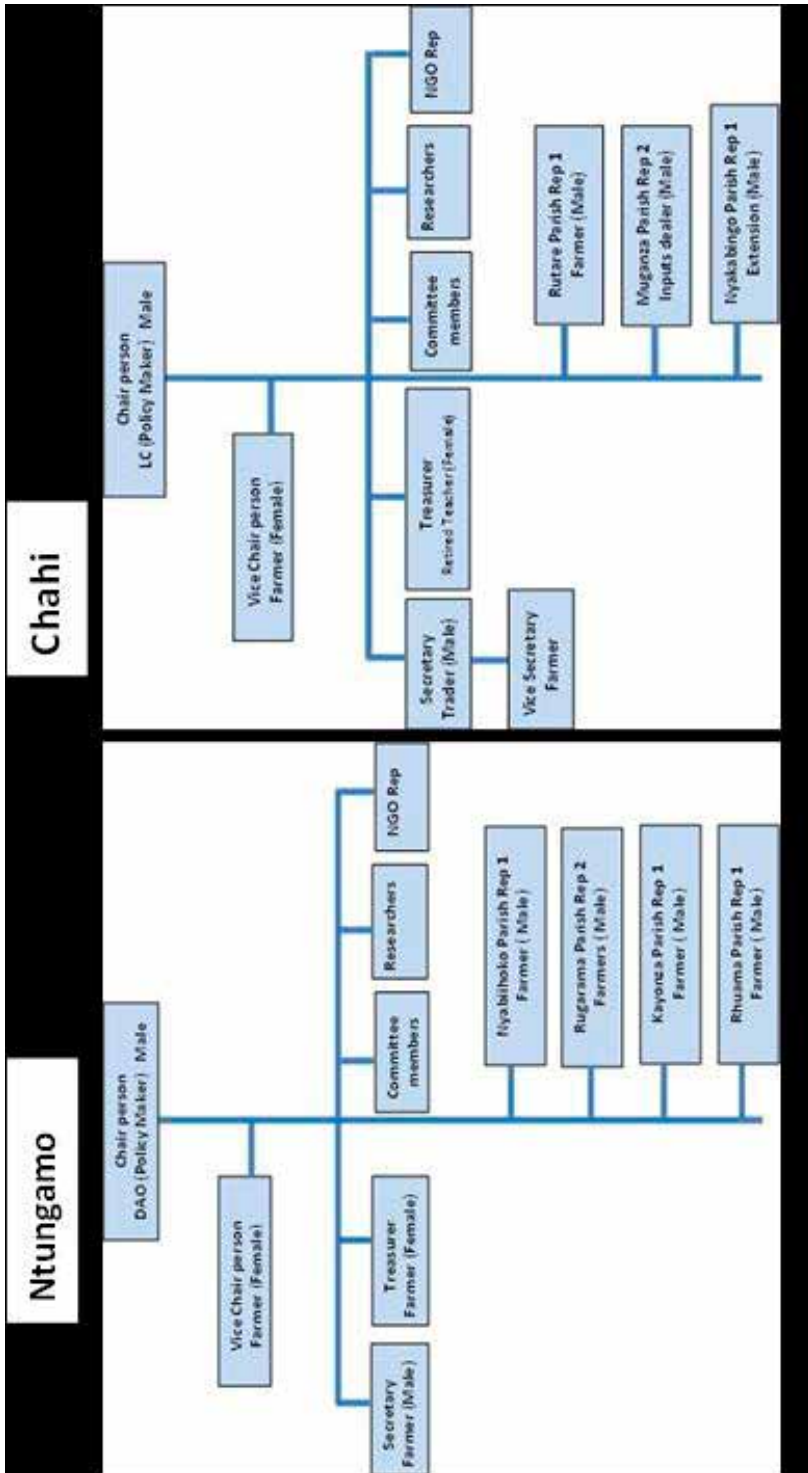
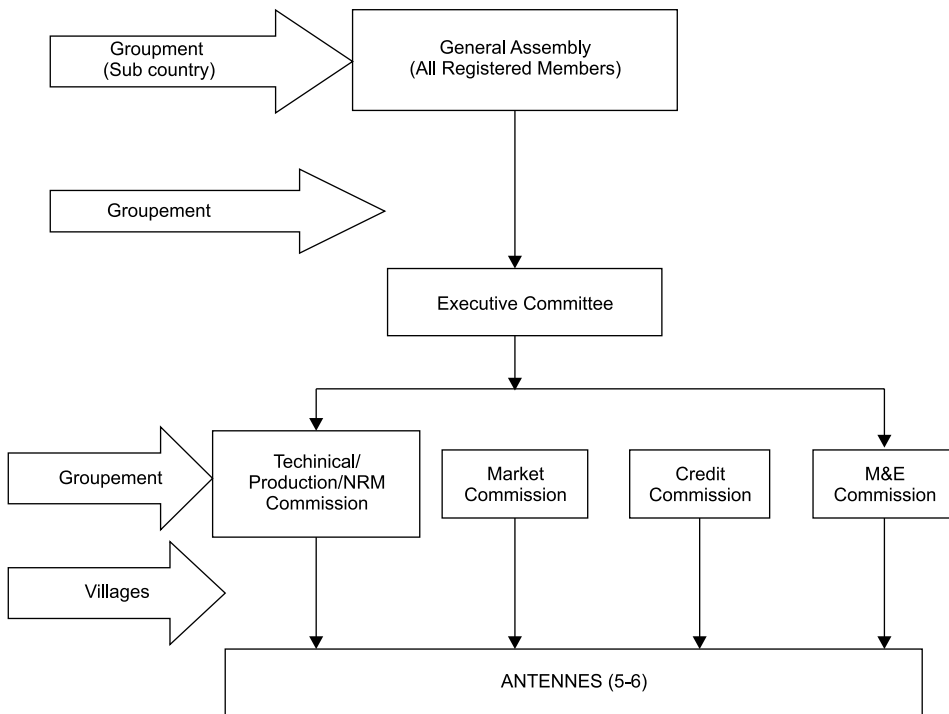


Figure 4.5: Uganda IARDs (Ntungamo and Chahi) governance structure, LKPLS





**Figure 4.6: DRC generic IP governance organogram**

IP committees are organised at village or parish levels, representing operational clusters and –particularly in Uganda – the committees pivot into the lower local governance structures, assuring their sustainability. The streamlined governance structures of IPs present effective management structures while at the same time creating a sense of self-reliance, and generating internal financial resources, based on membership registration and monthly fees as well as IP overheads from marketing initiatives.

In Uganda for instance, Bubare and Chahi IPs are operating as community-based organisations (CBO) registered at their respective district headquarters, while Bufundi and Ntungamo IPs are in the process of registration. Chahi, Bubare and Bufundi IPs have instituted a membership registration fee ranging from UGS 1000 to UgShs5000. There is also a monthly contribution of UgShs1000 in the Bubare and Chahi IPs. Leaders are elected by all IP members and they serve on a voluntary basis for a term of three years. The structure for representation is proposed by the IP members; for example, in Bubare the IP leaders are representatives of the eight sub-county parishes (two from each parish), joined by seven ex-officials and an executive of four, while in Ntungamo, the leaders are representatives of the seven participating sub-counties in addition to a chairman.

There has been steady growth in IP membership derived from farmer groups. The membership growth is mainly due to the perceived benefits of joining the IP, resulting in spontaneous natural growth of the membership in response to the positive performance of the IPs. The sustained presence of a strong and committed IP leadership – comprising individuals who are respected and trusted among their peers – remains a critical pillar in institutionalisation and sustainability of IPs. Their passion and commitment to the cause at hand is important for maintaining the vision and for continued steering of efforts towards the vision through established missions. Such leadership champions remain important, not only within the communities but also among other actors, especially where change is critical for achieving and sustaining impacts.

## **4.7 What are the low-lying fruits in the institutionalisation and sustainability of IPs?**

In considering the benefits of institutionalisation, sustainability is a key issue. It is a well known fact that sustainability is often tagged to financial resources, thus implying the diversification of revenue streams so as not to become overly dependent on a limited range of funding sources. Further, sustainability implies benefits, including programmatic, institutional and political sustainability. Sustainability relates to the continuation of benefits that result from a programme or project. Programmatic and institutional sustainability involves building the internal capacity of a programme/project by attracting competent leadership and staff, developing their technical competencies, being entrepreneurial, flexible and adaptable to changing internal and external conditions. Political sustainability involves gaining government and community support and participation in the programme, networking and collaborating with other like-minded organisations, and engaging multi-sectoral partnerships. All these are relevant aspects of the sustainability of IPs. In the context of the LKPLS, sustainability refers to the increasingly independent existence of IPs from the funding of the parent project, the SSA CP, with clear indications of viability.

In the LKPLS, various strategies have been developed to ensure sustainability of IPs. Some of these strategies have included the efforts made in bringing together various stakeholders along agricultural value chains that have facilitated linking farmers to markets within a short time. Given that traders are also IP members, they have contributed positively to finding solutions to marketing challenges. This has occurred in almost all of the IPs in the LKPLS. For example, the Gataraga potato, Mudende dairy and Rwerere chilli IPs in Rwanda have been linked to various markets and processors. Gataraga has been linked to niche markets in Kigali (the Rwandese capital city) and other urban centres, Mudende has been linked to Lake Kivu and Inyange Dairy Industries, and Rwerere has been linked to URWIBUTSO Food Industries. In DRC, Musanganya banana and Maendeleo beans IPs have been organised into marketing groups and linked to Goma, Bukavu and Kinshasa markets. In Uganda, a functional potato traders' group has been formed to link with producers in Bufundi and Chahi Potato IPs. Sorghum producers are now linked to a processor, HUNTEX Industries, and have even branded their sorghum product as '*Mamera*', a drink hygienically packed and now selling in supermarkets, food stores and kiosks all over Kabale District and beyond, including Kampala, the capital city.

Further, along with farmers, partners such as researchers have been able to identify practical issues for immediate research attention and address them on behalf of the IPs. In Kabale, Uganda, for example, experiments have been carried out to demonstrate the effect of Rhizobia on the productivity of climbing beans, while in Kisoro, in the same country, a weather station has been put up to help farmers predict changes in weather and take appropriate actions. There have also been tremendous capacity building initiatives for the IP members on collective planning, formulation of action plans based on comparative advantages, developing business plans and writing proposals.

The 'low-lying fruits' are those close range opportunities available to support institutionalisation. Examples of such low-lying fruits include, among others:

- a. *Aligning with government and other relevant programmes and policies:* This is an opportunity for securing resources for IP functioning and for addressing sustainability, thus adding value. A case in point is Rwanda, where IPs such as Rwerere capitalised on the 'one cow per family' policy and programme. Gataraga potato IP has also aligned itself to a government programme that funds the multiplication expansion of the *Kinigi* potato variety.
- b. *Tapping into government planning cycles:* The budget process is a cycle that runs through the entire financial year, and is a very participatory process that leads to the development of budget framework papers. In order to mainstream IPs into local government planning processes, Bufundi, Chahi and Bubare IPs in Uganda worked strategically to ensure that the IPs' work plans and activities were included in local-level development plans and budgets. The strategies used included:
  - preparing concept papers identifying priority actions and justification, corresponding to the ongoing 'prosperity for all' programmes during the review processes
  - lobbying key offices, including planning and budget officials
  - incorporating some local government officials as IP members and leaders.
- c. *Capitalising on inter-IP partnerships:* Chahi IP in Uganda was able to capitalise on good inter-IP relationships to access credit from DRC with MECRECO microfinance credit institution, which is also a members of IPs in DRC. Inter-IP partnerships also enable IPs not only to exchange lessons learnt, but also exchange appropriate and adaptive technologies such as disease-resistant high-producing potato varieties.
- d. *Identification of brokerage partnerships:* A suitable institution should be identified to provide brokerage partnerships for IP activities. The local government or any other relevant institution could assume responsibility for this. This would be very important in helping to provide information about potential collaborators; brokering a transaction between two or more parties; acting as a mediator for groups that are already collaborating; and helping find advice, funding and support for the innovation outcomes of such collaborations.
- e. *Development of approaches that integrate different types of knowledge and people:* It is necessary to combine both indigenous technical and scientific knowledge, and to integrate different groups (including local farmers, marginalised and poor actors, traders,

and external actor groups like civil servants, researchers, service providers) to build new learning communities and initiatives. It is also essential to pay due attention to overcoming racial, ethnic and gender biases that hamper the participation of marginalised communities, diverse ethnic groups and women. Participatory and experiential learning processes and multi-organisational partnerships, integrating formal and informal agricultural knowledge, science and technology, should be supported. Additional options are needed to extend these processes to the marginalised peoples and areas in ways that respect and uphold their roles, rights and practices.

- f. *Investment in rural education:* There should be investment in rural education, complemented by extension and advisory services, farmer field schools and research circles. Dissemination of all available information to all key partner organisations to capture all the implementation processes and activities in action sites is important, as is the training of trainers to carry out on-site capacity building workshops and programmes in IPs to guide the projects.
- g. *Lobbying government for the promotion of linkages:* Linkages can be promoted by devising ways of harmonising the differing incentive systems of the actors. More research needs to be done on this and governments should be lobbied to support the linkages, eg, through a supportive policy framework.
- h. *Other sources of funding:* IPs should be encouraged to start looking for other sources of financial resources, eg, from local government and from NGOs with similar interests. They should also be empowered with skills in proposal writing and resource mobilisation.

## **4.8 What are the current and potential obstacles to institutionalising and sustaining the IPs?**

Various current and potential obstacles stand in the way of successful institutionalisation and sustainability of IPs.

- At the level of education and capacity building institutions, there are problems relating to their usual methods of operating. With deep-rooted traditions of educating by transfer of knowledge, these institutions have little experience in stimulating and facilitating interactive processes of learning by doing involving different stakeholders. Consequently, the institutional support systems needed to build individual capacity and develop organisational capacity for collective innovation approaches are limited or only poorly developed. So while the concept of IPs must continue growing, the capacity building institutions also need retraining.
- At the grassroots level, key stakeholders – specifically farmer groups – are weak and marred with chronic internal conflicts, and lacking in best practices when it comes to institutional matters. Therefore they remain voiceless, with limited skills to articulate their needs and negotiate competitively with the private sector and other intermediaries.
- While the concept of IPs is still in its infancy, its growth is being interrupted because of limited funding to facilitate continued research and development towards maturity.

- Some IPs have experienced uncommitted members, joy-riders and spectators who join and then leave the IPs, but then re-join when opportunities look good. This sometimes causes confusion and conflicts in the management and well-being of the IPs.
- Potentially, politicians may want to hijack the governance of successful IPs for their own political gains. This may derail the real objectives of the IP concept, by involvement with the political agenda. The proponents of the IP concept need to be cautious about political agendas and guard against IP derailment.
- Conflicts of interest in IP governance may end up killing the concept.
- The legal status of IPs is currently a bone of contention among IP stakeholders.
- The SSA CP has been primarily acting as a broker, assisting in identifying the actors and bringing them together. Its abrupt withdrawal will, in the short run, leave a gap that is likely to destabilise the IPs.
- Funding sources for IP activities are not yet guaranteed and this could result in implementation being fragmented, uncoordinated and under-funded, which could result in discontinuity of critical activities.
- There are still insufficient favourable agricultural credit facilities and subsidies for IP activities; these types of funding resources are best-suited to support sustainability.
- There is a need for improved human resources to handle IP activities, including scientific knowledge and skills for the development of strategic partnerships and alliances.
- Investments in rural education are currently low.

## 4.9 Successful progress towards institutionalisation of IPs

While many aspects of the success stories in the LKPLS are demonstrated in chapter 6 of this book, it is instructive to note that the success of an IP emanates from many aspects including its legality. In this respect, it is observed that some IPs, such as Bubare and Chahi in Uganda, are registered as CBOs at the district and sub-county levels. This has enabled them to be recognised as organised entities and has thus made them to succeed in integrating their work plans into the sub-county plans for the year 2010–2011. In this way the IPs are almost assured of receiving local government support as provided for in the Decentralisation Policy. This has also been useful for gaining positive political support, particularly towards the sustainability strategies of the IPs.

In an effort to mainstream IAR4D, some countries in the LKPLS have made important strides towards adopting IAR4D. In Uganda, for instance, the general elements that are needed to strengthen capacity for IAR4D and its institutionalisation are outlined in the ‘National IAR4D Plan’, including a framework for more detailed planning by partner organisations in implementing IAR4D. The vision of Uganda’s IAR4D Plan is a ‘rural innovation system where individual and organisational behaviour promotes the integration of stakeholder concerns, knowledge and actions around priority development themes, leading to improved organisational performance and improved rural livelihoods’. The goal is to enhance individual,

organisational and institutional capacity for IAR4D in Uganda, leading to more effective, efficient and relevant agricultural research for development programmes. Key elements identified under the Ugandan IAR4D Plan include:

1. Raising awareness of IAR4D at different levels:
  - a. Policy level (Parliamentary Select Committee, NARO/NAADS Boards, Makerere University Council, etc.)
  - b. Management level (Directors PARIS, Zonal Management Committees, Deans, etc.)
  - c. Operational level (District NAADS Coordinators, PARI Scientists, etc.).
2. Assessing needs for capacity strengthening in IAR4D:
  - a. Key organisations and individuals needing IAR4D competency development
  - b. Key IAR4D competencies needed.
3. Incorporating IAR4D principles and practices within the implementation plans of participating organisations.
4. Creating mechanisms within IAR4D partner organisations to oversee and coordinate IAR4D activities at all levels.
5. Creating a secretariat to coordinate IAR4D activities among partner organisations.
6. Creating a pool of IAR4D facilitators/resource persons at national and decentralised (zonal/district) levels.
7. Integrating stakeholder requirements and IAR4D competencies into university curricula.

Overall, the anticipated IAR4D outcomes include: (i) shared and developed national visions of IAR4D and rural innovation processes by public and private partners; (ii) professionals and organisations with increased ability to work within multi-stakeholder arrangements and processes, and hence address complex technical and social challenges; (iii) reduced duplication of activities between different organisations, resulting in more efficient use of scarce resources; (iv) improved guidelines and proposals for, and quality of implementation of competitive grants for research and advisory services; (v) improved coordination between public and private organisations within established agricultural IPs, resulting in more market-responsive, client-oriented and demand-driven research and extension services; (vi) more concerted actions on specific and priority research for development themes (problems and opportunities), resulting in increased impact on rural livelihoods and poverty alleviation.

IAR4D also implies changes in university practices. Consequently, pluralistic reforms have been introduced and are being instituted at Makerere University. The University has acknowledged the need to change the methods of teaching and conducting research into complex problems. University graduates have often been criticised for not being focused on problem-solving and hence not meeting the expectations of employers and the communities. To that end, new pro-IAR4D courses have been developed towards offering a Bachelor's degree in Agricultural and Rural Innovations (BARI) in the Department of Agricultural Education and Extension.

## 4.10 Conclusion

It has been argued in this chapter that institutionalisation of innovation platforms (IPs) must involve people and institutions with developed capacity (knowledge, skills, mindsets, institutional cultures and modes of learning, and new forms of institutional linkages and collaboration) across a broad range of stakeholder and institutional settings. Institutionalisation of IPs thrives best in institutional environments that are conducive to innovation and that can only be created through the collective and concerted actions of all IP partners. Simultaneously, the enabling institutional environments would provide enabling innovative ways of learning and innovative forms of institutional collaboration across a range of stakeholders and institutions operating at different scales.

Several examples from the LKPLS illustrate the great opportunities and efforts made, as well as the persisting challenges to institutionalising IPs. Capacity building remains a priority, especially when it comes to identifying educational organisations that can champion the creation of critical masses of partners advocating for and practicing IAR4D. This requires innovative changes to occur across a broad range of stakeholders simultaneously. Such action may not be an easy task, requiring strong and concerted commitments at many levels (national, regional and global). Overall, government institutions are best positioned to steer the process of IP institutionalisation and sustainability.

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## CHAPTER 5

# Policy and Institutional Framework of the Lake Kivu Pilot Learning Site

Wanjiku C, R Kalibwani, SO Nyamwaro, E Birachi, M M Tenywa, R Buruchara, J R Mugabo, L Lubanga, S Mutabazi, M Majaliwa, B Nyamurinda, C Nyaboyisonga, S Mapatano, M A Ramazine, E Nkonya, A O Fatunbi, A A Adenkule

### 5.1 Introduction

Public policy is a purposive and consistent course of action produced as a response to a perceived problem of a constituency, formulated by a specific political process, and adopted, implemented, and enforced by a public agency, such as government ministries and other institutions. Governments establish institutions to implement policies. The integrated agricultural research for development (IAR4D) strategy can assist in establishing such institutions that cater for all stakeholders, especially farmers at the grassroots level.





Poverty has been increasing in Sub-Saharan Africa (SSA) in spite of enormous efforts made through agricultural research and innovation to increase productivity, create wealth and ensure food security at the household level (Clegg 2010, Luiz 2006). Agricultural breakthroughs do not seem to translate into increased incomes and reduced poverty among small-scale farmers on the continent. Several internal factors have been put forward to explain this, ranging from bad governance and corruption, to low technologies, deteriorating ecosystems, population pressure and the effects of climate change (Bayart et al. 1999). External factors include colonial legacy, poor terms of trade, trading raw materials with little value added, fluctuating currencies, high cost of imports, and foreign-aid dependency syndrome (Adepoju 1993). Despite all of the above, little attention has gone into deep examination of the role of agriculture and its management. Agriculture provides livelihoods for over 80 percent of the inhabitants of SSA – it is still the major economic pillar for many countries that can help build Africa’s economies. If supported by effective implementation of the right policies and institutional arrangements, agricultural growth can create wealth for the poor in SSA faster than growth in any other sector.

In order to improve incomes and food security at the household, community and national levels, it is crucial to formulate, review and implement appropriate policies and to evaluate the institutional environments in which poor agricultural producers, processors, traders and other small-scale entrepreneurs operate. National policies, particularly those addressing trade and the agricultural sector, do exist in each of the three project countries participating in the Lake Kivu Pilot Learning Site (LKPLS) of the Sub-Saharan Africa Challenge Programme (SSA CP). This chapter examines existing policies in the three participating countries to see how they relate to the concepts and practices of IAR4D and its innovation platforms (IPs). It examines how IAR4D can be used to influence the review of policy and institutional arrangements to bridge any gaps that may work against the adaptation and adoption of the IAR4D strategy. It is now acknowledged that an IAR4D approach calls for institutional and information revolution through the use of consultative meetings involving interested stakeholders, including farmers and especially the rural poor. This is seen as a revolution that will not only improve and secure livelihoods, but also promote innovation along agricultural commodity value chains.

IAR4D, through its institutional arrangement of IPs, helps farmers form direct links to other stakeholders who are interested in farmers’ products and/or interested in alleviating rural poverty in SSA.

The following four sections of this chapter cover the contextual setting (section 5.2), the IAR4D conceptual framework (section 5.3), a review and synthesis of selected policies from the LKPLS participating countries (section 5.4), and finally, some conclusions (section 5.5).

## **5.2 Contextual setting**

Each of the three countries that make up the LKPLS appears to have a different policy and institutional framework. These differences can be classified as follows:

**Uganda** has been out of active armed conflict for over 21 years. Most of Uganda's national policies have been revised and many of them are implemented through a devolved system of governance, which involves District assemblies with a parliament and a chairman as the major policy-implementing agencies. However, many of the policies lack rigorous enforcement mechanisms to make them work. This situation presents a favourable environment for IAR4D's IPs to provide grassroots institutions that can enforce the implementations of policies that respond to their needs.

The **Democratic Republic of Congo (DRC)** is struggling to come out of conflict, and there are still localised zones of sporadic conflicts. The DRC's national policies have not been revised for decades. Governance in DRC is highly centralised in Kinshasa, with poor mechanisms linking with provincial governments such as North Kivu Province. No policy document was forthcoming from the provincial office of the Ministry of Agriculture, because drafts sent to Kinshasa had not been returned. The few policies available were simple statements used to enforce policies, such as the seed policy, which stated in a few lines that if farmers test the new seed and they like it, the officers register that as released seed material. This provides a positive environment for testing and distributing new and improved materials from neighbouring countries and other programmes to improve farming in the country. This situation offers a fertile ground for formulating and reviewing policies that would benefit all the actors, particularly those in the agricultural sector, by ensuring that farmers reap the benefits of the supportive policy environment. This situation provides room to develop a policy environment that supports IAR4D.

**Rwanda** has been out of active armed conflict for at least 16 years. Policies in Rwanda have been formulated, reviewed and revised to meet the development challenges that the country faced after the 1990s internal conflicts. Policies are implemented through a devolved system of governance with strong enforcement strategies and effective citizen participation, especially in monitoring and evaluation. The Umurenge Vision 2020 platform structure is the policy-implementing agency under the guidance of local government where a Joint Development Forum is constituted that examines development plans for each district (whether implemented by government or non-governmental institutions), and evaluates work plans and budgets for all stakeholders annually. The Government has established a system where every year development agencies have to apply for a licence to operate in a particular district and the Joint Forum has to verify and approve the application. This implies that policy compliance is enforced. The active participation of the citizens, represented by the district mayor's office, ensures that those entrusted with enforcement do so as required.

A number of relevant policies from each country have been selected and analysed from the IAR4D perspective. It is important to see how IAR4D and its new institutional flagship IPs can take advantage of supportive policies. It is also crucial to see where the new approach can contribute to improving existing policies and strengthening institutional arrangements to benefit the poor and where it could contribute more efficiently and effectively to poverty alleviation and sustainable use of available resources and services.

### 5.3 IAR4D conceptual framework

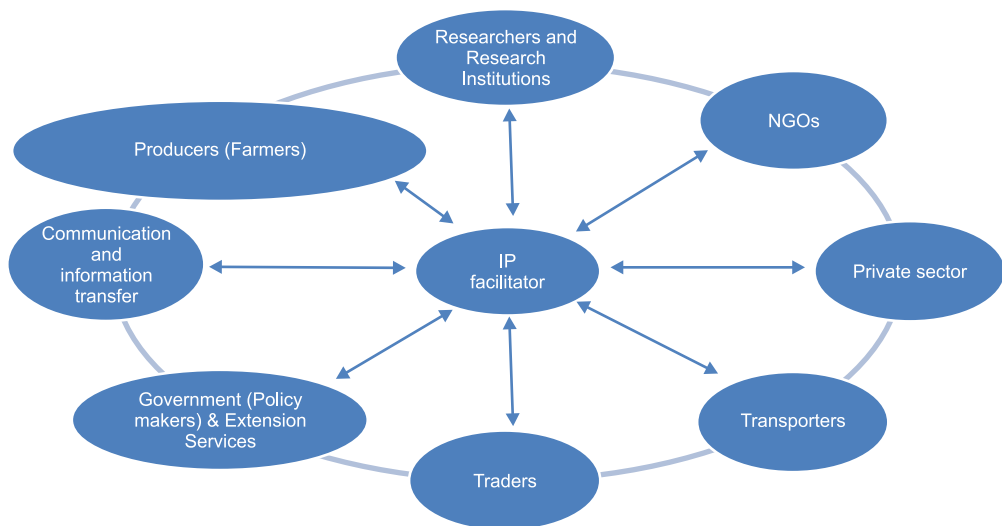
IAR4D is operationalised through innovation platforms (IPs). An IP is an institution that brings farmers, researchers, extension personnel, microfinance institutions and bankers, traders, transporters, processors and policy makers to the same table to deal with the challenges facing the farmers at the local level.

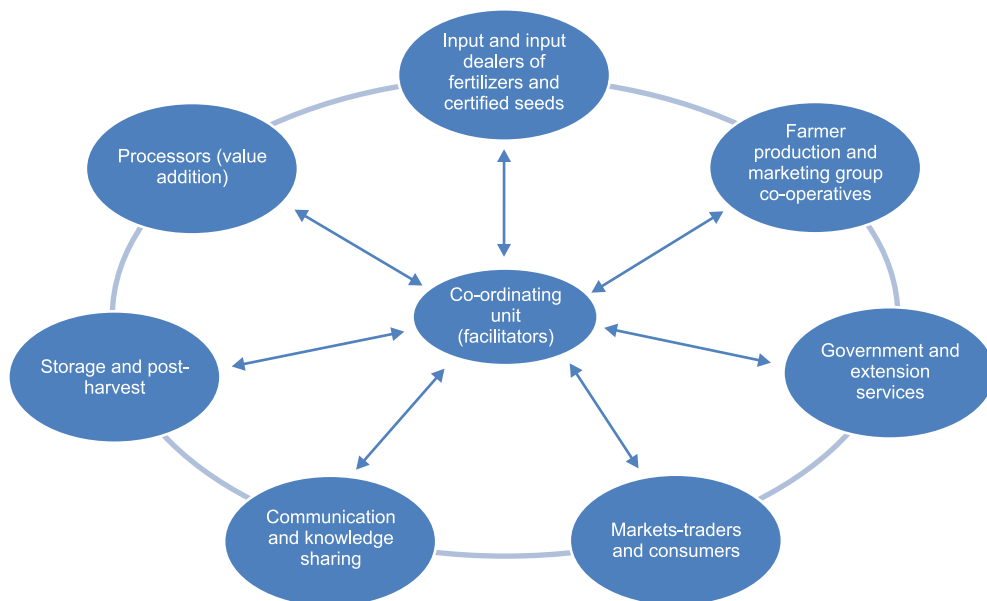
Figure 5.1 illustrates an IP framework. As the diagram shows, an IP calls for all interested stakeholders (including researchers, policy makers and planners, natural-resources experts, processors, traders and marketing experts) in a given agricultural value chain to come together with farmers and address the challenges along that value chain. For most small-scale farmers on the continent, the most important value chains are those of food crops. In dealing with agricultural value chains, one has to think of the various stages a commodity goes through from production to sale/marketing and finally to disposal. Each of the circles in Figure 5.1 can be expanded into various components forming their own systems. For example, the market framework (Figure 5.2) can be developed from the market component of Figure 5.1.

As Figure 5.1 shows, everyone concerned is invited to the table. Note that the circles depicting the farmers and the government are larger; this is because they are the only permanent members of the IP. All the others can come and go and be replaced by new members depending on the issue at hand.

Figure 5.2 depicts a section of the platform (a sub-platform) that deals with market access issues. It is possible to identify a set of actors to address that problem and report back to the main IP at an appointed time. From LKPLS experiences, this kind of IP is possible at the

**Figure 5.1: IAR4D conceptual framework – an innovation platform (IP)**





Source: Developed from discussions among Dr J.J.R. Groot, IFDC Director for East and Southern Africa Division, Dr Brigitte Nyambo, ICIPE and the authors.

**Figure 5.2: A market sub-IP**

grassroots/farmers level where one of the IP members, such as an NGO or a government department, plays the role of a facilitator to get the expected results.

The major role of an IP is to provide a forum and facilitation so that actors can come together to address farmers' challenges and seek solutions to the challenges. When farmers' representatives sit at the same table with agronomists, private sector representatives (processors, traders, transporters, banks and other credit institutions) and policy makers (government officials) to address the challenges of a given commodity, solutions are found and implemented in the shortest time possible. There are many such challenges, which may be technological (eg, limited availability of improved crop varieties) or natural resource management (NRM) problems (eg, soil erosion and low fertility), or limited and poor markets for various reasons, including poor road infrastructure, poor market information, and lack of value addition, among others. There could also be policy and institutional arrangements in place that support or act as barriers to agriculture. Where there are policy barriers or a lack of policies, an IP provides a forum for policy review, especially when policy makers are also IP members.

The IAR4D approach is people-centred. It is cyclic rather than linear. Thus, if Africa is committed to eradicating abject poverty (especially among smallholder farmers), the methods and strategies currently being used for wealth creation for them must change. African leaders should see African small-scale farmers as the critical decision makers whose ideas must be brought on board to guide agricultural research, policy and development.

Consequently, the following requirements of the IAR4D approach are postulated.

- a. Government policies on production must also address the marketing issues including infrastructure, such as roads and information.
- b. The small-scale African farmer must be at the same table with the policy maker, the breeder, the agronomist, the banker or credit provider, the trader, the transporter and the processor for value addition, among others, who enter and exit the IP as needed.
- c. Markets for both food and export crops produced by small-scale farmers must be addressed as production is being addressed.

## **5.4 Review and synthesis of selected agriculture and trade policies**

In all three LKPLS countries, a quick review of existing agricultural policies indicates a trend towards increasing production and weak relationships between these policies and trade policies that address marketing of agricultural products. Analysis of the trade policies in the region also reveals a bias towards export markets and very unclear statements on the domestic markets.

In addition, a quick survey on farmers' knowledge on policies shows that very few small-scale farmers are aware of policies that guide their farming and marketing of their produce. Many of them see the role of government as 'unfair taxation'.

The discussion below is an assessment of selected policies in each country that affect small-scale farmers and that have a direct relationship with the IAR4D strategy. The discussion is at two levels: the national and the community levels. The national-level policy assessment highlighted major issues in connection with the IAR4D strategy, and the community-levels assessment examined implementation of bye-laws and ordinances.

### **5.4.1 Rwanda**

Many of the Rwandese policies have been revised and are implemented through a devolved system of governance where their enforcement involves effective citizenry participation for monitoring and evaluation. The Rwanda Umurenge Vision 2020 institutional platform (GOR 2007a) is the implementing agency, under the guidance of local government. There is in place a Joint Agricultural Forum at the district level.

#### **Vision 2020 Policy, 2000**

The Government of Rwanda's Vision 2020 (GOR 2000) is the main policy that gives guidance on how development activities in Rwanda should be implemented. This policy provides a road map for transforming Rwanda's economy from that of a poor country to that of a middle-income country. Its major objectives are to:

- a. reconstruct the nation and its social capital, anchored on good governance and underpinned by a capable state
- b. transform agriculture into a productive, high-value, market-oriented sector with forward linkages to other sectors

- c. develop an efficient private sector, spearheaded by competitiveness and entrepreneurship
- d. comprehensively develop human resources
- e. develop both soft and hard infrastructure
- f. promote regional economic integration and cooperation.

The immediate concerns of the innovation platforms (IPs) are those directly linked with the tenets of objective (b).

The Vision 2020 policy addresses current challenges, including: low savings and investment rates; high unemployment and underemployment rates; high dependency on exports of raw agricultural products that are prone to global price fluctuations; 90 percent of the labour force is dependent on agriculture, which remains unproductive and at subsistence levels, with decreasing productivity per unit area, and which faces massive environmental degradation; poor road network; narrow economic base; weak institutions; low levels of human resources development; public debt larger than the GDP; and the genocide legacy.

Having identified the national challenges, the Vision's major objectives include, in the short term, the promotion of macroeconomic stability and wealth creation to reduce aid dependency. In the medium term, the goal is to transform the economy from an agrarian one into a knowledge-based one, which will focus on industries that would respond to domestic market requirements. The Vision calls for the participation of citizens by empowering them to participate in development decision-making processes. The Vision also appreciates the role of infrastructure in making it work, especially as the nation creates the environment for private-sector-led development. The private sector is expected to take over as an engine of economic growth. Although foreign direct investment will be encouraged, the Vision forecasts and encourages the development of indigenous entrepreneurs who will form part of the middle class needed for a growing economy.

Vision 2020 appreciates that agriculture will still play a crucial role in the economic development of the country. Thus, the Government envisions an agricultural sector producing high-value crops and which is a business venture. As for providing a conducive environment for the implementation of IAR4D strategy, Rwanda Vision 2020 has essentially captured all the tenets of IAR4D – from technologies to NRM, markets and policies. These are all embedded in the transformation of agriculture into a productive, high-value, market-oriented sector with forward linkages to other sectors. However, the policy does not state clearly the institutional frameworks that will carry the Vision through. Nevertheless, Vision 2020 provides room for policies to be formulated that address the institutional gaps. These policies include:

- Economic Development and Poverty Reduction Strategy (EDPRS), 2008–2012 (GOR 2007b)
- Agricultural Policy (GOR 2004)
- Vision 2020 Umurenge Programme – this has a structure that could be improved and/or modified to become an IP
- Community Development Policy (GOR 2008)
- Trade Policy (GOR 2009).

All of these policies provide a good environment for the IAR4D strategy in Rwanda. The Community Development Policy (CDP) of 2008 is taken as an example to show how this is possible.

## **The Community Development Policy**

The Community Development Policy (CDP) (GOR 2008) is implemented by the Ministry of Local Government, which is mandated to bring positive developmental change at the grassroots level, especially in the rural areas where the majority of the people live. A local institution charged with implementing this policy. The CDP vision is to make Rwanda a ‘community that is organised, self-motivated, hard-working, forward-looking, and has the ability to exploit local potentials with innovations geared towards sustainable development’ (GOR 2007a). Its mission is to ‘ensure effective and sustainable participation of the community in its own development in order to achieve poverty reduction and self-reliance based on the sustainable exploitation of available resources’ (GOR 2007a). The CDP assists in the implementation of the decentralisation process that the Government has embarked on in order to enhance public participation in policy- and decision-making processes. It uses indigenous knowledge systems, institutions and skills, and is building these into a modern system of governance. It has a structure with three components – good governance, social development and economic development – anchored on the *head of the community*

## **Policy highlights**

In the Vision 2020 policy, the following issues relevant to IAR4D are identified and noted for exploitation:

- a. Technologies – national technological gaps, including processing and value addition of traditional crops, are identified as priority areas
- b. Markets – while it is planned to improve markets and marketing channels, export markets are marked as a priority
- c. Infrastructure – soft and hard infrastructure are identified as major challenges and are being seriously addressed
- d. Institutions – various institutions have been and are being established, but the only problem is that many of them were formed via traditional top-down approaches
- e. NRM – issues are well addressed through proposed rehabilitation of degraded lands and preservation of biological diversity.

## **Proposed room for policy improvement**

It is proposed that a major policy review be undertaken to address the challenges of domestic food markets. These should replicate strategies used for export crops. For export crops like coffee and tea, the government has provided very strong extension services support, value addition, packaging and labelling.

The starting point could be the introduction of IPs, which would bring stakeholders together at the same table to deliberate on the issues through problem identification and discussion of

appropriate solutions. Consequently, at each community there should be an established IP for the selected enterprises. These can include as many value-chain enterprises as possible. An IP can begin with one enterprise and then adopt more as they learn and perfect their strategy.

### **How has the SSA CP taken advantage of prevailing policies in Rwanda?**

At the LKPLS, the policy–technology–market–NRM interfaces have initiated policy-sensitisation programmes to ensure that whatever actions are implemented at the IP level are supported by relevant policies. Policy sensitisation is also designed to make markets work for the poor.

Policy issues are being integrated into routine IP activities. For example, under the Rwanda land-consolidation and crop-intensification policies, there are two important policies that IPs in the country have used to their advantage: the policy on control of soil erosion and soil-conservation strategies, and the ‘one family one cow’ (Girinka) programme.

Using the Rwerere IP as an example, the IAR4D approach has taken advantage of these two existing policies to address challenges identified by the farmers; namely, low incomes and malnutrition, soil erosion and soil infertility, market access and poor farming knowledge. Specifically, the LKPLS IAR4D team has assisted in with the following initiatives.

- Organic chilli peppers were introduced as a high-value product and producers were linked to a chilli processor, Urwibutso, to provide organic chilli production skills and a niche market.
- Action de Sud, a partner organisation, is providing dairy animals on credit to the IP members. Send a Cow Rwanda (SACR) is providing dairy farming knowledge and skills. This has contributed to the Girinka programme as well as addressing the knowledge/skill gaps that farmers identified.

These actions have resulted in more than 41 households receiving dairy cows (one per household). By the end of 2010, more than half of the cows had calved. Milk production started flowing in an area where there was none. This has certainly contributed to nutrition requirements identified as a challenge by the farmers. In sustaining the introduced dairy animals, four high-value fodder species were adopted and planted extensively on the terraced slopes, further enhancing control of soil-erosion. Manure is taken back to the plots for soil improvement.

### **5.4.2 Uganda**

The Government of Uganda (GOU) is committed to a participatory and broad-based policy-making process. Policy issues are widely discussed and debated in a consultative process involving various stakeholders, such as the cabinet, parliamentary committees and interest groups, at the national and regional levels. Once a policy is launched, the relevant legislation is put in place to ensure a secure and conducive environment for the policy to be implemented.

In general, the central government makes national policies in Uganda. These policies then are translated into parliamentary bills and are issued as Acts, which are more detailed and provide



clear guidelines of what a person or an institution should do and not do and the penalties imposed in case of any breach. Based on these Acts of Parliament, the policy-implementing agencies (ie, the local government departments) can formulate bye-laws to support implementation. This devolved system of governance gives an opportunity to grassroots communities, including farmers, to directly participate in the policy-making process. Therefore, researchers using the IAR4D approach were able to initiate this process, starting with the IPs. However, the main challenge facing policy implementation in Uganda is enforcement.

### **The National Development Plan, 2010**

The 2010 National Development Plan (NDP) was launched as Uganda's first NDP in 40 years (GOU 2010). The NDP's vision is of 'a transformed Ugandan society from a peasant to a modern and prosperous country within 30 years'. The investment priorities listed in the NDP include: development of human resources; improvement of infrastructure; promotion of science and technology; and facilitation of availability and access to critical production inputs.

Under the theme 'Growth, Employment and Prosperity', the NDP's objectives are to:

- a. increase household incomes
- b. enhance the quality and availability of gainful employment
- c. improve the stock and quality of economic and trade infrastructure
- d. increase access to quality social services
- e. promote innovation and industrial competitiveness
- f. harness natural resources
- g. strengthen good governance and improve human security.

This provides a conducive environment for IAR4D in Uganda.

Central to the NDP is the restoration of agricultural growth as an engine for employment creation, poverty reduction and industrialisation. The NDP is the basis for the Development Strategy and Investment Plan (DSIP) for 2010/11–2015/16, which places renewed attention on the agriculture sector.

The DSIP is the newly revised Ugandan plan to support the improvement of quality and quantity in the agriculture sector (GOU 2009). It consolidates and harmonises all the existing parallel policy frameworks in the agriculture sector into one coherent plan. The DSIP sets the priorities for the five-year period and these will be used as the basis for defining spending plans each year under the Medium-Term Expenditure Framework (MTEF).

In this strategy, appropriate technologies are supposed to be developed and validated for use in the agriculture sector. The DSIP puts markets on a special level. Markets are expected to receive significant improvements in terms of performance, access and value addition. The strategy identifies rural market infrastructure as a key area to be addressed. The strategy has also placed renewed emphasis on restructuring old institutions as well building new ones.

It notes that several institutions have been established and are still operational. The idea is to continue addressing the weaknesses of the old institutions, particularly the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF). The strategy calls for a review of funding for its relocation from Entebbe to Kampala.

A few selected Ugandan policies and Acts that are relevant to IAR4D are briefly described below.

### **The Seeds and Plants Act, 2006**

The Seeds and Plants Act (GOU 2006) provides for the promotion, regulation and control of plant breeding and variety release, multiplication, conditioning, marketing, importing and quality assurance of seeds and other planting materials, and for other related matters. According to the Act, a National Seed Certification Service in the Department of Crop Protection of MAAIF is responsible for the design, establishment and enforcement of certification standards, methods and procedures. This Service is also responsible for training the people tasked with implementation of the Act, receiving and testing of all new varieties intended for release and multiplication, carrying out field inspection, testing and eventual certification, among other tasks. However, the Act does not propose any institutions for its implementation at the grassroots levels.

There is room for policy improvement and it is proposed to have MAAIF train farmer groups in the communities and have them produce certified seed for faster multiplication and distribution. The proposed intervention from the IAR4D perspective would be to select and train IP farmers to provide certified seeds of improved varieties to other IP members and the rest of the community. The training could be provided by MAAIF and related institutions, such as the National Agricultural Research Organisation (NARO) and the Uganda National Seed Potato Producers Association (UNSPPA).

### **The National Agricultural Research Policy, 2003**

The National Agricultural Research Policy of 2003 is expected to provide sustainable research services that address the needs and opportunities of the poor in a market-driven environment. Its vision is to provide a market-responsive, client-oriented and demand-driven national agricultural research system (NARS), comprising public and private institutions working in tandem for sustainable national economic growth. The mission of the NARS is to generate and disseminate appropriate, safe and cost-effective technologies, while enhancing the natural resource base (GOU 2003).

The key principles of this policy include responding to market opportunity, decentralisation of agricultural research activities, empowering stakeholders and promoting the participation of private sector, civil society and farmers. The policy provides for the establishment of NARO to take charge of all matters concerning agricultural research in Uganda. NARO, through its regional institutes, develops research priorities for the different agro-ecological regions. It promotes appropriate, safe and cost-effective technologies that are responsive to market opportunities.

Under this policy, IAR4D has a home with NARO, an institution that can bring all the other actors on board.

### **National Agricultural Advisory Services (NAADS)**

One by-product of the above policy is the National Agricultural Advisory Services (NAADS), which was established by an Act of Parliament in 2001 to support government efforts to eradicate poverty through the privatisation of extension services (GOU 2001). Its mandate, therefore, is to efficiently and effectively provide agricultural advisory services to poor subsistence farmers. NAADS' mission is to increase farmer access to information, knowledge and technology for profitable agricultural production. Extension services are provided to farmers on a demand-driven<sup>4</sup> basis, where farmer groups in each sub-county request a service, which is provided by a private service provider and paid for by the government through NAADS. NAADS is therefore responsible for increasing farmers' access to improved technologies. This has necessitated that demonstration sites be set up in various sub-counties by NAADS. The NAADS programme also provides market-oriented services, but does not link farmers to markets. However, in their groups, the farmers select marketable enterprises that they are interested in and the private services they require (which are paid for by NAADS). In terms of institutional arrangements, the programme is implemented through existing local government structures and farmer organisations. Farmers elect their leaders who represent them at the district and sub-county levels. These leaders then create the farmer forums. This is where IPs can fit very well.

However, there is still room for policy improvement since more emphasis needs to be placed on the negotiation of contracts between the farmer groups and the private service providers (eg, input suppliers, traders, transporters). From the IAR4D perspective, the proposed intervention is to advocate for the establishment of guidelines for contractual arrangements between IP farmers and service providers at the national level for faster service delivery.

### **The National Trade Policy, 2004**

The main objective of the National Trade Policy of 2004 is to improve the capacity for trade negotiations on market access and integration of agro-processing to enhance the linkages that exist between the domestic and external market sub-sectors (GOU 2004). The policy also aims to ensure that goods and services in the domestic market meet the required standards and sanitary measures, and to nurture a private-sector approach with a view to making the domestic market competitive. One of the strategies outlined for the achievement of these objectives is the Marketing and Agro-Processing Strategy (MAPS), which identifies ways in which marketing efficiencies and export opportunities might be improved for the benefit of the country's agriculture sector. The policy highlights the needs to promote competitiveness and raise efficiency of domestic production, stimulate domestic and foreign investment in export-oriented activities, and add value to existing exports, among other things. Although the

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4. Demand-driven services are expected to be financed by those who demand them. But in the case of Uganda, under the NAADS policy of 2001, the farmers demand and the government pays through the NAADS.

policy proposes the development of strong private and public trade-promotion institutions, the institutional flagships of this policy are not clear. The establishment of a warehouse receipt system and an agricultural commodity exchange are mentioned, but not elaborated.

### **Policy innovations in Uganda**

Given that Uganda appears to have the most devolved policy framework of the three LKPLS participating countries, some policy innovation work was initiated among the four Ugandan IPs. At the policy-environment level, which deals with national-level policy, advocacy activities like holding meetings, dialogues and consultations with individual policy makers (area members of parliament, parliamentary committees and respective line ministry personnel) were conducted on various policy issues.

Meanwhile, at the community level (the action domain), various activities leading to the formulation of bye-laws were carried out. Rapid appraisal surveys revealed that the major challenges concerning community bye-laws were not only their poor implementation and enforcement, but also the lack of a review mechanism for maintaining their relevance, and formulating new ones when the need arises. While a number of bye-laws existed – some documented and others not – they were not effective in influencing agricultural performance. Where attempts had been made to review and formulate new bye-laws, efforts were frustrated by local leaders who did not treat this as a priority, found the process lengthy and time-consuming, or had other political interests.

Focus group discussions were conducted with members from selected IPs in Uganda. The first stage of discussions was focused on understanding the Acts of Parliament that affect agriculture and related activities at the village level. The second stage involved reviewing existing bye-laws and other institutional arrangements within the selected communities, by discussing how they influenced operations of the IPs. Information and data gathered from the discussions were analysed qualitatively. Poor implementation and weak enforcement of the bye-laws was identified as one of the most important institutional issues that constrain production activities. Consequently, a process to review and formulate bye-laws was facilitated.

The process of review and formulation of bye-laws was initiated at the IP level at the end of 2009. IP members mobilised their respective parishes and villages for this process and produced drafts. The drafts from the different parishes were merged together to form a sub-county draft, which was again taken back for more consultation at the parish level before being presented to the IP at the sub-county level. During the consultation process, back and forth between the sub-county and village levels, issues that were continually being amended included the title for the bye-laws, definitions of terms, actual content of the bye-laws under the different sections and a review of the penalties and fines. At the end of the process, seven sub-county drafts were at different levels of formation in the various IPs. In principle, a completed set of bye-laws (fully discussed from village to sub-county level by the community members) is to be introduced as a motion to a sub-county council meeting, where, after approval by council, the chairman will sign them, and they can then be operationalised in the sub-county. These processes were

**Table 5.1. Summary of policy-related innovations in Uganda, November 2010**

<b>Level</b>	<b>Policy innovation</b>
<b>Policy level</b>	1. Advocacy activities, eg, meetings with individual policy makers (area members of parliament, parliamentary committees, respective line ministry personnel) on the following issues: <ul style="list-style-type: none"> <li>• policy and guidelines on free-range livestock management</li> <li>• critical NRM issues at the four IP sites</li> <li>• road construction</li> <li>• institutionalisation of contractual arrangements between farmers and private service provider in value chains</li> <li>• coordination and establishment of regulations in agricultural input marketing and quality assurance</li> </ul>
	2. Modalities to be worked out for training and certifying IP members to produce and distribute certified seed
	3. Modalities to be worked out to expand markets for agricultural produce within the region as provided for in the East African Community treaty
	4. Legalisation of the IP status, and strategic positioning of the IPs to access local government resources as provided for in the Decentralisation Policy
<b>Community level</b>	1. Community education and sensitisation programme on the following issues: <ul style="list-style-type: none"> <li>• bye-law formulation, implementation and enforcement</li> <li>• NRM issues</li> <li>• free-range livestock management</li> </ul>
	2. Establishment of community structures to handle farmer-related conflicts, community stores, bye-law formulation, implementation and regular review, and strengthening of existing structures
	3. Establishment of an incentive system to reward community members who comply with the bye-laws
	4. Capacity building of the IPs to be able to mobilise resources for their activities
	5. Establishment of modalities to institutionalise IP activities in local government structures

highly innovative. A summary of reviewed and formulated policy-related innovation is given in Table 5.1.

### **5.4.3 Democratic Republic of Congo**

The Democratic Republic of Congo (DRC) is a vast African country with diverse climate and soils, possessing immense potential for high agricultural production. It has an estimated area of more than 80 million hectares of arable land, of which only 10 percent is exploited currently. Due to the existence of massive mineral resources, agriculture is not given the prominence it deserves. The SSA CP is being implemented in North Kivu Province, which has high potential for agricultural production. In fact, North Kivu is a 'bread basket' area for the country.

DRC does not have an agricultural policy. According to the officers in the Provincial Office, there is a draft that has yet to be discussed by the parliament. During the colonial period,

the colonial government supported white farmers to grow crops on a large-scale for export. Africans were left to continue their traditional practices. Some attempts were made by the central government in Kinshasa to develop agricultural, trade and food-related policies, but very few seemed to progress to the stage of implementation. The 1990s armed conflicts made the situation worse.

The agricultural sector in North Kivu province is mainly supported by international non-governmental organisations (NGOs) under emergency conditions. This means that these institutions can provide free seed and fertiliser and buy grain and distribute as seed depending on their financial status.

### **Agricultural sector policies in DRC**

Like all the other African countries under the New Partnership for Africa's Development (NEPAD) strategy, DRC as a country is a signatory of the Comprehensive African Agriculture Development Programme (CAADP), whose mandate is to revitalise and develop agricultural potentials in each country and to place agriculture as the engine of national economies. Although DRC has still not initiated the processes of implementing the CAADP strategy, a road map for its implementation has been developed and signed (GODRC, Ministry of Agriculture, Fisheries and Livestock 2009).

### **Document for strategy for growth and poverty reduction**

By itself, the DRC agriculture sector does not significantly contribute to the socio-economic development of the country because of its many weaknesses. The low agricultural production has resulted in food insecurity, malnutrition, shortage of quality seed, high food prices, poor development of agricultural products, fish processing and conservation. Consequently, the Government developed the Document and Strategy for Growth and Poverty Reduction to restore and surpass the level of production that existed before the conflict. It is expected to consolidate the growth of sectors, with a view to achieving the recovery of the agriculture sector, as well as livestock and fisheries, while also increasing incomes in rural areas and diversifying agricultural exports (GODRC 2006).

In order to realise the aims of the strategy, in the short term it is necessary to: revitalise the seed centres; strengthen the mobilisation of and support to improved farming methods in rural areas; improve the livestock sector by aiding the reconstruction of herds decimated during the conflict; diversify cash crops; strengthen support to producers through improved access to inputs and dissemination of applied research results; develop and organise agricultural markets; and develop the fisheries sector. However, an institution to implement this is lacking.

During the medium term, the strategy is expected to support private initiatives (eg, economic actors, cooperatives) particularly in the framework of facilitation, supply and marketing, and also to support community-development committees, village associations and cooperatives to ensure gradual transformation from traditional farming systems to economic operations. This is where the IAR4D strategy becomes critical as it offers the option of having innovation platforms (IPs) as the implementing institutions.

## **Programmes for agricultural and rural sector development**

For the rehabilitation of agriculture and livestock (GODRC, Ministry of Agriculture, Fisheries and Livestock 2009), the GODRC is implementing several programmes and projects in different parts of the country, with the support of donors. Among the most important and active programmes and projects on the ground are the Multi-sectoral Programme of Emergency Rehabilitation and Reconstruction (PMURR) and the Support Project for the Rehabilitation of the Agricultural and Rural Sector (PARSAR).

Both programmes have the following objectives:

- a. crop production through the provision of clean planting materials and quality seeds of the main food crops
- b. production of improved seeds (maize, rice, peanut, bean, cowpea, soya bean and cassava)
- c. publication of the seed regulation, which is under preparation
- d. rehabilitation of rural roads to improve access to markets for producers
- e. animal production through training of trainers for the ranchers and fish producers
- f. Implementation of studies to restart provincial agro-industries for cotton, palm oil, rubber, cocoa, coffee, tea and cinchona in Bas-Congo Bandundu, Kasai, Province Orientale, Kivu and Equateur
- g. provision of support to the Institute National pour l' Etude et la Recherche Agronomiques (INERA), National Seed Service (SENASA) and the National Extension Service (SNV) through capacity building
- h. privatisation of seed farms in the province of Bas Congo.

## **Extension services**

The official extension service is the National Extension Service (SNV), which is no longer fully operational on the ground. Instead, the Ministry of Agriculture, Fisheries and Livestock has established the Council for Agricultural and Rural Management (Conseil Agricole Rural de Gestion, CARG) to respond to the new policy of agricultural development and restoration strategies, including: the disengagement of the state; the privatisation or restructuring of public and parastatal companies; the empowerment of farmers; the liberalisation of prices and markets; decentralisation; and incentives for private investment in rural areas (embodied in the Agricultural Act).

CARG is a structure for cooperation involving various actors in the rural areas, including decision makers, provincial parliament, the provincial administration, private sector, associations and trade unions, farmers, universities and research centres. CARG intervenes at three levels: the central state, the provincial capitals, and the districts. At the grassroots level, it is structured in sectors and territories.

The purposes of CARG are to support farmers to form cooperatives, to communicate the content of the Agricultural Act, and to promote agriculture in general.

## **The seed system**

Currently, the seed sector is in disarray and there is no seed legislation. The latest version of the draft seed law has not yet been promulgated. Instead, a non-formal institutional framework for the production and marketing of seed has been developed. It involves a multitude of operators: small and medium-sized rural enterprises, various interest groups, associations and NGOs, and a few large private corporations. The category of propagated seed is monitored and certified by the National Seed Service (SENASEM).

The SSA CP has taken advantage of this situation and has encouraged farmers in North Kivu to access improved seeds varieties that are in demand in the market. The project has linked the farmers with research institutions in neighbouring countries, such as Makerere University in Uganda, the Rwanda Agricultural Board and also with programmes like the International Potato Centre (CIP) and the Africa Bean Research Alliance (PABRA), to mention but a few. Therefore, it is clear that the IAR4D strategy is applicable in DRC, though there are very limited policies and no implementation strategies in place.

## **Agricultural research**

The framework document for agricultural research is the blueprint of the 1991 agricultural research (GODRC, Ministry of Scientific and Technological Research 2004). This document set the strategic directions of agricultural research in DRC, but it is now obsolete and is being updated.

The main organisation with the mandate for carrying out agricultural research in the DRC is INERA. However, research and development are also conducted by the universities and other research centres in the country, including Centre de Recherche en Sciences Naturelles (CRSN) and Centre de Recherche en Science Appliquée et Technologique (CRSAT).

The above institutions do not have the resources to operate at the grassroots level in North Kivu Province, and the insecurity in the area compounds this. The international NGOs respond to emergencies and hence are not able to systematically address agricultural and development issues in an organised manner. Thus the situation provides a good environment for application of the IAR4D strategy.

## **5.5 Conclusions**

Policy support is required for production, NRM and marketing strategies and infrastructure to be effective and efficient. For instance, in marketing, as the prices of agricultural products frequently fluctuate, it is important to manage the commercialisation process effectively and in a way that allows the optimum share of value addition to flow to the poor people. This can only be achieved fairly if policy interventions in the form of subsidies are instituted. Hence, appropriate strategies will have to be worked out to address issues relating to marketing



**Table 5.2. Summary of existing national services within the Ministry of Agriculture, Fisheries and Livestock, DRC**

<b>Service</b>	<b>No. and date enacted</b>	<b>Mission of the service</b>
National Agricultural Statistics Service (SNSA)	Ministerial Decree 003/AARDC/9 5 January 1991	<ul style="list-style-type: none"> <li>• Coordinate statistical work in the agriculture sector</li> <li>• Lead surveys and censuses of modern and traditional farms in rural areas</li> <li>• Collect and collate statistics of prices and quantities of agricultural products marketed</li> <li>• Centralise, process, analyse and disseminate available data at national and regional levels</li> </ul>
National Extension Service (SNV)	Ministerial Decree 0045/BCE/DDR/89 6 June 1989	<ul style="list-style-type: none"> <li>• Coordinate, harmonise and support seed multiplication, certification and control</li> <li>• Coordinate, harmonise and support actions in rural areas</li> </ul>
National Seed Service (SENASEM)	30/CAB/MIN/AGRIDRAL/95 29 June 1995	<ul style="list-style-type: none"> <li>• Support seed production, control and certification</li> </ul>
National Fertilisers and Related Inputs Service (SENAFIC)	Ministerial Decree 001/BCE/AGRI/90 13 January 1990	<ul style="list-style-type: none"> <li>• Propose policy on soil fertility management</li> <li>• Distribute fertilisers and related inputs (inocula, pesticides and agricultural implements)</li> <li>• Introduce and popularise fertilisers and related inputs</li> <li>• Train technical personnel on fertiliser use and extension</li> <li>• Prepare and propose legislation on fertilisers and pesticides, and monitor compliance with these standards</li> </ul>
National Aquaculture Service (SENAQUA)	Ministerial Decree 0055 bis/CAB/MINAGRICRAL/92 12 August 1992	<ul style="list-style-type: none"> <li>• Manage all regional rearing stations</li> <li>• Evaluate aquaculture resources and methods of management</li> <li>• Assist decision makers in developing national policy on aquaculture</li> <li>• Coordinate all aquaculture projects initiated by national programmes</li> </ul>
National Rice Programme (PNR)	Ministerial Decree 0037/CAB/AGRIDRAL/93 24 August 1993	<ul style="list-style-type: none"> <li>• Coordinate all activities related to rice culture</li> <li>• Contribute to the definition of the agricultural policy and the implementation of rice-growing techniques and structures at the national level</li> <li>• Assist rice producers with production, milling and marketing-related problems</li> </ul>
National Agriculture Mechanisation Service (SENAMA)	Ministerial Decree 0019/CABVPM/AGRIDRAL/93 23 June 1993	<ul style="list-style-type: none"> <li>• Promote mechanised agriculture particularly on large farms and by large farmers groups where it can be cost-effective</li> <li>• Set the national policy on agricultural mechanisation</li> </ul>
National Veterinary Inputs and Livestock Service (SENIVEL)	Ministerial Decree 005/ 24 October 2001	<ul style="list-style-type: none"> <li>• Improve farmers' access to inputs for livestock with the assistance of various actors, eg, private importers, groups of farmers, veterinary pharmacists</li> </ul>

and infrastructure. The most immediate infrastructure need for DRC IPs, for example, is the maintenance of the local transport network.

As observed, major constraints and policies affecting the agricultural sector, including taxes, levies, transport infrastructure, utilities, credit, and demand and supply management, seem to be addressed better by membership in IPs. Consequently, IAR4D provides a framework for convergence of successful interventions in agricultural value-chain enterprises.

It has also been observed that through IPs, IAR4D has minimised the sectoral approach to agricultural research and development in the region by bringing all policies to the level of the farmer for interpretation and implementation. This has created room for the farming agenda to lead policy analysis and formulation whenever and wherever it arises. This scenario is well illustrated in the case of the IPs in Uganda where soil and water conservation bye-laws have been formulated by the IP members and forwarded to the sub-county and district councils for ratification as bye-laws and ordinances. IPs are also empowering all the actors in the process, including bringing farmers out of the fields to meet traders and processors, policy makers and researchers, bankers and input dealers as equals, to address relevant policies and policy issues or to fill policy gaps where they exist. In the process, IAR4D and IP systems can be institutionalised and attempts are being made to do so, but this faces many challenges due to the 'emergency' mentality of most players in the field.

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## CHAPTER 6

# Success Stories

Nyamwaro SO, R Buruchara, MM Tenywa, R Kalibwani, J R Mugabo, C Wanjiku, JMB Tukahirwa, B Nyamurinda, F Murorunkwere, I Kashaija, D Ndatira, S Mutabazi, M Kuule, K Karume, G Bikuba, P Mandefu, MA Ramazani, S Mapatano, B Wimba, L Bahiga, AO Fatunbi, AA Adekunle

### 6.1 Introduction

The agricultural economy of Sub-Saharan Africa (SSA) is changing. Over time, it has been moving from slash-and-burn subsistence agriculture to a more organised, stable, rotational and commercialised agriculture, albeit at a slow pace. So far, SSA agricultural growth and development have largely been supply-driven. In many cases, farmers did not know who they were producing for, nor did they know the market requirements. The quality of the products has been low. Markets and marketing channels have largely been unstructured and unorganised. There has been limited collective marketing and thus little bargaining power, resulting in exploitation of farmers by market intermediaries. Traders and other intermediaries



have not been organised either. Where collective marketing has existed, there has also been mismanagement and corruption of all types.

Often, production is increased based on speculative promises of anticipated market demands. When higher yields were attained ('bumper harvests'), farmers have faced many risks including poor infrastructure, perishability of their products, poor market access and volatile prices. For many reasons, proven technologies have remained unused. There has been limited value-addition to produce. The major value-addition challenges have included: poor postharvest handling; storage pests; lack of modern processing technologies (equipment and packaging); limited skills, awareness and capital; untimely harvesting; poor preservation methods; and selling raw (low-value) products. In subsequent seasons, production has apparently gone down. As a consequence, intermediaries and their agents have abounded and filled the vacuum by undertaking some of the market functions, such as bulking, cleaning, sorting, grading, packaging, transporting and linking to markets. Most of the problems listed have mainly affected food crops.

All of the above is likely to change with the advent of the Sub-Saharan Africa Challenge Programme (SSA CP), which has initiated the integrated agricultural research for development (IAR4D) approach of doing research. In using the IAR4D initiatives, multiple stakeholders based on value chains in the Lake Kivu Pilot Learning Site (LKPLS) have been brought together to address common challenges faced by farmers and other value-chain actors. In introducing the IAR4D approaches in the LKPLS, the IAR4D change agents were faced with major challenges, including farmers' expectations of handouts and low participation of the private sector (which expected immediate returns). However, the operationalisation of market-demand driven innovation platforms (IPs) caused a shift in the mindsets of farmers from passive expectation of handouts to active engagement to tap market opportunities. Clear 'win-win' situations resulted and these stimulated participation of private-sector actors, including financial and credit institutions such as Equity Bank and Mutuelle d'Épargne et de crédit au Congo (MECRECO – a microfinance institution based in the Democratic Republic of Congo), processors, traders and non-governmental organisations (NGOs). As a consequence, various successful value-added products have been produced by the IPs in the LKPLS, including a sorghum drink called *Mamera* (a registered product of Bubare Sorghum IP in Uganda); a local banana-based alcoholic drink (*Kasiksi*) and juice (*Mutobe*) by Musanganya IP, in the DRC; potatoes in Gataraga IP, Rwanda; maize in Chahi IP, Uganda; milk in Mudende IP, Rwanda; and beans in Maendeleo IP, DRC.

Realisation of these products has been attained largely as a result of the implementation of IAR4D work in the LKPLS since 2008. The work has involved exploration, discovery and exploitation of appropriate innovations and technologies to enhance enterprise productivity, including work in the areas of natural resources management (NRM); market organisation, linkage and penetration; and the use of supportive policies and institutions in an integrated manner. All of these have been directed towards improving agricultural product value chains under the umbrella of the SSA CP long-term objectives, which are to: widen networking through partnerships, enhance food security, increase rural incomes through commercialised agriculture and sustainably reduce poverty, while preserving the integrity of the environment.

Within a time frame of about three years, the work undertaken in the LKPLS achieved substantial successes in various aspects, including project integration, teamwork, institutional arrangements, policy innovations and some successful agricultural product value chains. These have been achieved mainly as a result of using the IAR4D approach, which has brought farmers together to interact with researchers, extension staff, traders, processors, policy makers and other partners – working together in a synergistic way to develop strong and sustainable farming value-chain enterprises in the LKPLS. The IPs have provided forums for appropriate facilitation and research in terms of harnessing productivity-enhancing technologies and innovations, capacity building in terms of training and exposure tours, linkages to markets and service providers, and preservation of natural resources. This has enhanced the ability of farmers to conduct their businesses in new and better ways, to attain success within a short time. Frequent interactive meetings have enabled farmers, researchers and other partners to share information and experiences. Knowledge acquisition has occurred through training and knowledge creation and sharing activities (ie, exchange visits, demonstrations and learning sites, use of knowledge from weather stations, and workshops). Through such organised meetings, farmers in some IPs have formulated bye-laws that have enabled them to implement and enforce facilitative rules and regulations, in particular to reverse the degradation of natural resource bases.

Practical modern agricultural knowledge and technologies – use of fertilisers, sprayers, soil and water conservation – have been gained. Useful linkages have been made with established institutions and service providers, including MECRECO, National Agricultural Research Organisation (NARO), Uganda National Seed Potato Producers' Association (UNSPPA), Uganda National Agro-Input Dealers' Association (UNADA), traders, universities (Makerere, National University of Rwanda [NUR] and University of Kinshasa), the International Center for Tropical Agriculture (CIAT) and the Forum for Agricultural Research in Africa (FARA). Knowledge has been gained in value addition for potato production and marketing – washing stations, proper storage and potato products (chips and crisps). A culture of ownership has been inculcated into IP members and partners. Members and partners have increased their participatory involvement in IP activities, eg, joint planning and decision-making, unlike in the past when farmers acted individually. Communication among members and partners has also increased through social interactions leading to cohesion. IAR4D has contributed to lessening the drudgery and workloads of women given that all work within the IP is shared equally among the members. Some IPs (eg, Bubare and Chahi in Uganda) have gained recognition from local government authorities, through recognition and approval of their bye-laws, and incorporating their work plans into the local government work plans, for example.

Some of the impacts achieved have brought positive changes in incomes as well as attitudes. Bye-laws – their formulation, approval, implementation and enforcement, as lobbied for by IPs – seem to be facilitating the implementation of important actions. The systems of punitive measures for failing to comply with given bye-laws are being transformed into reward systems in order to create an encouraging (rather than discouraging) working environment.

The following are examples of success stories that have been achieved in the LKPLS within the short time frame of the project.

## 6.2 Maize in Chahi IP, Uganda

Although proven productivity-enhancing technologies for complex farming systems have often remained ‘on the shelves’ for lack of critical linkages in the value chains, some of these technologies started to be used after the formation of the IPs. In Chahi Sub-county, in Kisoro District of Uganda, the Chahi potato-based IP had an opportunity to diversify and rotate the traditional crops – partly to take advantage of alternative crop commercialisation and also to safeguard food security. Given that the Chahi farmers had been growing a local maize variety known as *Nyakagoye* for fresh consumption since time immemorial and that they have been using maize on a small scale in rotation with potatoes and beans, the farmers took the opportunity to expand the production of maize.

The opportunity was presented as a result of the IP being linked with an agro-processing industry, PHINTA Investments Ltd, located within the target zone of Chahi IP. Among other things, PHINTA uses grain maize to make feed mixes for poultry production. PHINTA was sourcing maize grain from distant places (over 500km away). Consequently, when an opportunity for diversification came with an assured market for grain maize in the form of a local private company, the growing of a hybrid maize variety (DK8031) spread rapidly, in large part replacing the local variety. The IP approached PHINTA for input support. PHINTA was ready to give the support based on the assurance that it would acquire maize grain from local sources. This linkage resulted in rapid adoption of maize hybrid DK8031 from 18kg of seed in 2008 to 1800kg in 2009, the equivalent to area coverage of 2 acres and 180 acres (0.81ha and 72.8ha), respectively. There were corresponding increases in the purchase of inputs such as fertilisers that had previously often remained on the shop shelves. The local market for inputs increased from USD30 in 2008 to USD3300 in 2009. Between 2008 and 2010, the proportion of farmers growing maize increased from 10 to 35 percent. The average area under maize increased from 1.3ha to 2.7ha per farm, while the total area under maize production increased from 5.3ha to 27ha (Tenywa et al. 2011). This venture became the first major effort to produce maize grain for commercial purposes in the area.

## 6.3 Irish potatoes in Gataraga IP, Rwanda

Gataraga IP is essentially a multi-stakeholder problem identification and solving forum that brings together multiple stakeholders for visioning, planning and implementing new ideas, practices and services. The IP promotes interaction, creativity, insight and empowerment, with the aim of improving the existing conditions around a common interest or challenge and thereby bringing about desired change. It is composed of 10 villages located in Musanze District of northern Rwanda, where Irish potatoes have been grown for food security and occasional sales for a considerable period. However, production had been declining because of decreasing yields and difficulties in marketing the crop. Although research was undertaken in the past to address these constraints, there was little input from farmers and poor feedback from researchers. A few research outputs were adopted, but yields continued to decline.

All this changed after the IAR4D interventions. The IP was linked to markets and this has stimulated increased production and improved postharvest handling for increased shelf life of harvested potatoes and improved quality (see Table 6.1). This happened after initial partner meetings were held to ensure local interest. The participating stakeholders and partners in these meetings included farmer groups and representative individual farmers, private sector (represented by niche markets, input dealers, microfinance institutions, Saving and Credit Cooperative Societies [SACCOs], traders, processors, transporters), NGOs, policy makers (local authorities), researchers (Institut des Sciences Agronomiques du Rwanda [ISAR], Institute for Scientific and Agricultural Education of Rwanda [ISAE], NUR, CIAT), and the cooperative workers association of Rwanda (IMBARAGA). Agricultural problems were identified and prioritised. These problems included unorganised potato marketing and markets, limited knowledge on efficient potato production methods, inadequate seed potatoes, insufficient manure for soil improvement, and limited transport to market produce. The stakeholders also suggested and prioritised possible solutions to the problems: formation of farmer groups, improving the quality of seed potatoes, improving productivity, and improving postharvest handling and marketing. An action plan for resolving the constraints was agreed upon and implemented.

### 6.3.1 Forming farmer groups

Farmers were encouraged to form groups that could address production and marketing constraints through testing of new production technologies, and that could enhance collective

**Table 6.1. Market-development and productivity-enhancement innovations for Irish potatoes in Gataraga IP, Rwanda**

Interface challenge	Partners involved	Innovations	Outcomes
Market–technology–policy interface of low price, poor harvest and poor postharvest handling	<ul style="list-style-type: none"> <li>Farmers (farmer groups)</li> <li>Private sector (niche markets, input dealers, microfinance, SACCOs, traders)</li> <li>Policy makers (local authorities)</li> <li>Researchers (ISAR, ISAE, NUR, CIAT)</li> <li>Extension workers (IMBARAGA)</li> </ul>	<ul style="list-style-type: none"> <li>Value addition (potato washing, sorting, grading, and packaging in woven sacks and bags made of banana fibres)</li> <li>Rapid multiplication, and facilitating access to planting materials of market-preferred variety ('Kinigi')</li> <li>Dehauling before harvest</li> <li>Links to credit</li> <li>Favourable policy environment</li> </ul>	<ul style="list-style-type: none"> <li>Improved quality of potatoes</li> <li>Increased yield and shelf life</li> <li>Access to niche markets and increased prices and incomes</li> <li>Farmers receive RWF20–30/kg above going market prices</li> </ul>

Source: Mugabo et al. 2010

Legend:

CIAT: International Center for Tropical Agriculture  
 IMBARAGA: Cooperative workers association of Rwanda  
 ISAE: Institute for Scientific and Agricultural Education of Rwanda  
 ISAR: Institut des Sciences Agronomiques du Rwanda  
 NUR: National University of Rwanda  
 SACCO: Saving and Credit Cooperative Societies



bargaining for acquiring inputs and for marketing activities. Farmers have now formed 26 groups, each with about 25 men and women, and each represented on the IP.

### 6.3.2 Improving the quality of seed potatoes

First, potato varieties demanded by the market were identified. Although 'Kinigi' was found to be the most popular variety, seed availability of this variety from ISAR remains limited. Options for rapid multiplication of 'Kinigi' were assessed and positive selection is now practised in the field, where healthy, disease-free tubers are selected for further propagation by local farmers. Meanwhile, ISAR – with support from the International Potato Centre (CIP) – has established modern facilities for tissue culture and rapid multiplication of seed potatoes. The next step will be for local seed producers to be identified to produce seed potatoes for the wider community. The Government of Rwanda has already allocated funds for introducing seed multiplication of 'Kinigi'.

### 6.3.3 Improving productivity

Participatory assessment of alternative soil fertility-enhancing options is being carried out by farmers from each of the village groups. This includes the use of manure from livestock, with fodder crops grown along contours on field boundaries for feeding to livestock and as live barriers to provide soil-erosion protection in steep hill environments. Five learning centres have been established, which provide opportunities for learning about improved potato production techniques using four improved potato varieties, organic and inorganic fertilisers, correct spacing, pest management and dehauling (Figure 6.1). After all these IAR4D interventions, potato yields have increased from 6 to 24 tonnes per hectare. Some farmers are actually producing as much as 30t/ha. Regular monitoring and evaluation (M&E) is also undertaken by farmers, who describe the process as being like fertiliser, helping to ensure the crop is grown correctly and that costs and income can be monitored and checked.

*Figure 6.1: Potato production and dehauling processes*



### 6.3.4 Improving postharvest handling and marketing

Local niche markets have been identified, and contracts established with hotels and supermarkets in Kigali and other urban areas (eg, Ruhengeri). These require that potatoes be selected, cleaned, sorted and graded, and, in the case of the supermarket, packaged in 5kg containers (Figure 6.2). Many clients are happy with the quality and quantities supplied (Figure 6.3). Discussions are ongoing between the hotels and the IP to produce and supply potato varieties to meet the different market demands, such as for chips and crisps. A number of potato-washing stations have been established. One of the new washing stations is owned and operated by a lady called Josephine, who is a farmer, trader and a member of the IP. She has been linked to credit providers who have extended credit to her to support production, purchasing and transportation. Some farmer IP representatives have been trained in grading, hygiene and sanitation, preservation and packaging.

Since 2009, the marketing partners have been expanding with acquisition of new potato market clients in 2010, rising from five clients in February to ten in December 2010; and the quantity supplied rose from 2.5 to 15.5 tonnes (see Figure 6.4). Farmers who supply their potatoes through the IP marketing arrangements have received RWF30 per kilogram more than the local market prices. Most of these farmers also received commodity market loans from the traders

**Figure 6.2: Selecting, washing, packaging and delivery of well-packaged potatoes to niche-market clients**



**Figure 6.3: Washed and innovatively packaged potatoes ready for transport to supermarkets**



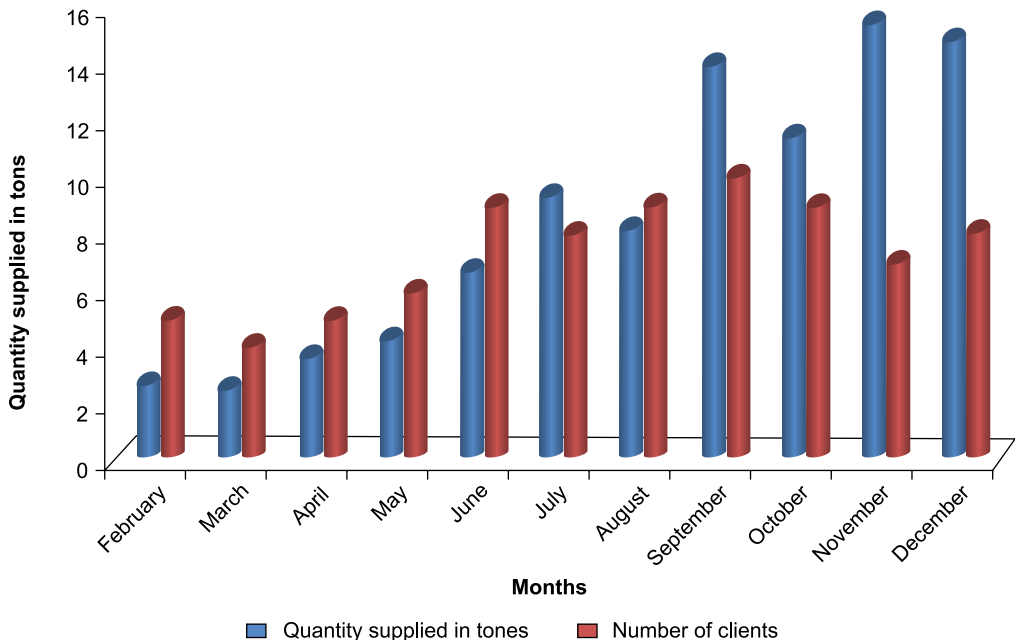
in order to avoid piecemeal harvesting of their potatoes. The traders' sale prices depended on the transport costs, seasonal abundance or scarcity, and their contract with the client. Generally, the prices ranged from RWF160 to RWF250 per kilogram in 2010.

### 6.3.5 Reflection and the future

The IAR4D approach has catalysed a vibrant IP in Gataraga. The IP is now established and accepted at the district level. Its regular meetings are well attended and there are women on the IP executive and steering committees. The IP is now viewed as a centre for bringing together experts to address farmers' problems. Farmers have taken up leadership roles and the linkages with the IP service providers enable them to seek contributions from different IP stakeholders to address their problems. The IP forums make them equal partners with others. Farmers have expressed a desire for exchange visits – to visit and learn from other IPs – and for the IP concept to be used in other sectors, outside agriculture in addition to extending this approach to other commodities. Thus, the concept and practice has great potential to be scaled up and also to be scaled out to other commodities, even beyond the agriculture sector.

However, challenges that remain include the need for more farmers to be involved, and for capacity strengthening and learning processes to continue with production linked to the market. Key to future sustainability will be the ability of farmers to own and lead the IP, which would be driven by the commercial interests of the private sector, with research and facilitation backstopping provided by research and development organisations.

**Figure 6.4: Trends of monthly potato quantities supplied and the number of clients, 2010**



## 6.4 *Mamera* sorghum drink in Bubare IP, Uganda

The paradigm shift from the traditional research and extension service to an IAR4D approach to rural development through engaging multiple stakeholders (farmers, researchers, government and the private sector) in finding research interventions that build or strengthen the development of value chains has been tested in the LKPLS. In Bubare Sub-county of Kabale District in south-west Uganda, all eight parishes are participating in the Bubare sorghum IP, with stakeholders validating the IAR4D concept by identifying constraints to the sorghum value chain. The IP has pursued value addition as the key driver of sorghum value-chain development. Every household in Bubare grows a traditional sorghum variety that has been used for generations to produce porridge and weaning food for babies. The IP has partnered with HUNTEX Industries (owned by a private partner and a member of the IP) (Figure 6.5) to add value in processing the traditional sorghum into a healthy non-alcoholic beverage called *Mamera*, which is being sold in shops and supermarkets.

The combined power of branding and state-of-the-art processing and packaging facilities have been applied to an existing local product to deliver the value-added non-alcoholic sorghum drink that has been branded and now sells in new up-market outlets, attracting better prices than before and appealing to middle-class consumers. The intervention has become the driver for the sorghum value chain in the region and a model of intervention in other value chains.

*Mamera* is already a registered brand name and is gazetted by the Government of Uganda (GOU). The brand name is associated with the good-quality *Bushera* (fermented sorghum porridge) in Kabale District and it has attracted big market demands for the sorghum products in Kabale and beyond. This trademark, *Mamera*, is expected to be used for a number of products that will be produced by Bubare sorghum IP, including malted sorghum flour (a ready-to-use flour for home or urban small-scale *Bushera* makers). *Bushera* quality parameters were developed by the incubation centre of Makerere University Food Science and Technology Department (MAK-FST).

### 6.4.1 Opportunities

Sorghum, which has been grown traditionally for years, is a socially and culturally important crop, but low yields and tedious work have made it unprofitable. However, it provides a valuable local food, including as a weaning food for babies. Unfortunately, after local preparation it lasts for only three days before spoiling. With IAR4D interventions, the IP took advantage of emerging opportunities and initiated and implemented strategies for increasing production and value addition of sorghum through improved processing and marketing.

### 6.4.2 Achievements

The Bubare IP is now firmly established and operational with both women and men members participating in monthly meetings. An IP bank account has been opened. The IP executive committee has developed work plans and budgets, which have been integrated into those of

the Kabale District Local Council. Interactions with other IPs such as Chahi are taking place to share experiences.

The current work plans include the following selected key activities.

- Participatory variety evaluation compares a number of improved highland sorghum varieties<sup>5</sup> with the local variety, 'Kyatanombe', to see whether yields can be improved, while maintaining the quality of traditional sorghum.
- Learning sites (demonstrations) are established in each of the eight parishes, providing training opportunities for farmers on improving their crop management skills.
- Research is being undertaken by HUNTEX Industries in conjunction with Makerere University to identify food processing technologies for further improvement of the sorghum porridge (*Mamera*) and extending its shelf life. This includes two beverage types, one unsweetened and the other sweetened with locally produced honey.
- Market development is on-going using modern packaging and branding the malted sorghum beverage as *Mamera*.
- Agreement must be reached on profit-sharing arrangements between the processor, HUNTEX and the farmers.
- Sales of *Mamera* are already occurring in supermarkets, to the tune of USD1200 per month (for example, see the sales trends during the incubation period as shown in Table 6.2).

In addition, the IP farmers have submitted proposals to the GOU to access funding to develop sorghum (and other crop) storage facilities, and have applied for a loan from the Muchahi SACCO.

### 6.4.3 The future

The future for the Bubare IP looks bright. The process of encouraging IP grassroots membership recruitment is on-going at sub-county and village levels, encouraging participation in various meetings and at learning sites. Consequently, this requires continued capacity strengthening, knowledge acquisition and linking further production opportunities to new market opportunities.

At the same time, there are opportunities for the IPs to support the National Agricultural Advisory Services (NAADS) programme of the GOU. Although NAADS support local identification and prioritisation of problems, they do not bring stakeholders together – the IP forges linkages of this type.

NARO has also shown enthusiasm in ensuring that research is demand-led, meeting the real and perceived needs of farmers. NARO–Kachwekano Agricultural Research and Development Institute (KAZARDI) is speeding up the process of providing planting materials of improved varieties of sorghum for the IP through their accelerated breeding and multiplication programmes.

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5. HLSO3/016, HLSO3/0 17, HLSO3/019, HLSO3/023, HLSO3/025, HLSO3/056.



**Figure 6.5:** HUNTEX Managing Director in his Kabale food-processing laboratory and the 250ml cups of the Mamera sorghum beverage

**Table 6.2.** Sales trends of Mamera sorghum drink during the incubation period, February–June 2010

Months	Production (litres)	Sales (UGS)	Production cost based on 250ml cup (UGS)	Sales (US\$)	Net profit	
					(UGS)	(US\$)
February	400	960,000	729,600	436.40	230,400.0	104.70
March	400	960,000	729,600	436.40	230,400.0	104.70
April	600	1,440,000	1,094,400	654.50	345,600.0	157.10
May	800	1,920,000	1,459,200	872.70	460,800.0	209.50
June	1200	2,880,000	2,188,800	1309.10	691,200.0	314.20

Note: UGS=Uganda Shillings; 1 cup of 250ml costs UGS600, US\$1 = UGS2200

## 6.5 Policy and bye-law innovations in Uganda

Using the IAR4D approach, some of the weaknesses of policy and institutional arrangements that affect the performance of agricultural products along the agricultural value chains were addressed in the four IPs of Kabale, Ntungamo, Bubare and Kisoro in south-western Uganda. The major purpose of addressing these weaknesses was to identify innovative actions that could be exploited to strengthen policy and institutional arrangements at local community levels in order to improve the performance of the IPs. Interaction with the IP members at the four IPs revealed the need to review the existing community bye-laws, as well as to formulate new ones that were relevant to IP operations.

As a consequence, major institutional innovations were instituted in south-western Uganda within a short period of time. These institutional arrangements were meant to enable smooth and harmonious formulation of bye-laws that would strengthen policy-review processes,

conflict management, institutionalisation and sustainability of IPs. Committees were set up to oversee policy sensitisation, review and formulation. Measures for enforcement of these structures were also set up. These arrangements also helped in the formulation and approval of bye-laws.

In order to strengthen the policy-review processes, workshops were held for stakeholders on formulation and review of bye-laws and policies, and on empowerment to attain legal status; these workshops were considered valuable. Conflict management was addressed through team-building seminars for IPs, policy advocacy, and meetings with concerned parties (eg, cattle keepers and crop farmers) to facilitate dialogue. To explore issues surrounding institutionalisation of IPs, participatory discussions were held on how IPs fit into African socio-economic development frameworks. For sustainability, participatory engagement was instituted to align IP work plans with the sub-county and district plans, budgets and development programmes (eg, community-driven development programmes).

The process of review and formulation of bye-laws was initiated at the end of 2009. IP members mobilised their respective parishes and villages for this process and produced drafts. The drafts from the different parishes were merged together to form a sub-county draft, which was taken back for more consultations at the parish level, before being presented to the IP at the sub-county level. During the consultation processes – from sub-county to village and back to sub-county – the issues that were continually amended included the title of the bye-laws, definitions of terms, actual content of the bye-laws, the penalties, fines and rewards. These processes were similar in the IPs of Bubare, Bufundi and Chahi, where IPs were formed at the sub-county level with members coming from the different parishes in the sub-county. In Ntungamo, however, where the IPs were formed at the district level with members coming from seven of the district sub-counties, the process was a little different: bye-laws were generated by the respective parishes and sub-county drafts were made after the consultation processes.

In the IAR4D approach, various stakeholders in an agricultural value chain come together at the IP to discuss and find solutions to problems along the value chain. The stakeholders – who in this case include policy makers and local leaders – sat together with the farmers to solve the challenges associated with the formulation and review of the bye-laws. Policy makers from local government and local leaders who were members of the IPs appreciated the need to have functional bye-laws to protect the farming community and other participants along a value chain. The bye-laws were thus reviewed and formulated and were then approved and signed by the respective councils in Bubare and Chahi.

In Bubare, a set of bye-laws entitled ‘Bubare Sub-county (Natural Resource Management, Agriculture and Marketing) Bye-laws 2010’ were approved at an extraordinary council meeting held on 23 November 2010, and signed (after amendments) for implementation in February 2011 after some sensitisation of the community. In Chahi, the bye-laws entitled ‘Chahi Sub-county (Ifatanya Bubasha) Bye-laws 2010’ were approved in a sub-county council meeting on 8 December 2010 and signed on 10 December 2010 (after amendments) to be implemented immediately upon signing.

During the course of these processes, it was observed that the major challenges concerning community bye-laws were not only their poor implementation and enforcement, but also the lack of a review mechanism to maintain their relevance.

## 6.6 Bananas in Musanganya IP, DRC

Bananas are the focal crop and value-chain enterprise for the Musanganya IP, which is one of the four IPs in DRC that operate under the auspices of the LKPLS. It was formed in November 2008 and initiated a month later. It is located in Bweremana, which is in Masisi District of Mpfuni Shanga Sub-county, in the southern part of North Kivu Province. The IP has five participating antennae at village level. In May 2010, the IP had a registered membership of 240. While bananas are the main entry crop for the IP, beans have been introduced as part of the strategy for food security and diversification. Musanganya IP's main partners are diverse, including farmers (individuals and farmer groups) as its core members, the private sector (MECRECO, Programme National de Prévention, de Lutte et d'Assistance Humanitaires aux Victimes des Catastrophes Naturelles [PRONAPLUCAN]), policy makers (chef du village, chef de localite, chef de groupement, king), researchers (Institut National pour l'Etude et la Recherche Agronomique [INERA], CIAT-Tropical Soil Biology and Fertility Institute [CIAT-TSBF], Observatoire Volcanologique de Goma [Goma Volcano Observatory, OVG], Makerere University, Consortium for Improving Agriculture-based Livelihoods in Central Africa [CIALCA], International Centre for Insect Physiology and Ecology [ICIPE], extension providers [Groupe Agropastorale Pharmakina, GAP-Pharmakina], Démarche pour une Interaction entre les Organisations à la Base et les Autres Sources des Savoirs [DIOBASS], Syndicat de Défense des Intérêts Paysans [SYDIP], public agronomist) and training institutions (Action Contre la Faim [ACF] and faith-based organisations).

It is important to remember at this point that, in spite of its vast natural resources, DRC is one of the poorest countries in SSA, particularly in terms of infrastructure, low formal education levels, high malnutrition and low incomes. North Kivu Province has enjoyed a peaceful post-conflict period for only about 1½ years now. Policies have not been revised or reviewed for a long time. Agricultural products and services are provided in emergency situations by both national and international organisations.

The Musanganya IP is operated by a management committee, which is answerable to a general assembly comprising all registered members. The management committee in turn has subcommittees and village committees, all of which work in a participatory manner with guidance, contributions and support from the IP's partners. The management committee and subcommittees are elected by the participating farming community. Hence, IP Musanganya has well-balanced management structures in place.

Initially, the operations of banana production were based on profitable bulk-marketing opportunities. These opportunities have now been extended to banana transformation (value addition) into extended shelf-life banana products in order to conserve the banana products post-harvest, reduce their perishability and tap into new marketing opportunities in different market segments. So far, experience has shown that value addition of banana products is competitive and has great potential. There are, however, plans for complete



removal of banana plantations infected with bacterial banana wilt, to be replaced with tolerant varieties under a programme that grows tolerant plantlets in micro-propagation units. Other challenges and opportunities that have been tackled include: water conservation, soil erosion and fertility; improved production, postharvest handling, crop and disease management; organised exposure visits of farmers to markets and traders to Musanganya for informal market negotiations; value addition by processing and packaging of local banana-based alcoholic drinks (standard and strong wines) and juices that are locally known as *Kasiksi*, *Mutunda* and *Mutobe*, respectively; and promoting environmental stewardship including use of firewood, clean air, micro-environment, and income generation from appropriate forestry harvesting.

Achievements so far are that the Musanganya IP is established, operational and has gained acceptance in the district. The IP members have gained wide-ranging skills from various capacity-building programmes, including managing micro-propagation units and propagation of clean planting materials, accessing of clean banana planting materials and other improved planting materials, crop management practices, market identification, and banana transformation. There have also been improved household gender relations. Men have joined their spouses in growing improved disease-resistant banana varieties and women are participating in meetings and holding office in the IP. The IP has also established two tree nurseries of 20,000 seedlings each for agro-forestry and afforestation programmes.

These achievements have been realised in the face of prevailing challenges. There have been problems in accessing credits, and in convincing some farmers to accept uprooting of infected banana crops, resulting in continuation of contamination of clean plantations. Bananas are an 'incentive crop' in that they take a long time to reach maturity and produce the first bunches after initial establishment. Market access has been a challenge as a result of limited market information and poor infrastructure, difficulties in bulking and conducting group marketing. It is taking a long time to achieve certification of banana by-products.

The major highlights of the Musanganya IP have been on two fronts, namely: collective marketing of bananas and banana transformation through value addition (processing). The details of these activities are discussed below.

### **6.6.1 Collective marketing of the banana produce**

In the past, farmers in Musanganya worked their farms and marketed their produce individually. This practice often forced farmers to sell their primary products prematurely and consequently at low prices, due to their limited individual bargaining powers. Banana producers visited the dispersed local open markets, and the process of selling and buying of their bananas and other products was relatively haphazard. This situation reduced farmers' negotiation powers and made them vulnerable to exploitation by intermediaries. This marketing approach did not guarantee producers competitive incomes since they simply had to take the offered price.

This unfavourable marketing situation made it necessary to look into options for collective marketing, market linkages and product diversification. Given that banana was the main cash

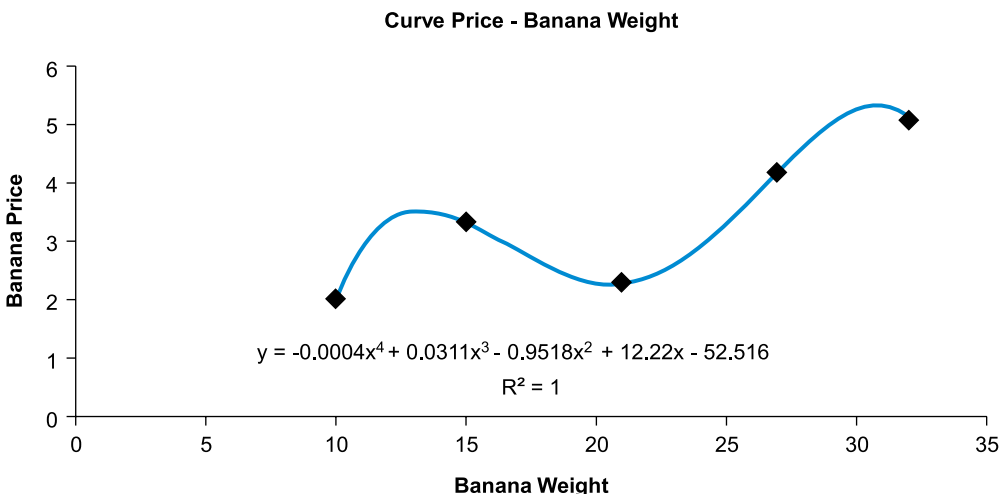
crop in Mupfuni Shanga Sub-county, it was selected as the entry value-chain enterprise by Musanganya IP.

Using the IP as a tool, collective marketing was initiated as a way of avoiding the large numbers of intermediaries that congest the banana market circuit. In this way, the farmers would not only market their bananas in bulk, but would also gain in bargaining power, get competitive prices and therefore increase their incomes. Using an IAR4D rapid appraisal study conducted in two major urban centres in North and South Kivu provinces in eastern DRC, it was recommended that both farmers and traders should get organised in groups to conduct their banana selling and buying businesses. The IP producers were therefore organised into groups to initiate collective marketing of their products and first targeted Goma and Bukavu urban markets. Some of the activities undertaken before bananas reached their final marketing destinations include measuring circumferences of banana bunches, weighing them and offloading the bananas at the market place (Figures 6.7, 6.8 and 6.9). Data collection and analysis of various weights of bunches has shown that the weight of a banana bunch is correlated with the average selling price. The length of the banana bunches also significantly influences the price. This relationship is expressed in the equation below and in Figure 6.6. In the equation,  $P$  is the weight of a given banana bunch.

$$Price = 0.0004 P^4 + 0.0311P^3 - 0.9518 P^2 + 12.22 P - 52.516 \text{ with } R^2 = 1 \quad (1)$$

Seventeen rounds of marketing transactions were conducted, 12 in Goma and 5 in Bukavu markets, using three types of bananas: plantain, cooking bananas and beer-making bananas. A total of 69 IP members delivered 1706 banana bunches for total gross sales of USD6275.60

**Figure 6.6: Curve representing price against banana weight**



against gross purchases of USD4645.30. Plantain was highly appreciated, fetching premium prices compared with the other banana varieties. In order to increase incomes of producers, multiplication of plantain on a large scale was recommended.

This pilot organisation of farmers and traders that linked the producers and buyers demonstrated that farmers can increase their incomes through bypassing a number of unnecessary intermediaries in the banana marketing chain. This way, producers are guaranteed stable and competitive pricing of the banana products.

**Figure 6.7: Measurement of upper and lower circumferences of a banana bunch**



**Figure 6.8: Weighing a banana bunch and counting banana fingers**





**Figure 6.9: Offloading bananas at Muhanzi Beach market and women IP members of the Market Commission**

### **6.6.2 Banana transformation (value addition/processing) into wine and juice**

The transformation of agricultural products has always been regarded as a way to not only preserve food, but also to add value in order to be competitive on the market. In the past, and as recently as 2010, farmers in Mpfuni Shanga Sub-county were making local banana beer that had poor storage properties and lasted for no more than three days before spoiling. Even worse, the local beer fetched poor prices.

Consequently, due to the need to preserve bananas and improve the shelf life of traditional banana beer, the Musanganya IP, with assistance from partners, undertook to transform and add value through processing their harvested bananas into three products – juice and two types of wine. With the IAR4D knowledge interventions of value addition through processing using technology from the University of Kinshasa and Makerere University, farmers are now able to make more refined, sanitary and bottled banana juice (*Mutobe*), standard wine (*Kasiksi*) and strong wine (*Butunda*) that all have longer storage properties and fetch higher prices. The banana juice and wines have longer shelf lives, lasting for months before going bad. The products are packaged and stored in 330ml reused Heineken beer bottles available in the market (Figure 6.10). These processes have so far been done successfully up to the demonstration stage.

Profitability calculation of this process gives a substantial production yield of 92.5 percent. The findings from the market study indicate that the drinks are appreciated by both sellers and consumers due to their appearance and quality, taste and alcohol content. The Musanganya IP farmers received their share of the benefits by finding a quick way of selling harvested bananas from the field. Thus, the farmers' income is enhanced in the long run through production expansion. Recent rapid market surveys have indicated that the potential market outlook for these two products appears good – both locally in the rural areas and in urban areas (in bars, shops, kiosks and supermarkets). Indicative prices were USD0.50 for the unprocessed and unbottled 500lt beer, and USD2.00 for the processed and bottled 500lt beer.

### 6.6.3 Conclusions and way forward

The banana IP farmers have been organised and trained to select the best banana bunches, pack and store them properly for transportation and marketing to various market destinations within the region. The farmers have been advised to observe and know the types (varieties) of bananas they grow – whether cooking type, beer-making bananas or plantains. Banana type dictates the marketing opportunities for bananas.



**Figure 6.10: Final products – juices and wines (Mutobe, Kasiksi, and Butunda) bottled in 330ml bottles**

The process used to produce banana juice and wines served mainly to prevent postharvest losses experienced by farmers in general and by members of the Musanganya IP in particular, and also created another marketing outlet for the bananas.

With this method of production and conservation, the IP has made available to local consumers a standardised drink in terms of good quality, taste, alcohol content and physical appearance. The presentation of the products in 330ml bottles tightly closed, with a one-year expiration date adds value.

Profits and market availability will make this process a cost-effective annual procedure for farmers and banana producers of Musanganya IP.

The next step in the process is to organise the certification and licensing of the banana transformation process from the relevant government authorities and specialised laboratories. After certification and licensing are achieved, manufacturers will be called in by the IP to invest in mass production of the banana products (juices and wines) for large-scale commercialisation.

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## CHAPTER 7

# Establishment and Implementation of Integrated Agricultural Research for Development in Eastern and Central Africa: Some Operations and Lessons Learnt from the Lake Kivu Pilot Learning Site

Buruchara R, MM Tenywa, J R Mugabo, W Chiuri, AO Fatunbi,  
A A Adewale, SO Nyamwaro, M Majaliwa

### 7.1 Introduction

Sub-Saharan Africa (SSA) is well endowed with natural resources, but still remains one of the few regions in the world where the majority of the people are trapped in poverty, insecurity and malnourishment, often culminating in ill health and low life expectancy (Committee on World Food Security 2006, Thorpe et al. 2004). About a third of SSA countries cannot produce enough food to support at least half of their population (World Bank 2003) – there is a high level of subsistence farming and rudimentary farming methods. In spite of the abundance and



uniqueness of the natural resource base, there have been only limited investments to reduce its degradation. As a result, a large number of people in SSA, especially those who are mainly dependent on agriculture, including those living in the Lake Kivu region of Eastern and Central Africa (ECA), earn less than USD1.00 per person per a day. Despite some remarkable research successes in SSA – including numerous projects to improve food security, incomes and nutrition – the number of poor people in the Lake Kivu region has been increasing.

Agricultural research in general has followed the linear model of researcher–extension–farmer. At best, this agricultural research and development (ARD) model from the West and Asia has produced ‘islands of success’ in SSA.

Since the 1970s, various research innovations have been introduced to address the complexity of agricultural systems in SSA. These innovations have included the farming systems research (FSR) approach, farmer participatory research (FPR), rapid appraisal of agricultural knowledge systems (RAAKS), the sustainable livelihoods approach (SLA) and integrated natural resources management (INRM) (Norman and Matlon 2000, Schiere et al. 2000, Norman et al. 1982 and 1994, Norman and Lightfoot 1992, Chambers and Conway 1992, Bunch 1989). The number of field-based project activities increased and important experiences emerged to create more space for more innovations for agricultural research and extension, through participation of local communities and building on traditional or indigenous technical knowledge (ITK) (Edquist 1997 and 2001). However, all these approaches seem to have failed to address the multiple scales and complex web of interactions, networks and responses within and between physical and social subsystems that change with context, objectives and activities, with different levels of uncertainty, time lags and policy environments (Campbell et al. 2001). As observed, most of these approaches gravitated around the research–extension–farmer model.

It was thus hypothesised that the nature of the conventional linear research–extension–farmer approach – applied to address challenges and constraints of productivity, natural resources management (NRM), market and policy areas independently, when in fact they are all interlinked – was not having an impact in reducing the numbers of poor people in SSA. It is increasingly being appreciated that linear technology transfer is inappropriate in SSA, because of the complexity of the agricultural systems, with regard to their social, physical and economic settings. At the very least, technologies generated through the linear models need complementary organisational, policy and other changes to enable them to be put into productive use.

Some of these observations and understandings motivated the Forum for Agricultural Research for Africa (FARA) to introduce a new approach to research and development that is referred to as ‘integrated agricultural research for development’ (IAR4D). This concept builds on integrated soil fertility management (ISFM) and INRM, coupled with integrated research on productivity enhancement, sustainable NRM, policies and markets. IAR4D is an action-research approach for investigating and facilitating organisations of multi-institutional and multi-disciplinary actors (including researchers) to innovate more effectively in response to changing complexities of agricultural and NRM contexts, in order to achieve a shared vision of rural

development (Hall and Yoganand 2004, Jones 2004). The IAR4D approach was subsequently introduced and established in the ECA region on a pilot basis at the Lake Kivu Pilot Learning Site (LKPLS) of the Sub-Saharan Africa Challenge Programme (SSA CP).

A key feature of the IAR4D concept was the application of participatory approaches for the integration of actors in technological, NRM, market, policy and institutional components of agricultural innovation systems (AIS) to respond to changing market and policy conditions and provide commercial, social and institutional solutions that achieve broad and multiple objectives, including poverty alleviation, environmental protection, and social and gender equality. The potential strengths of the IAR4D concept lay in its ability to capture market and policy aspects in addition to fostering systemic linkages and communication among actors in diverse contexts who have a stake in the processes of generating, disseminating and using knowledge for social impact. However, due to its newness there appeared to be limited evidence that IAR4D would likely bring the necessary and sufficient changes to transform smallholder agriculture in SSA into a highly productive, efficient, sustainable and competitive system, while at the same time protecting the environment (Science Council 2005). Consequently the CGIAR Science Council (SC) recommended that IAR4D should first undergo a 'proof of concept' process before its widespread adoption and application.

The basis for the proof of concept of IAR4D, implemented under the auspices of SSA CP, was that the approach is considered a better and more effective method for addressing productivity, NRM, market, policy and related challenges simultaneously than the conventional linear approaches. In implementing the IAR4D approach, the aim of SSA CP was to extract scientifically sound and replicable lessons, principles and guidelines for sustainable development. In this chapter, therefore, some key achievements in the proof of concept of IAR4D are highlighted. Also presented in this chapter are some insights into the dynamic processes, challenges, and key lessons and principles learnt to improve the efficiency and effectiveness of the multi-stakeholder engagements, linkages and interactions that positively influence the innovation processes at the individual and institutional levels, which are pivotal to the IAR4D concepts and practices.

Some of the milestones in these processes were the operationalisation of task forces (teamwork) in integrating three projects into one programme, establishing strategic partnerships, confidence-building among teams and individuals, actual implementation of the integrated programme and the establishment of 12 functional innovation platforms (IPs). It was established that in situations where productivity, NRM and market issues were addressed simultaneously, better IAR4D results were registered. The operationalisation of the four elements (productivity, NRM, markets and policy) of IAR4D required strong functional linkages, which were established with various research organisations, non-governmental organisations (NGOs) and the private sector for validating research questions, farmer mobilisation and capacity building, value addition, credit provision and the identification of input and output markets. All these processes were undertaken in a phased way. For everything to work uninterrupted, IAR4D processes require facilitation of a functional and efficient central processing unit (CPU) to address and resolve any emerging dynamic issues.



## 7.2 Evolution and implementation of SSA CP's IAR4D in the LKPLS

### 7.2.1 Evolution and integration

The SSA CP in the LKPLS has evolved considerably through three distinct phases, namely: the inception, the integration of projects into a programme, and finally the implementation (the latter is discussed in the next subsection).

Beginning in 2005, initial efforts consisted of defining and validating the LKPLS's challenges, constraints and issues. This involved calling for concept notes and proposals to address the issues, and then selecting three successful teams to implement and champion the processes. The plan was that research and development efforts should focus on the interfaces between agricultural productivity, sustainable NRM, efficient markets and appropriate policies with supportive institutional structures. However, as a result of the CGIAR Science Council review and commentary in 2006, the research design of SSA CP was revised to focus on testing the effectiveness of the IAR4D approach relative to the conventional approaches. This made it necessary to reorganise the original work programmes and plans, which had been conceived by the task forces (teams) in productivity, NRM and markets to work independently, each with three research components. The three task forces operating in the LKPLS were subsequently integrated into a single coherent programme with authentic interconnections among the three task forces. Extensive efforts were made to bring the three task forces to a common level in terms of their thinking and understanding of the tasks, and to make them work as one team for effective implementation of the project and delivery of targeted outputs. Eventually, the task forces integrated and aligned their projects to the revised research design, which is being used as a principal reference in establishing the experimental framework and for evaluating the effects of IAR4D.

Considering the importance of sites in drawing lessons that are attributable to IAR4D interventions, action sites and counterfactual sites were selected based on scientific criteria, including representativeness, current state of IAR4D, market access, and availability of geographic information system (GIS) spatial information and other data.

### 7.2.2 Implementation

Project teams were formed and jointly implemented various activities – including stakeholder identification and analysis, baseline and *ex post* impact surveys – and established and operationalised IPs. Some of these activities were facilitated in part through pooled financial and material resources. The SSA CP aimed, among other things, to develop principles, practices, options and practical examples of how the processes for systemic innovation can be organised and implemented involving a range of stakeholders from end users to policy makers. The tasks undertaken in the LKPLS involved 27 partner organisations, operating through 12 IPs. There were four IPs in each of the three participating countries – Uganda, Rwanda and the Democratic Republic of Congo (DRC) – and each country had its own diverse range of biophysical, socio-economic, cultural and political conditions. One of the major concerns when working with

such a large group of partners with diverse backgrounds, interests, experiences and skills is to develop a common understanding of basic concepts and approaches. A training module was developed, covering the concepts and practical aspects of IAR4D, and was used to strengthen the capacity of all participating stakeholders in the IPs.

During the initial stages of implementation, much of the focus was on establishing multi-institutional and multi-stakeholder alliances and partnerships, which are the key components of IAR4D. After several rounds of initial consultations, broad guidelines and methods for forming and operating IPs were developed and seven IPs were initially formed during the first stage of the project in 2008. A further five IPs were initiated in 2009. Through extensive consultations, discussions and debates, all 12 IPs identified the major developmental challenges facing agriculture in their locations, and their possible roles in addressing the challenges, as well as potential solutions to the challenges. The IPs also developed action plans with well-defined roles and responsibilities for the various partners. The issues identified varied among the IPs, both within and between countries. Some of the issues identified, for example, include interface constraints of low and declining soil fertility, poor seed systems, certification of organic products, unstructured markets and marketing, limited access to new and existing market opportunities, poor implementation of policies, and limited access to knowledge and exposure to new technologies.

The LKPLS project teams facilitated the IP discussions around these topics and, with active participation of all stakeholders, identified potential solutions. The potential solutions involved actions for research, extension, markets, NGOs, private sector (eg, processors, input suppliers, and microfinance and financial institutions) and local-level policy makers. The project teams worked closely with partners in implementing the action plans and in providing the required technical backstopping through various types of capacity building – training, value-chain analysis and identifying new opportunities, among others. A monitoring and evaluation (M&E) programme was developed to monitor the outcomes of various components of IAR4D and to inform the implementing teams about any need for mid-course correction. Progress made is documented and presented in quarterly and annual reports submitted to FARA, and a number of publications are at various stages of development.

### **7.3. Some achievements and lessons learnt**

Only a few achievements and lessons learnt are selected for discussion in this section.

During the SSA CP's evolving process (from inception to implementation), the major development experienced in the LKPLS has been the huge transformation, adaptation and flexibility exhibited by the partners as they learned and embraced the tenets of IAR4D. The initial shift involved changing the mindsets of the partners, especially members of the task force teams, from apathy to collaboration, and from competitiveness among three independent projects to one programme with integrated work plans and budgets. The second shift resulted from the recommendation of the CGIAR Science Council to first provide evidence that the IAR4D approach is better than the conventional approaches rather than simply taking

that for granted. This implied instituting changes in terms of the issues and questions to be addressed, the research design, work plans and budgets, and the implementation of activities. This change necessitated a joint implementation approach. Despite the usual initial hiccups, several joint activities have been successfully implemented through pooled human, material and financial resources. In addition to defining monitoring indicators and harmonising work plans and budgets, the activities included stakeholder analysis; baseline household, village, NRM and market surveys; and establishment and operationalisation of IPs and linkages with other institutions.

All this demonstrates the extent by which the task force partners have transformed in their willingness to learn and embrace the tenets of the IAR4D concepts, particularly networking for joint learning. They have demonstrated accommodative forms of flexibility, collaboration, adaptation and complementarities that explain the successes that have been achieved in the LKPLS. There is new confidence that task force partners will be ‘talking the long walk’ (ie, preaching and practicing IAR4D).

Important lessons have been learned on the establishment and operation of IPs on issues such as the starting points for forming an IP, initiation and engagement of relevant stakeholders, guidelines for working together, formulation and implementation of action plans, definition of roles, resources required, expected benefits, and options for equitable sharing of benefits and liabilities. Innovation platforms (IPs) have also been useful in identifying competences and skills required of graduates from educational institutions (eg, universities) to facilitate multi-stakeholder processes. This has proved very successful with Makerere University in Uganda.

Given that the IP concept was new to many organisations and partners alike, there was limited capacity to implement project activities. This meant that a substantial amount of time was spent in understanding and fostering of IAR4D processes among diverse traditional and non-traditional partners. Consequently, the initial stages of IP formation, consolidation and functioning took longer than expected. Continuous capacity building remains important. Facilitation skills are critical during the early stages of IP formation and development.

Integration of resources and partnerships can break down boundaries through tackling obstacles. Integration in education, research, extension and policy domains has shown great potential for overcoming outstanding constraints in terms of human resources, technology generation and use, inefficiently interlinked output–input markets, and unavailability of agricultural credits.

Lessons have also been learned on possible conflicts of interest, especially at that local level, and also in terms of differences in perceptions, expectations and interests among stakeholders. It was learned that it was sometimes crucial to involve local leadership in conflict resolutions. Early involvement of the private sector in input supply, marketing and finance provision was also identified as a necessity after realising that such partners were unlikely to attend long or frequent meetings. Hence, it became necessary to institute timely and clear identification of their roles and opportunities for commercial activities in terms of identifying quick ‘win–win’ opportunities for farmers and other private-sector beneficiaries and build on early successes.

In this way, the LKPLS was able to develop rapport quickly with private-sector institutions like the market operators, financial, credit and insurance institutions in committing their time and resources.

The IP discussions have clearly highlighted the complex and inter-related nature of the local-level problems, which conventional research has often failed to take into account. For example, the farmers in Kabale and Kisoro districts (Uganda), where the Chahi, Bubare and Bufundi IPs are located, were of the opinion that a particular potato variety was the best for their location because that variety was in greater demand in the market. But this view was not supported by research findings. Interactions with traders revealed that there was market demand for a diversity of potato varieties, and farmers were therefore at liberty to grow any variety suited to their biophysical and socio-economic circumstances. This knowledge resulted in a complete change in the farmers' attitudes and stimulated discussions on possible alternative varieties, which led to the identification of a range of issues that needed to be addressed to enable them to make use of the available opportunities. The issues identified included lack of research-based information on soil fertility management, lack of seed systems to multiply and supply seeds in sufficient quantities, constraints in government policies for releasing new varieties, and problems in accessing agricultural credits to enable farmers to purchase inputs including planting materials. This highlights the importance and value of multi-stakeholder IPs in arriving at solutions that are relevant and acceptable to end users with potential for scaling up quickly.

The operationalisation of IPs in the LKPLS proved to be very effective and caught the imagination of other end users outside the IPs faster than was originally anticipated. This was after the establishment of the first set of seven IPs, which took more time and resources than anticipated, with these IPs experiencing a variety of conflicts, including in relation to the lack of free handouts. But the establishment of the second set of five IPs took a much shorter time and was to a large extent demand-driven. There was an overwhelming number of requests for forming these five IPs, received from various stakeholders with an interest in outcomes who had observed the successes of the first seven IPs.

In many cases, IP establishment was faster where there were inspiring 'champions' at different levels. These champions helped facilitate teamwork and trust among the relevant stakeholders.

It was also found that it is essential that IPs be established where environments are conducive to success. For instance, the not-so-favourable environment in the DRC has, to some degree, hindered the safe movement of IP partners. In particular, a policy environment that is supportive of the agriculture sector will greatly assist in the establishment, consolidation and operationalisation of IPs. For instance, good policies (especially agricultural policies) that provide for district and sub-county level 'stakeholder panels and engagement' can be very useful in helping IP processes to flourish. A case in point is Uganda, where the Kabale, Kisoro and Ntungamo local government authorities have been very receptive and have supported the agriculture sector and permitted IP actions and work plans to be integrated into their own, to support the IP activities. The active involvement of district or local government leaders

and traditional leaders in supporting IPs provides the IPs with legitimacy and ensures active participation of other partners.

With time, it was realised that the IP concept was applicable to different situations, even outside the pilot sites. This was influenced by IP establishment being regarded as a learning process, requiring changes to suit given contexts, implying that there may not be a specific formula for IP establishment. Market-led approaches to IP establishment created quick win-win scenarios, speeding up the processes of IP establishment.

Considering that farmers' field problems are recurrent, frequent assessments are required for reflection and making adjustments. These problems are best handled by empowering IP members to solve them. In the LKPLS, monthly IP partner meetings were designed and implemented for that purpose, among other things.

Given the multi-faceted, multi-stakeholder and multi-level partnership nature of IPs, it was found that facilitation was a key element in successful implementation of IAR4D. In the LKPLS, facilitation was taken as akin to a central processing unit (CPU) of a computer. Identification of appropriate organisations and teams to address the problems, bringing in new players to address emerging issues, ensuring free flow of information and addressing conflicts before they happen or grow into disputes are the key elements of the facilitation process. In addition, because the IAR4D programme is dynamic, the CPU makes it essential to foster new stakeholders and collaborations as required, with appropriate institutional linkages.

Participatory monitoring and evaluation processes were also established in which both internal and external quality control and adaptive management of the IPs were assessed for refocusing whenever necessary. The monitoring often focused on the processes within the IPs and many IP farmers found the monitoring procedures for plots and trials particularly valuable. Many IPs in the LKPLS had M&E commissions or subcommittees to undertake the monitoring activities. The outcomes of the M&E programme have shown that significant progress was made in improving the understanding of the IAR4D concept by all stakeholders. The IP in Ruhengeri (Rwanda), for instance, has developed illustrations highlighting the IAR4D processes, which have been shared with other IPs.

A number of alternative sources of income have been identified and integrated with existing IP practices in the form of diversification strategies. Some of the diversification processes (particularly in Uganda) are guided by the decision-support system that has been developed for comparing the profitability of different enterprises. This system guides IP farmers in choosing enterprises. It is worth noting that selected examples of successful enterprises are highlighted in chapter 6 of this book. The increased production associated with the successful enterprises highlights a need for strategic measures to protect the farmers from possible price fluctuations, including selling large volumes of produce.

Most IPs are now getting involved in value addition of their agricultural products. In Uganda, the Bubare sorghum IP has registered the '*Mamera*' trademark as a way of marketing a good quality fermented porridge known as *Bushera* in the LKPLS. There are possibilities for *Bushera*

to attract a substantial market in the region and beyond. The IP is planning to use the trademark for a number of other products that have been (or are being) developed, including malted sorghum flour. Results from these IPs have also prompted consideration and revision of local policy and bye-laws. Gataraga IP in Rwanda has cleaned, sorted, graded, packaged and labelled potatoes whose outlets are now the niche markets in supermarkets and hotels in the city of Kigali and other urban areas.

Most of the successful value-chain enterprises are expanding due to their linkages to markets. The integration of farmers with markets has created new awareness about the need to maintain the quality of the produce. To this end, the IPs have started highlighting the need for appropriate knowledge in product postharvest handling. Farmers need market information and training in storage, cleaning, sorting, grading, packaging, labelling and other requirements for both domestic and export markets. In Rwanda, supermarkets are paying more for deliveries from IPs because they have been attracted by this change in postharvest handling of the produce. In spite of all this, there remains a need for safe postharvest storage for many value-chain enterprises along with local agro-processing for value addition and local marketing. Establishing links with processors (like HUNTEX Ltd in Kabale, Uganda) requires trust between the farmers and the processors. Normally such links are strengthened by establishing firm and fair contractual arrangements, accompanied by reliable technical and financial backstopping.

There is also evidence of increased quality and quantity of production of crops and other products like milk as a result of linking to markets. Quality and quantity of crops like beans and cassava is also increasing as a result of improved seed access and crop management.

Observations made in the LKPLS show that the establishment and operationalisation of IPs is one of the institutional innovations being advocated for by change agents. Among other reasons, these kinds of innovations are also driven by the need to reduce transaction costs within value chains, and achieve positive margins of value-chain actors’.

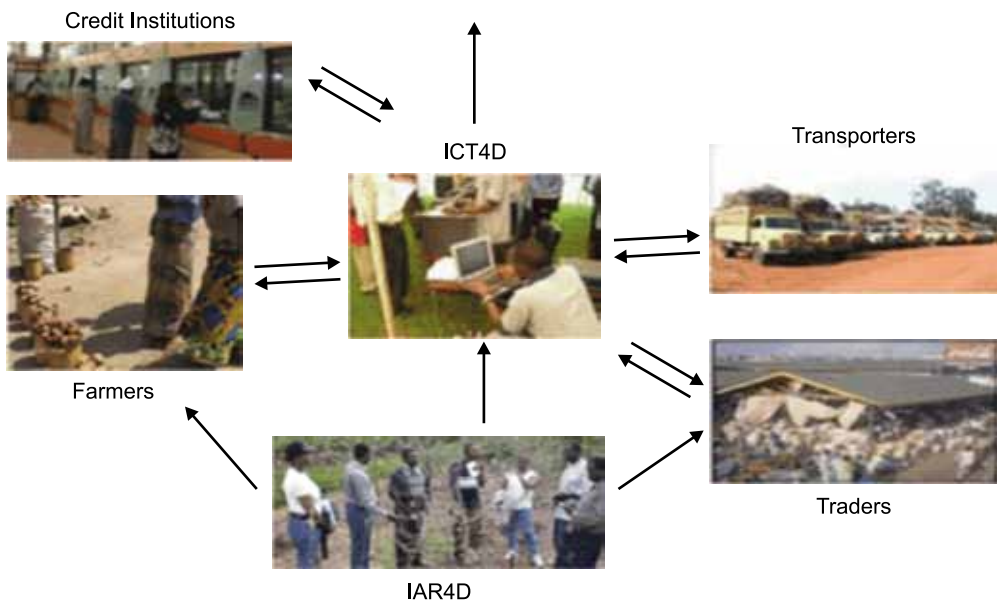
Preparation and implementation of work plans were undertaken annually in the early years. This involved all partners across the LKPLS. Activities were identified on the basis of the needs of the grassroots levels, their implementation schedules made, roles and responsibilities of partners identified and apportioned among partners. This ensured that there was adequate time for early research and testing to be conducted by farmers on options for addressing opportunities identified in the action plans. This style of collectively implementing identified activities presented clear signals to farmers that the IAR4D processes were not ‘business as usual’. IAR4D is clearly linked to participatory action-research and extension, and learning approaches involving learning sites and demonstrations located on farmers’ own fields.

Attempts were made to balance efforts towards promoting improved NRM practices with increased productivity. Consequently, capacity building for farmers in the use of soil fertility and conservation technologies on a wide scale was intensified. Ways to manage conflicts arising from collective actions on soil and water management were also initiated, especially in the Ugandan IPs where bye-laws to that effect were formulated, accepted and are awaiting approval for implementation.

Farmers' access to production and marketing information was essential for the IP processes and other operations. Faster and more cost-effective access to information was tackled for the Uganda IPs. Using Makerere University's Open Distance Learning Network (ODLN) in partnership with Warid Telecom Uganda, a closed user group (CUG) was established to allow fast information flow among a collection of pre-defined IP network users (Figure 7.1). A platform of 200 value-chain actors has been linked using such a facility so that diverse and distant actors are able to hold monthly IP and marketing meetings, thus avoiding the costs of conventional face-to-face interactions. Materials from various SSA CP workshops are also submitted to the ODLN, which translates the materials into local dialects for dissemination to the relevant stakeholders, especially the farmers. ODLN uses different information and communications technology (ICT) support including short message service (SMS), radio and print for faster dissemination. Benefits that have accrued from the use of ICT through ODLN innovations must not be undervalued. Makerere University's ODLN has added value to the SSA CP in the LKPLS through the use of ICT innovations and this has greatly enhanced information flows and communication among the diverse partners. Ultimately, it will be necessary to scale out the activities of this innovation to other IPs in the LKPLS to ensure wider participation and benefits.

It is observed that purely livestock-orientated IP activities have been slow to take off. Using the example of the Mudende milk IP (Rwanda), the milk cooling and bulking storage facilities have taken a long time to operationalise for various financial, technical and logistical reasons and the venture would require access to credit or intervention of a private investor.

**Figure 7.1: Computer-enhanced communication among stakeholders in the LKPLS**



Product theft occurred in many IPs. This was most prevalent in the Muungano potato IP (DRC), where farmers were forced to harvest crops prematurely. Long delays in buyers paying farmers for produce were a serious disincentive for continued production. Such delays were witnessed in Chahi and Bufundi potato IPs in Uganda.

Overall, IAR4D has influenced attitudes and behaviour change (ABC) among all actors within the project.

## 7.4 Some challenges

Many financial and microfinance institutions are reluctant to give credit to farmers who practise rainfed agriculture. Where agricultural credit could be sourced, it was at high interest rates of up to 37 percent per year in Uganda.

Low capacity of partner organisations is another big challenge: IPs are composed of stakeholders with different capacities. For example, the majority of retail traders have limited capital capacity and have largely depended on intermediaries for their operations. Likewise, farmers in rural areas have low capacity to contend with the multitude of risks and constraints they face. The national agricultural research system (NARS) staff members also have different backgrounds. Therefore, it takes a lot of effort and resources to improve their capacity to grasp and implement IAR4D concepts through the IPs.

Facilitation of networks is time-consuming, which often causes conflicts with core organisational mandates. The challenge here was that some organisations were not ready to recognise and reward these demanding networking functions.

Differences in socio-political situations among the participating countries have influenced the introduction and operationalisation of IAR4D approaches and practices. The three countries are at different stages of post-conflict periods (Uganda has enjoyed 21 years and Rwanda 16 years of post-conflict stability, while DRC is just emerging out of conflict). It was therefore a challenge to conduct research and facilitation in the same way across the three countries. Language also presented a barrier to free communication across networks in the three countries.

After finding solutions to the IPs' initially identified constraints, new challenges often emerged requiring prompt solutions. For example, at the Chahi IP in Uganda, initial analysis showed that limited access to markets and inability to get competitive prices for potatoes were the main constraints. Accordingly, negotiations were initiated with the private sector to directly purchase potatoes from the farmers. After long negotiations with various players in the potato market chain, a system for a group of retailers to purchase potatoes directly from the producers was established with well-laid guidelines and a memorandum of understanding. The assumption was that farmers in the area had enough produce to meet the market demand. When the action was implemented, it was quickly realised that there were insufficient potatoes to meet the market demand. The situation was reviewed and the need for increased production was identified as the solution. However, this required improved seed and other agro-inputs, which



also required financial support from banks or microfinance institutions. Related situations were experienced with *Kasikisi* banana juice in the Musanganya banana IP in DRC and *Mamera* sorghum porridge in the Bubare sorghum IP in Uganda. Following successful processing, branding, packaging and presentation, and introduction to the market, new issues of patenting, standards, certification and licensing emerged among IP members. These required dialogue and negotiations to resolve. Similarly, in the Mudende milk IP in Rwanda, the IP involved two dairy cooperatives to establish successful linkages with the Inyange Milk processing plant. Conflicts emerged thereafter among IP members. This required mediation to reach an understanding among the members.

Some stakeholders were still experiencing a dependency syndrome and expected ‘free handouts’. This was particularly acute in those areas just emerging out of conflict situations. This required tactical skills for managing the syndrome. Most of the LKPLS IPs are being implemented in areas where most of the people are resource-poor and find it difficult to contribute towards funding the activities. Moreover, they are used to getting free services and other handouts (including money) from the government and NGOs. So far, IP activities have been partially facilitated financially by the SSA CP, and it is yet to be seen whether these IPs will become self-sufficient at the end of the project period. This poses a potentially huge challenge.

Some IPs were set up under situations of net food deficits. Moving such IPs to the next level of commercial production (ie, sustainable market surpluses) remains a challenge, especially now that climate change appears to be increasing the frequency of droughts, both within and between seasons. Along the same lines is the challenge of balancing the NGO-driven food security relief programmes against farmer-driven production for the market.

In addition to markets, improved productivity in the LKPLS is dependent on adequate seed availability of improved varieties, especially for vegetatively propagated materials such as potatoes, cassava and bananas. This is proving to be a big challenge given that it can take more than two years to produce sufficient quantities of the improved seed varieties to meet the demand from farmers and the market. This often means that farmers have to continue growing unsuitable varieties – especially in the case of bananas in Musanganya IP (DRC). Banana growers in the Musanganya IP also face the complication of uprooting the banana crop and planting alternative crops for a two-year rotation period in the field-cleaning process to get rid of the prevailing banana bacterial wilt disease that has afflicted the local banana plantations – an enormous challenge.

## 7.5 Conclusions

Implementation of IAR4D requires time and patience. As evident in the LKPLS, IAR4D innovations are influenced by the quality of facilitation, strong market-led linkages and knowledge-based interactions – and these are highly context-specific. It has also been observed in general that innovation capacity increases with the number and quality of stakeholders. In the LKPLS, successful operationalisation of IAR4D requires a functional and efficient linkage system of

partners and actors to address dynamic facilitation and research issues. This linkage system is likened to a CPU of a computer.

Market-led processes are invaluable in catalysing innovations and providing incentives to actors. Creation of win–win scenarios among stakeholders seemed to have enhanced involvement of relevant non-conventional actors such as the private sector and universities. Policy support and involvement of local leaders also appeared to be very useful in fostering the well-being and sustainability of IPs.

Although the end-of-project (mid-term) survey was undertaken and completed in the LKPLS, conclusive scientific evidence of the performance of IAR4D approach under the SSA CP has yet to be provided.

## 7.6 Some recommendations and way forward

Cross-border networking needs to be strengthened through regional efforts to address cross-cutting issues (eg, cross-border trade).

Policy innovations should be continued and expanded beyond the Ugandan IPs. This is especially important in facilitating formation of bye-laws that support and create an enabling environment for systemic innovations to address existing and emerging challenges.

The time needed to build partnerships where roles are clearly understood and acted upon in an atmosphere of trust, openness and equity can take longer than originally conceived. It is therefore necessary to have good facilitation, leadership and champions from inception.

It is important to ensure adequate capacity among facilitators and other partners for IP coordination and this should be pursued.

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## ..... Acronyms and abbreviations .....

ABC	Attitudes and behaviour change
ACF	Action Contre la Faim
ADA	Agro-enterprise Development Approach
AHI	African Highland Initiative
AIS	Agricultural innovation systems
ARD	Agricultural research and development
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
CAADP	Comprehensive African Agriculture Development Programme
CARG	Council for Agricultural and Rural Management
CASE	Competitive Agricultural Systems and Enterprises
CBD	Convention on Biological Diversity
CBO	Community-based organisation
CDP	Community Development Policy
CIALCA	Consortium for Improving Agriculture-based Livelihoods in Central Africa
CIAT	International Center for Tropical Agriculture
CIF	Cost, insurance and freight
CIP	International Potato Center
COL-L3	Commonwealth of Learning – Lifelong Learning
CORMA	Client-Oriented Research Management Approach
CPU	Central processing unit
CRSAT	Centre de Recherche en Sciences Appliquée et Technologique
CRSN	Centre de Recherche en Sciences Naturelles
CUG	Closed user group
DFID	Department for International Development (UK)
DIOBASS	Démarche pour une Interaction entre les Organisations à la Base et les Autres Sources des Savoirs
DRC	Democratic Republic of Congo
DSCRIP	Document and Strategy for Growth and Poverty Reduction (DRC)
DSIP	Development Strategy and Investment Plan
ECA	Eastern and Central Africa
EDPRS	Economic Development and Poverty Reduction Strategy
FARA	Forum for Agricultural Research in Africa
GAP	Groupe Agropastorale Pharmakina
GIS	Geographic information systems
GODRC	Government of Democratic Republic of Congo
GOR	Government of Rwanda

GOU	Government of Uganda
HUNTEX	Huntex Industries Ltd.
IAR4D	Integrated agricultural research for development
IARC	International Agriculture Research Centers
ICIPE	International Centre for Insect Physiology and Ecology
ICRA	International Centre for development-oriented Research in Agriculture
ICRAF	World Agroforestry Center
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IFAD	International Fund for Agriculture Development
IFDC	International Fertilizer Development Center
IMBARAGA	National Farmers Union of the Northern Rwanda
INERA	Institut National pour l'Etude et la Recherche Agronomique
INRM	Integrated natural resources management
IP	Innovation platform
ISA	Innovative systems approach
ISAE	Institute of Agriculture and Animal Husbandry
ISAR	Institut Des Sciences Agronomiques du Rwanda (Rwanda Agricultural Research Institute)
ISFM	Integrated soil fertility management
ITK	Indigenous technical knowledge
JORO	JORO Merchandise Distributors Ltd
KAZARDI	Kachwekano Agricultural Research and Development Institute (NARO)
KPTG	Kampala Potato Traders Group
LG	Local government
LKPLS	Lake Kivu Pilot Learning Site
M&E	Monitoring and evaluation
MAAIF	Ministry of Agriculture, Animal Industries and Fisheries
MAK-FST	Makerere University Food Science and Technology Department
MECRECO	Mutuelle d'Epargne et de Cr�dit au Congo
MoU	Memorandum of understanding
MTEF	Medium Term Expenditure Framework
NAADS	National Agricultural Advisory Service(s) (Uganda)
NARO	National Agricultural Research Organisation (Uganda)
NARS	National agricultural research systems
NDP	National Development Plan
NEPAD	New Partnership for Africa's Development
NGO	Non-governmental organisation
NOGAMU	National Organic Movement of Uganda
NRM	Natural resources management

NUR	National University of Rwanda
ODLN	Open Distance Learning Network
OVG	Observatoire Volcanologique de Goma (Goma Volcano Observatory)
PABRA	Africa Bean Research Alliance
PARSAR	Multi-Sectoral Programme of Emergency Rehabilitation and Reconstruction
PMURR	Support Project for Rehabilitation of Agriculture and Rural Sector
PNR	National Rice Programme
PRONAPLUCAN	Programme National de Prévention, de Lutte et d'Assistance Humanitaires aux Victimes des Catastrophes Naturelles
R&D	Research and development
RAAKS	Rapid Appraisal of Agricultural Knowledge Systems
RUFORUM	Regional University Forum
SACCO	Saving and Credit Cooperative Societies
SACR	Send a Cow Rwanda
SENAFIC	National Fertilizer and Related Inputs Service
SENAMA	National Agricultural Mechanization Service
SENAQUA	National Aquaculture Service
SENASEM	National Seed Service
SENIVEL	National Veterinary Inputs and Livestock Service
SGPR	Strategy for Growth and Poverty Reduction
SLA	Sustainable livelihoods approach
SNSA	National Agricultural Statistics Service
SNV	National Extension Service
SRO	Sub-regional research organisations
SSA	Sub-Saharan Africa(n)
SSA CP	Sub-Saharan Africa Challenge Programme
SUCAPRI	Strengthening University Capacity for Promoting Rural Innovations
SYDIP	Syndicat de Défense des Intérêts Paysans
ToT	Training of trainers
TSBF	Tropical Soil Biology and Fertility Institute (CIAT) Ugandan Shillings
UNADA	Uganda National Agro-Input Dealers
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNSPPA	Uganda National Seed Potato Producers' Association
USD	United States dollars
WUR	Wageningen University and Research

## About FARA

FARA is the Forum for Agricultural Research in Africa, the apex organization bringing together and forming coalitions of major stakeholders in agricultural research and development in Africa.

FARA is the technical arm of the African Union Commission (AUC) on rural economy and agricultural development and the lead agency of the AU's New Partnership for Africa's Development (NEPAD) to implement the fourth pillar of the Comprehensive African Agricultural Development Programme (CAADP), involving agricultural research, technology dissemination and uptake.

**FARA's vision:** reduced poverty in Africa as a result of sustainable broad-based agricultural growth and improved livelihoods, particularly of smallholder and pastoral enterprises.

**FARA's mission:** creation of broad-based improvements in agricultural productivity, competitiveness and markets by supporting Africa's sub-regional organizations (SROs) in strengthening capacity for agricultural innovation.

**FARA's Value Proposition:** to provide a strategic platform to foster continental and global networking that reinforces the capacities of Africa's national agricultural research systems and sub-regional organizations.

FARA will make this contribution by achieving its *Specific Objective* of sustainable improvements to broad-based agricultural productivity, competitiveness and markets.

Key to this is the delivery of five *Results*, which respond to the priorities expressed by FARA's clients. These are:

1. Establishment of appropriate institutional and organizational arrangements for regional agricultural research and development.
2. Broad-based stakeholders provided access to the knowledge and technology necessary for innovation.
3. Development of strategic decision-making options for policy, institutions and markets.
4. Development of human and institutional capacity for innovation.
5. Support provided for platforms for agricultural innovation.

FARA will deliver these results by supporting the SROs through these Networking Support Functions (NSFs):

NSF1/3. Advocacy and policy

NSF2. Access to knowledge and technologies

NSF4. Capacity strengthening

NSF5. Partnerships and strategic alliances

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**Forum for Agricultural Research in Africa**

12 Anmeda Street, Roman Ridge

PMB CT 173, Accra, Ghana

Telephone: +233 302 772823 / 302 779421

Fax: +233 302 773676 / Email: [info@fara-africa.org](mailto:info@fara-africa.org)

[www.fara-africa.org](http://www.fara-africa.org)