Facilitation Strategies for Managing Research for Development in Innovation Platforms

Laurent C. Glin, Oluwole Fatunbi,
Augustin Kouévi, Euloge Togbé

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Forum for Agricultural Research in Africa

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Innovating for Africa's Wellbeing

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Outline

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List of Abbreviations

AESA	:	Agro ecological System Analysis
AHI	:	African Highland Initiative
AIS	:	Agricultural Innovation Systems
AKIS	:	Agricultural knowledge and information systems
AR	:	Action-research
AR4D	:	Agricultural Research for Development
AVRDC	:	World Vegetable Center
BBW	:	Banana Bacterial Wilt
BNF	:	Biological Nitrogen Fixation
CAADP	:	Comprehensive Africa Agriculture Development Programme
CDC	:	Cocoa Development Centers
CGIAR	:	Consultative Group on International Agricultural Research
CIALCA	:	Consortium for Improving Agriculture-based Livelihoods in Central Africa
CIAT	:	International Center for Tropical Agriculture
CoS SIS	:	Convergence of Sciences - Strengthening agricultural Innovation Systems
DEC	:	Durosh Empowerment Consult
DFID	:	Department For International Development
DONATA	:	Dissemination of New Agricultural Technologies in Africa
DRC	:	Democratic Republic of Congo
FARA	:	Agricultural Research in Africa
FFS	:	Farmer Field School'
FSR	:	Farming system research
GAM	:	Gender Analysis Matrix
GAPs	:	Good Agricultural Practices
IAR4D	:	Integrated Agricultural Research for Development
IC	:	Innovation Clusters
ICRA	:	International Centre for Research on development-oriented Agriculture
ICRAF	:	World Agroforestry Centre
IFAD	:	International Fund for Agricultural Development
IFDC	:	International Fertilizer Development Center
IITA	:	International Institute of Tropical Agriculture
INRM	:	Integrated and Natural Resource Management
IP	:	Innovation Platforms
IRD	:	Integrated rural development
ISA	:	Innovation System Approach

KABIP	:	Kashekuro Banana Innovation Platform
KKM	:	Kano-Katsina-Maradi
L3F	:	Life Long Learning for Farmers
MFIs	:	Micro Finance Institutions
MINAGRI	:	International Center for Tropical Agriculture, CIAT Ministry of Agriculture
MSPs	:	Multi-Stakeholder Innovation Platforms
NARS	:	National Agricultural Research Systems
NIE	:	New Institutional Economics
NIHORT	:	National Horticultural Research Institute
NOGAMU	:	National Organic Agricultural Movement in Uganda
NRM	:	Natural Resource Management
OIP	:	Operational Innovation Platforms
PIBID	:	Presidential Initiative on Banana Industrial Development
PLS	:	Pilot Learning Sites
PNISA	:	National Innovation platform for the Agricultural Sector
PRA	:	participatory rural appraisal'
R&D	:	Research and Development
R4D	:	Research for Development
RAAIS	:	Innovation Systems
RAAKS	:	Rapid Appraisal of Agricultural Knowledge Systems'
RIU	:	Research Into Use
RRA	:	Rapid Appraisal of Agricultural
S3A	:	Science Agenda for Agriculture in Africa
SC	:	Science Council
SHGs	:	Self-Help Groups
SNV	:	Stechting Nederlandse Vrijwilligers
SRTs	:	Strategic Research Themes
SSA	:	Agricultural Research in Sub Saharan Africa
SSA CP	:	Sub Saharan Africa Challenge Programme
ToT	:	Transfer of Technology
UEA	:	Evangelic University of Bukavu
VSLA	:	Village Savings and Loan Associations
ZMM	:	Zimbabwe-Malawi-Mozambique

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The Forum for Agricultural Research in Africa (FARA), working with members in 10 African countries participated actively in the CGIAR Research Program on Integrated Systems for the Humid Tropics tagged "Humidtropics", here from its inception till the end of 2015. The role of FARA in the project was to mainstream its experience within the Sub- Saharan Africa Challenge Program (SSA CP) and leverage its mastery in the development and implementation of the agricultural innovation systems approach into the frame for implementing the Humidtropics program. Thus, FARA facilitated the linkage of the national partners, conducted training and supported the establishment and operationalization of the different innovation platforms in the African action sites of the Humidtropics project. Largely, FARA holds the responsibility to mainstream the knowledge from the implementation of the projects into the country framework for the development of agriculture. This book was developed as a legacy product of the project and aims to bring to light the state of knowledge on facilitation strategies and experiences for managing research for development on an innovation platform.

This book addresses the scaling of the Integrated Agricultural Research for Development (IAR4D) concept, the Research for Development (R4D) platform and the Innovation Platform (IP) for the effective use of a wider audience in African agriculture. In the light of the benefit this book projected to offer, FARA drawn lessons from a wide range of its stakeholders with knowledge and experience in facilitating the different platforms.

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Foreword

Agriculture is the fulcrum of economic development in Africa. The ailing sector has attracted considerable efforts to improve its productivity and realise its potential contribution to economic growth. The Forum for Agricultural research in Africa (FARA) has, in the last decade, worked with its constituents to foster the development of the agricultural sector. It has developed the Integrated Agricultural Research for Development (IAR4D) concept as an effective vehicle to translate the available technologies to socio-economic benefits and increase income from agriculture through enterprise development. The realization of the desired future for Africa agriculture may not come without a suitable science across board, thus, FARA and its constituents developed the Science Agenda for African Agriculture (S3A) as a framework to ensure an effective commitment to the use of science to orchestrate the desired future of Africa agriculture.

The implementation of the S3A and all other initiatives needs to be taken to scale to benefit more stakeholders and ensure sustainable growth of the sector. This applies to the use of the Multistakeholders approach and the innovation platforms which have enjoyed wide acceptance among agricultural research and development stakeholders in Africa. It is imperative to ensure that the quality of knowledge acquired by the stakeholders on how to set up and operationalize the innovation systems approach is accurate to achieve maximum benefit. The success of any innovation platform in yielding the desired socio-economic benefits relies on certain characteristics, such as the engagement of stakeholders drawn along the commodity value chain or system of production, running activities in a commercial mode, with defined business plan, ensuring that the stakeholders show interest in the commodity such that the interaction and learning are carried out without a failure to fulfil commitments by the core actors. Thus, the quality of the facilitator is essential. He/she must be able to stimulate partners' interest and manage their expectation until innovations that benefit all stakeholders are generated in a win-win situation.

The integration of the IAR4D concept and the innovation platform as the operational frame into the Humidtropics program; a CGIAR-led research program, has provided another learning cycle. It gives attention to the development of appropriate systems to effectively engage research partners on the innovation platform. As an improvement to the age-long practice of having researchers as the core lead persons in all agricultural research and development initiatives, the Innovation systems approach effectively engages all categories of stakeholders and provides voice for all in the design and implementation of activities. Considering

the nature of research endeavour in terms of resource use, time requirement and public sector support, a systemic approach is required to ensure its function.

This Book, "Facilitation strategies and experiences for managing Research for Development (R4D) on an innovation platform" synthesises the available knowledge on strategies to effectively engage research and development actors on an IP. It also documents experiences in platform facilitation strategies. The experiences documented are drawn from the implementation of the Sub- Saharan Africa Challenge Program for over 10 years across Sub-Saharan Africa and the implementation of the Humidtropics program in 10 countries in Africa.

It is expected that this book will boost the knowledge of African agricultural research and development stakeholders and will serve as a useful guide to facilitators of the agricultural innovation platforms. I wish you happy reading.

Yemi Akinbamijo, PhD
Executive Director, FARA

1.0

General Introduction

1.1 Rationale of the book

During the last decade, Agricultural Research in Sub Saharan Africa (SSA) experienced a paradigm shift from the linear and prescriptive approach known as top down approach to a variety of participatory approaches. The latest finding within such approaches is an innovation systems-based approach known as the Integrated Agricultural Research for Development (IAR4D). The IAR4D is based on the premise that agriculture in SSA is complex, diverse and risk-prone and that the pipeline approaches and methods of transfer of technology for the uniform and controlled conditions of industrial agriculture did not fit the diversity of agro-ecological, socioeconomic, cultural, institutional and political conditions in SSA (Scoones and Thompson, 2009). Thus, the IAR4D has been advocated by the Forum for Agricultural Research in Africa (FARA) since 2004 as a response to the emerging opportunities and challenges faced by the continent to become food secure and to improve the livelihood conditions and the welfare of its population. Firstly, FARA is involved in shaping and developing an IAR4D architecture which entails the establishment of continental organizations representing each group of stakeholders in the agricultural innovation system, including agriculture advisory services, farmers' organizations, NGOs, agribusiness and education. Currently, FARA is working with sub-regional research organizations (SROs), National Agricultural Research Systems (NARS), partners and forum members towards repositioning IAR4D as the key driver of Africa's socio-economic transformation agenda, the Africa Union's Agenda 2063 and the Comprehensive Africa Agriculture Development Programme (CAADP) with the ultimate goal of achieving food security, natural resource management and poverty alleviation through technology development and dissemination, conducive and enabling policy implementation and better access to inputs and markets (FARA, The Next Chapter).

IAR4D was designed to deal with the complexity in Sub Saharan Africa Agriculture which is characterized by a non-uniform and changing pattern of farming systems within and across countries. In such an environment, finding solutions to the aforementioned challenges calls for breaking away from the monolithic conception of research, which, for decades, has been ineffective to address end-users' constraints and priorities. As viewed by Hawkins *et al.* (2009a), IAR4D is a process-based and a multi-stakeholders approach using actors from various backgrounds and bringing together a wide spectrum of ideas, ranging from scientific to empirical approaches, to generate applied knowledge which is conveyed into technological, organizational or institutional innovation. As such, this approach requires actors to cross the borders of their traditional and conventional way of thinking to embrace new ideas, skills, mindsets and attitudes that enable cross-fertilization and change to happen, as well as lead to socio-economic benefit. This change must occur with actors embedded in the IAR4D systems, but especially with facilitators appointed for the successful implementation of the approach. Research has become an integral component of the framework, but no longer the central.

As a holistic approach itself, IAR4D is grounded on various concepts, theories and approaches, all of them packaged in the Innovation System Approach (ISA). These theories include the theory of change, the theories of positivism and constructivism, and the theory of adult and experiential learning (Hawkins *et al.* 2009a). In addition, IAR4D is supported by rural livelihoods approaches and experiences with Integrated and Natural Resource Management (INRM), value chains, social equity and gender frameworks, inter-disciplinary research and development, and agricultural development. Among other IAR4D supporting theories and approaches are systems theory and experiences with farming systems research and client-oriented approaches, integrated rural development, scaling up and out, agriculture sector policies and strategies, and new institutional economics.

Owing to what has preceded the development of the concept, it is clear that IAR4D requires facilitators with a set of individual, organizational and institutional capacities that would enable the principles of IAR4D to be put into practice (Hawkins *et al.* 2009b). These skills may not be available immediately in the field, but would be developed by designing a special capacity development program for actors, especially IAR4D implementation facilitators. Specific materials to use for that purpose are still missing. This book intends to fill the gap.

Based on the recommendations made by the Consultative Group on International Agricultural Research (CGIAR) Science Council (SC), IAR4D underwent a 'proof of concept' process that aimed at showing the superiority of the IAR4D concept over the top down approach in improving crop productivity, food security, and natural resources management and in creating an innovation-prone policy environment for effective access to markets. This test was carried out by the Sub Saharan Africa Challenge Programme (SSA CP). As suggested by CGIAR Science Council (SC), the following research questions guided the process:

- Does the IAR4D concept work and can it generate and deliver public goods on international and regional level for the end users?
- Does IAR4D provide more benefits to end users than conventional approaches?
- How sustainable and usable is the IAR4D approach outside the test environment?

The proof of concept experiences were carried out in eight countries in three SSA regions known as Pilot Learning Sites (PLS). They were in (i) Western Africa (Nigeria, Niger); (ii) Southern Africa (Zimbabwe, Malawi and Mozambique) and (iii) Eastern Africa (Uganda, Rwanda and Democratic Republic of Congo) around the Lake Kivu region. Twelve Innovation Platforms (IP) were then set up in each PLS as catalysts for the IAR4D concept. The concept achieved different levels of success during the test across countries, depending on the prevailing political context, policy environment and the quality of facilitation displayed along the

implementation process of the IAR4D concept. Instances of IPs in the Lake Kivu Pilot Learning Site involving IPs in Uganda, DR Congo and Rwanda are very edifying. Since these IPs were registered, they have become organized entities. As such, they attracted many private sector actors, and then were able to tap many opportunities within and outside the country. These IPs were entrusted with various credits which enabled them to generate incremental innovation and added value with 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. Specificities of some IPs are worth noting. Chahi IP in Uganda was able to access credit with the MECRECO microfinance credit institution based in DRC through inter-IP relationships with IPs in DRC. These Inter-IP partnerships also enabled platforms in both countries to exchange appropriate and adaptive technologies such as disease-resistant high-producing potato varieties. Also through their new status as organized entities, Bubare and Chahi in Uganda have gained recognition from local authorities through the approval of their bye-laws, and succeeded in integrating their work plans into the sub-county development plans for the year 2010–2011. In Rwanda, the issues of decreasing yields and difficulties in potato marketing were addressed by Gataraga IP through implementation of the IAR4D concept. Several innovations emerged after some time. This IP was linked to markets and it started focusing on meeting demands. Technologies for rapid multiplication were applied, and access to planting material of a market-preferred variety was facilitated. In addition, innovation occurred through improved post-harvest handling, including potato washing, sorting, grading, and packaging in woven sacks and bags made of banana fibers, again creating added value. As a result, production increased and quality improved. Consequently, farmers earned through the IP marketing arrangements RWF30 more per kilogram than on local market. The result recorded in the two other PLS - Kano-Katsina-Maradi (KKM) PLS in the West African sub-region, and Zimbabwe-Mozambique-Malawi (ZMM) PLS for the Southern African sub-region (Adekunle *et al.,* 2014) – should not be overlooked, since all three tested questions were satisfactory fulfilled on those sites as well.

The success of the IAR4D concept implementation and facilitation in these piloted sites has been acknowledged. However, the impact could have been greater if more attention had been paid to upgrading the facilitation skills of the key actors. Little can be done within the scope of IAR4D to alter the political context prevailing in each country. However, effort can be invested to improve the quality of facilitation within each IP. IAR4D is a dynamic process requiring a functional and adaptive facilitation to address and resolve any emerging issue (Buruchara *et al.* 2013). In fact, the scope of facilitation is unlimited. As perceived by Tenywa *et al.* (2013) and Buruchara *et al.* (2013), facilitation is a master key in driving multi-stakeholders processes. According to these authors a continuous backstopping in terms of facilitation is required to ensure the successful functioning of IPs.

Facilitation is a multipurpose tool and a multi-skills-driven activity along the multi-stakeholder processes. It is essential in enhancing effective partnerships by ensuring free flow of effective market information and access to credit facilities to guarantee the competitiveness of the value chain, enhancing synergies and complementarities on IPs to address farmers' challenges and seek solutions, and promoting vertical and horizontal integration of the IPs; as well as accessing resources to address emerging challenges on the platforms. Facilitation is also essential in identifying relevant organizations and teams to address challenges, bringing in new actors to address emerging issues, and anticipating conflicts before they occur or grow into disputes. Facilitation is also highly required in harnessing productivity-enhancing technologies and innovations, capacity building in terms of training, linkages to markets and service providers, and preservation of natural resources. Understanding the process that guides and governs any phenomenon or mechanism is by far the most important skill required during multi-stakeholder process facilitation. IP facilitation is not an easy task. That is why Makini *et al.* (2013) raise the need for process-trained facilitators who underwent personal coaching to provide intensive and skilled facilitation. The need for such facilitators has grown over time, since the launch of IPs by FARA in 2004. Raising critical numbers of trained facilitators to ensure institutionalization of the IAR4D approach incurs a cost that should not be overlooked (Adekunle *et al.* 2012).

The transformation recorded within a relatively short period of time at individual and community levels through the SSACP has inspired many organizations and programmes to invest in and implement IAR4D and set up IPs in SSA. CGIAR's Humidtropics programme is one of those programmes. The Humidtropics programme advocates System Innovations, while positioning research as central. This programme has promoted Research for Development Platforms (R4D platforms), known as Action Site R4D platforms. R4D platforms are national level platforms established to address higher level technical, policy, scaling up and institutional issues (Mume and Lema, 2015). R4D platforms are set up at socio-technical regime level and are composed of selected organizations that aim to create enabling environments for greater impact of agricultural interventions. R4D platforms emphasize a changing perspective on research, its organization and conduct. These national level platforms are informed by local innovation platforms using data generated from on-farm experiments. Continuing data collection serves as the basis for system analysis used to monitor changes at livelihood, environmental and nutritional levels. With such a configuration, coordination and facilitation appear to be a lever of the success of R4D platforms (Boogaard *et al.* 2013).

A handful of documents have been published on facilitation skills needed to guide and conduct innovation processes (Adekunle and Fatunbi 2012; Klerkx *et al.* 2009; Kristjanson *et al.* 2009; Nederlof *et al.* 2011; Pali and Swaans 2013; Steins and Edwards 1999; Van Rooyen *et al.* 2013, Victor *et al.* 2013). Much information is scattered in many different documents. They all agree that significant management

skills are required by facilitators. Some of them provided a long checklist of criteria required for ideal facilitators. However, those criteria are not specific enough to allow quick understanding of what an ideal facilitator should look like. Moreover, it could be difficult for a single facilitator to fulfil all the identified criteria. The question could then be: what are the main criteria the ideal facilitator should fulfil to successfully assume facilitation tasks? This book answers this question by gathering relevant data to set a good ground for quality facilitation of innovation processes.

Overall, this book intends to serve as reference in the arena of platform facilitation. It will provide thorough insight on facilitation processes and how these have been instrumental to the success or failure of the R4DP and IPs. It will inform on the way facilitation processes have been led so far in the several R4DP and IPs and what specific challenges these processes face on the ground. This book will also draw lessons from practical field experiences in the SSACP and Humidtropics programme from "successful" and "non-successful" R4DP and IPs to construct the profile of an ideal facilitator. It will be a useful tool for academics, researchers and IAR4D practitioners in facilitation of IPs. It will provide training materials to address the persisting challenges to institutionalizing IPs by a speedy raising of a critical mass of facilitators needed at national and decentralised (zonal/district/county) levels. Lastly, this book will serve as advocacy tool for the integration of IAR4D competencies into university curricula. Such an experience has started in Uganda with Makerere University where IPs have been instrumental in identifying the required competencies and skills of graduates from educational settings to facilitate multi-stakeholder processes (Adekunle *et al.* 2013b, Adekunle *et al.* 2013c). This experience has been successful and needs to be scaled up and out all over Sub-Saharan African countries. This book will be useful for this purpose.

1.2 Outline of the book

This book is structured as follows:

The current chapter is the first. It places the book in its context, highlighting the existing need for skilled and process facilitation on the ground.

Chapter 2 gives an overview of the challenges faced by SSA agriculture, describes the advantages and limitations of the linear model or research for development, and introduces IAR4D as an alternative to the linear model of Transfer of Technology (ToT). This chapter highlights the IAR4D concept and practices, and discusses the possible complementarities and contradictions that could be noticed between both IAR4D and ToT approaches.

Chapter 3 presents the multi-stakeholder innovation platforms as operational tools of IAR4D, the large variety of IPs on the ground, the hierarchical levels of their establishment, their specificities, and establishment steps as suggested by FARA and others IP advocators.

Chapter 4 makes a comparison of R4DP and Innovation platform (IP) in terms of background philosophy, composition, configuration and structure, the steps of their establishment, etc.

Chapter 5 presents facilitation as a key success of IPs, confronts definitions suggested by authors, indicates the role and the importance of facilitation for IPs, and describes the principles that guide facilitation and the process of facilitation.

Chapter 6 zooms in on the determinants of success of facilitation with depth anchor in the lessons learnt from the field. It discusses the profile of a successful facilitator by highlighting the characteristics of IPs facilitators, the reasons underpinning the success and failure of some facilitators, and the attributes of a good facilitator.

Chapter 7 presents the general conclusion and key implications.

1.3 General methodology

This study was conducted following three phases:

Phase I: Desk research on IAR4D, R4DP, MSP, and IPs.

This phase consisted of an interpretive analysis of documents and reports on the concepts of IAR4D, R4DP, MSP, and IPs. Data were gathered, analyzed, and interpreted from materials (reports, books, articles, etc.) on the several R4DP and IPs set up in the framework of the Humidtropics and SSACP Programmes. The idea was to figure out general lessons and stories about the inception and development of these R4DP and IPs and what makes them successful or not. Soft versions of these materials were provided directly by FARA, while others were gathered using Humidtropics and FARA websites. The diversity of these soft materials constituted the basis of this study.

This phase helped to identify the knowledge gap in literature regarding drivers of good facilitation and regarding the profile of the ideal facilitator. It also helped to identify the components of conducive environments that enable a successful facilitation.

Phase II: Surveys

Field data collection was carried out in three sub-phases in three countries.

Country selection

Field data collection was conducted in western, central and eastern African regions with case studies of one "successful" and one "non-successful" R4DP and IP in each region. Three countries were selected for the purpose of this assignment: Nigeria (Western Africa), Democratic Republic of Congo (Central Africa), and Uganda (Eastern Africa). Côte d'Ivoire (Western Africa) was suggested and eventually added to the selection.

Sub phases

1. Preparation phase consisted of developing and discussing methodological guidelines and data collection tools. Relevant documents for the success of the surveys were also gathered.

2. Surveys were conducted in each of the three selected countries, using focus-group discussion and interviews with facilitators and key informants identified among stakeholders and other actors acting in the particular commodity value chain. A questionnaire guide (Annex 1) was used as data collection tool during the survey.

3. Data entry, processing and analysis to generate the general trends of information concerning performant and non-performant R4DP and IPs

Phase III: Book chapter edition

This phase was devoted to editing and discussing the book chapters, restitution, comments and finalisation of the book.

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2.0

Making Agricultural Research work:

The IAR4D concept and practices

2.1 Introduction

Agriculture in Sub-Saharan Africa (SSA) is still facing the daunting challenge of meeting food needs of its growing population under the constraints of rising costs, increasingly scarce natural resources, and climate change. Agriculture's challenges are rooted in its features. In fact, SSA Agriculture is multi-commodities-based, developed in diverse farming systems across a large variety of agro ecological zones, where most soils are highly nutrient-depleted. Most of these farming systems rely on rainfall, and lack basic irrigation facilities which would allow farmers to take advantage of the available water resources. Road infrastructure is poorly developed and transport costs are high. Moreover, access to markets is very limited. As a result, agriculture in SSA is underperforming owing not only to these challenges but also because most developed technologies are not taken up for adoption by farmers (FARA, 2015). This is an evidence of the inadequacy of research outcomes in light of the true needs of end-users. Addressing these challenges will require innovations, new technologies, and new ways of approaching agriculture that would embrace social, economic and policy contexts in which farming systems are operating.

In the process of achieving this goal, all farms should contribute to the desired SSA agricultural performance. However, the specificities of each farm, exemplified by its scale, organization, enterprise diversity, and forms of market integration enable or prevent it from improving its ability to contribute to global or local food production, ecosystem integrity, economic viability, and social well-being (National Research Council, 2010). Dramatic and continuous improvement in SSA agricultural performance will require long-term research, education, outreach, and experimentation by the public and private sectors in partnership with farmers and other stakeholders embedded in the value chain. This is fully aligned with the international awareness of the role of science in agriculture for the economic transformation in Africa as revealed by the following statement: Without agriculture, economic transformation in Africa will be in jeopardy; and, without science, progress in agriculture will be painfully slow (FARA, 2015). In order for science to have greater impact in agriculture and on the continental economy, new revolutionary interfaces are called to take place between researchers (in the biophysical and the social sciences) and farmers, and between researchers and stakeholders acting in other societal dimensions of development, as well as a complete transformation of mindset first from researchers and other stakeholders. The two poles that crystallize most attention in this transformation journey are farmers and researchers. Farmer first movement started in 1987. From then, many participatory approaches, such as farmer participatory research, farmer field schools, and learning alliances, were advocated. Twenty years later (December 2007), the evaluation of this farmer-centred research and development (R&D) indicated that very little had changed particularly in the poorer, marginalized parts of the world: the complex, diverse and risky contexts where Farmer First

approaches were first implemented. In addition, poor people remain concentrated in rural areas and most of them continue to depend, directly or indirectly, on agriculture for their living (Scoones *et al.* 2008).

How do we ensure greater and faster returns on the related experiences and approaches in the seemingly same context?

Analyzing the transferability of principles underlying farming systems and practices that could improve the performance of small-scale agricultural systems in less-developed countries, with an emphasis on Sub-Saharan Africa, the National Research Council of USA (2010) suggested the combination of two parallel and overlapping approaches: incremental and transformative approaches. The incremental approach is grounded on the premises that most ongoing farmer practices or methods have not been adapted to the prevailing environments where they are currently used, and have not yet reached their full potential. Therefore, to ensure long-term performance, continuous research, extension and experimentation by researchers and farmers are required to provide the necessary toolkit for farmers to adapt their systems to the changing environmental, social, market and policy conditions. This approach does not vary from the well-known top down approach already in practice in many parts of the World, which has generated technology with varying levels of adoption. But in the case of SSA agriculture, systemic change has to be pursued because of the complexity of each farming system. Therefore, the incremental approach needs to be complemented by a transformative approach that systematically fosters integrative research by bringing together multiple disciplines to simultaneously address key sustainability issues beyond the agroecological dimension. System thinking-based research is at the core of the transformative approach. Its application allows in-depth understanding of how important the linkages between farming components are and how their interconnection and interaction ensure system robustness and resilience over time.

Integrated Agricultural Research for Development (IAR4D) represents a mix of both perspectives, and as specified in the Science Agenda for Agriculture in Africa (S3A), we should balance science, technology, innovations, extension, policies and social learning to meet evolving agricultural development goals (FARA 2015). Several efforts have been made in this regard, involving many regional and sub-regional organizations, partnerships to encourage synergies and create space for interaction, reflection and learning with broader social and economic forces with the ultimate goal of testing and promoting (after successful testing) integrative approaches to research and extension at both farm and landscape levels.

The focus of this chapter is not to rewrite another IAR4D concept and practices paper, but to bring to surface key elements that would allow quick understanding and use of the concept by academics and practitioners to achieve the desired outcomes for African economic transformation.

2.2 Integrated Agricultural Research for Development (IAR4D)

The limited success of conventional research in producing substantial change in farmers' livelihoods and in Sub-Saharan African economies was at the base of the adoption of the IAR4D approach by FARA. IAR4D has been initiated with large and intensive consultations after the inauguration of FARA in 2002, and it revealed three key issues of highest priority – identified by a wide range of scientists from research institutions across the world – as the main constraints to SSA Agricultural performance. These are failures of agricultural markets, inappropriate policies, and natural resource degradation. Other important and non-negligible issues are productivity, product development, nutrition and gender. These constraints and issues are tightly intertwined (Figure 2.1.) which calls for a new, integrated way of approaching them.

Having understood this, FARA proposed the IAR4D approach as an alternative to the conventional linear approach of Transfer of Technology (ToT) by engaging a multiplicity of stakeholders embedded in a given commodity's value chain. IAR4D is a process-driven approach and cannot be limited to a cluster of methods, approaches and techniques. Its application depends on the issue to address along the specific value chain. However, four principles constitute the basis of the implementation of this approach. The following section will present each of them, the supporting theories and the way to translate them into practice.

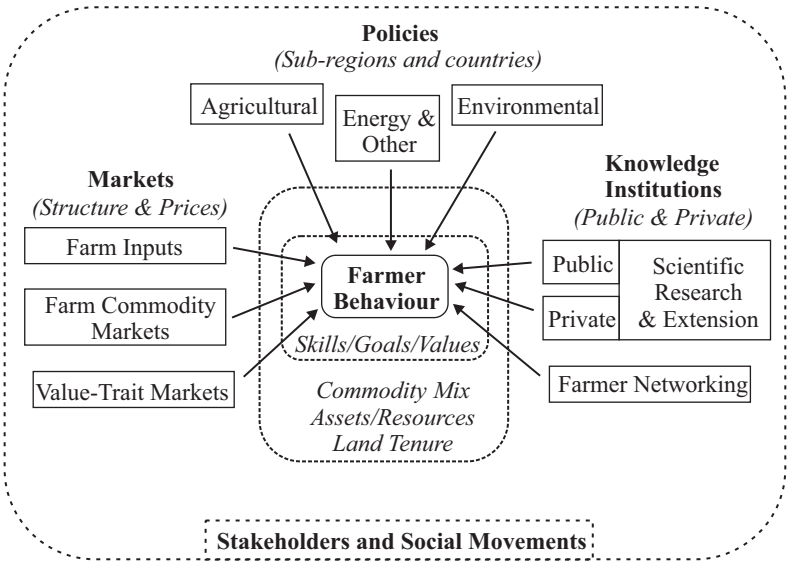

Figure 2.1: Drivers and constraints underpinning the complexity of Sub-Sahara African Agriculture (Adapted from National Research Council, 2010)

2.3 IAR4D principles and theories

The four principles that have been used to guide the IAR4D approach are presented as follows (Hawkins *et al.* 2009):

***Principle 1:* IAR4D integrates the perspectives, knowledge and actions of different stakeholders around a common theme**

Clarification of the principle

Getting the best understanding of a complex challenge demands for the appreciation of the issue from various angles and to analyze it from different perspectives. This requires people from different backgrounds spread over many dimensions of societal development. When this specific group of persons is engaged around a common goal or shared objectives and motivated by mutual understanding and trust, the group becomes a working alliance (Hawkins *et al.* 2009) which generates a strong and functional partnership between the various stakeholders. At this level, concerted action can be planned and implemented.

As can be perceived from the above, the greatest challenge in applying this principle is not to bring people together, but to cause them to build a strong partnership in which each stakeholder feels his/her interests is secure and is convinced to obtain good returns from the collective action on the short or medium run. Such a relationship is not easy to create where great discrepancies in social status, income levels, interests, personalities, etc., exist between people, which is typically the case between government officials, businessmen and farmers.

Even when relevant actors have been carefully selected and partnerships have been established through mutual trust, nothing guarantees that the shared and agreed upon objectives are relevant for addressing the underperformance issue of SSA agriculture.

This is why facilitation is discussed in this book for practitioners to achieve greater results while applying the IAR4D approach.

Supporting theories and experiences

The IAR4D principle 1 is supported by the following theories and experiences:

Positivism and constructivism

IAR4D strikes a balance between positivist and constructivist points of view. The theory of positivism is grounded on the assumption that the universe is governed

by laws, which should be discovered, understood and then predicted and controlled. According to this theory, science must limit itself to what is observable and measurable. However, constructivism holds the view that knowledge is a function of how the individual constructs meaning from his or her own experience. Under this theory, knowledge proceeds through a process of construction and deconstruction during its transfer from one to another person. IAR4D stands between both theories, giving equal consideration to each of them.

Indigenous knowledge and farmer innovation

Recognition given to farmers' knowledge and practices in the 1980s has changed the conception of researchers, and made possible the collaboration of researchers and farmers in designing, implementing and evaluating research agendas. This recognition fosters the view that innovation does not necessarily start with formal agricultural research and that complementarities between farmers, knowledge and research are crucial in creating sustainable site-specific and context-based innovation.

Participation and participatory research

Participation and participatory research entail that farmers are involved in one or more stages of the research process. Participation and participatory research started with the consultation of farmers during the data collection phase in the field of 'rapid rural appraisal' (RRA) or 'participatory rural appraisal' (PRA). But the concept has evolved – due to criticism – towards a more empowering or emancipatory participation through which beneficiaries' capacities are developed to take care of their own affairs: research, business, extension, project development, evaluation, etc.

Stakeholder analysis

Stakeholder analysis was abundantly used during the 1980s and 1990s, in response to donor inquiries, to evaluate in advance the likelihood of project success based on the interests, possible contribution, as well as the conflict between stakeholders' interests. Others advocated a more participatory approach over stakeholder analysis, arguing that stakeholders must do the analysis of their respective interests, perceptions, relationships, knowledge and experience themselves. By so doing, dialogue and negotiation will be facilitated, conflict reduced, and commitment developed for collective action by stakeholders. These criticisms gave credentials to approaches like 'rapid appraisal of agricultural knowledge systems' (RAAKS), which consists of looking at the process of innovation from the various perspectives of the different stakeholders. The three major phases of this examination are problem definition, analysis of constraints and opportunities, and planning strategies and actions. Stakeholder interaction and mutual analysis of the innovation process are facilitated by a number of tools.

Agricultural knowledge and information systems (AKIS)

The AKIS concept recognizes that the information needed for innovation to happen can be supplied by any stakeholder (e.g. farmer, processor, policymaker, or consumer). Therefore, research is no longer recognized as the main source of knowledge and information, nor can it assume a pivotal position in the system of knowledge and information as was the case in the conventional linear model. The development of the AKIS concept brought to IAR4D the understanding that stakeholders are complementary to each other rather than substitutes for each other.

Innovation systems

An innovation system can be defined as a network of organizations, enterprises and individuals operating in a given institution and policy environment to render economic services through the development or utilization of new products, new processes, and new forms of organization (World Bank, 2006). The innovation systems concept takes account not only of scientific knowledge but also of the entire contribution of other stakeholders. In this regard, priority should not be placed first on developing research capacity, and only afterwards on the other dimensions of innovation capacity. Rather, research capacity should be developed simultaneously with that of the other dimensions in a way that promotes interaction between research, private, and civil society organizations from the beginning. As observed by Hawkins *et al.* (2009), emphasis is put on innovation as the application of knowledge (rather than on knowledge itself), on the process (rather than on the product), and on the interactive learning between actors and the institutional and policy context that influences their innovative behaviour and performance.

How to put this principle into use?

Three axes of intervention have been identified for the application of this principle in development practices:

i facilitation of interaction through the establishment of various structures, governance bodies and mechanisms that would foster facilitation at various stages of IAR4D implementation;

ii establishment of common ground through co-development, co-implementation and co-assessment of working papers and governance papers,

iii creating conducive environments for interaction. Related actions and activities are presented in Table 2.1.

Table 2.1: Actions and activities to integrate the perspectives, knowledge and actions of different stakeholders around a common theme

Domains of application	Actions	Activities and/or outcomes
Facilitation of interaction	Raise partnerships around agreed issues (e.g. platforms)	Frequent joint meetings, visits or consultations, and having joint objectives, norms, working procedures and conflict resolution mechanisms
	Establish new forms of social organization for stakeholder interaction management	Creation of steering groups, committees, farmer associations, etc., to manage stakeholders interaction
	Setting up facilitation mechanisms around specific research and development themes	Appointment of facilitators or "neutral" actors or organizations
	Analysis of Innovation System, identification of constraints, needs and opportunities	Survey: Diagnosis and baseline data collection
	Facilitating stakeholders interaction with emphasis on joint learning	Appointment of staff e.g. for creating and managing platforms
Establishment of common ground	Initiation of Participatory Research and Development activities	Joint identification of the need of innovation by users of research and advisory services
	Joint formulation of the working documents	Workshop: Joint development of strategy papers, medium-term and annual work plans
	Development of integrated action plan	Workshop: Development of shared vision and objectives; Analysis of the problem/opportunity from different viewpoints, actions to be taken, respective roles and responsibilities

	Validation and dissemination of results	Workshop and edition of magazine/newspaper articles, advisory bulletin, professional journals, radio/television programs; creation of websites
	Knowledge update and facilitation	Communication of Research endeavors and progress to stakeholders on issues of their interest; Appointment of contact persons for further information on progress of this research
	Documentation of differences in perceptions, knowledge, interests and power between stakeholders	Analysis of perceptions, knowledge, interests and power
Creating conducive environments for interaction	Formulation of national and local innovation policies	Lobbying and advocacy
	Formulation of integrated research proposals with plans for result utilization, and scaling up and scaling out strategies	Appointment of expert or internal facilitators for the formulation of the proposals and/or for seeking support with other stakeholders
	Mobilization of funds	Submission of the proposal to other stakeholders or other organizations
	Public-private partnership development	Initiation of written agreements, contracts, memoranda of understanding
	Linkages, communication and feedback from other stakeholders within recognized partnerships.	Use of ICT

Source: developed by authors using their own experiences and available data from literature

***Principle 2:* IAR4D integrates the learning that stakeholders achieve through working together**

Clarification of the principle

IAR4D is a mutual and interactive learning process in which knowledge, be it codified, explicit, or tacit is equally valued through conscious and interactive processes of planning, action and reflection, re-planning, etc. This learning process takes place based on the commitment of the stakeholders to address research and development (R&D) challenges. The learning experience that occurs and could be applied to other situations to address other R&D issues, rather than the outcome of this experience, is the primary focus.

Learning takes place at individual, organizational and institutional levels. At the individual level, individuals learn how their own characters, outlook and mentalities affect interaction with others. At the organizational level, members of organizations collectively learn the effect of their administrative and management practices, values and motivations, etc., on interactions between individuals within the organization and between the organization and other stakeholders. At the institutional level, individuals and organizations collectively learn how to create an 'enabling environment' that facilitates innovation by promoting information sharing, and knowledge management throughout the network. Horizontal learning can occur between two or more local systems under national learning platforms, while vertical learning can take place with national systems drawing from international platforms.

Supporting theories and experiences

Adult and experiential learning theory

This theory is based on the observation that adults learn only essential and necessary knowledge which they know they can apply. This knowledge is mainly acquired through experience. This theory shares the constructivist view that much knowledge is created in relationship with others through dialogue and accounting made of multiple perspectives, instead of being externally prescribed.

According to the learning cycle developed by David Kolb, experiential learning takes place through four interrelated phases known as learning cycle. Direct experience is followed by reflection on what happened. Outcome of the reflection allows formulating a general rule or conclusion that leads to a new experience. The process may continue again and again. Owing to the fact that various knowledge styles exist, some may favor one stage over the other ones. The integration of various disciplines within a collaborative and social learning process as in IAR4D contributes to balance knowledge styles and learning processes as well.

Knowledge management

Knowledge management is defined as the art and skill of fostering and sharing the results of dialogue, whereby knowledge is both transferred from individuals to groups and from groups to organizations and partnerships of organizations (Hawkins *et al.* 2009). Knowledge management proceeds through four widely accepted stages: knowledge creation, knowledge storage and retrieval, knowledge distribution, and knowledge application. Each stage calls for a specific organization that would lead to a successful control of the knowledge assets. Knowledge management entails the supply of the right information to the right person or stakeholder at the right time in a user-friendly manner while developing organizational and system-wide memory. When these processes are incorporated in the culture of an organization, learning abilities are enhanced and fostered.

In IAR4D, knowledge sharing between individuals and organizations is an important key that enhances their performance and that of teams and partnerships. It is essential then to have a source of knowledge and to create space for interaction and sharing among stakeholders.

Action Research (AR)

AR emerged as a practical way of addressing important social issues. Its objective is to initiate a change (Action) and to learn from that change (Research). AR proceeds through a cycle of planning–action–observation–reflection by stakeholders, which has formed the basis of IAR4D thinking.
Reflection is at the heart of the methodology of AR, with the engagement of stakeholders who analyze the outcomes of their actions, their own behavior and the processes in which they are involved. While analyzing the change that occurs, stakeholders make adjustments in plans, commit themselves to joint decisions, and improve their competencies. The process is iterative, oriented toward the testing of concepts, methods and interpretations developed in the previous cycles, and leading to fine-tuning and improvement.

Farmer Field Schools

'Farmer Field School' (FFS) is a 'school without walls' in which farmers, as experts, are involved in a knowledge generating process where they 'learn by doing'. This learning is carried out in group. Together, they conduct field studies, e.g. Agro-ecological System Analysis (AESA), generate their own materials based on the analysis, make decisions and apply the decision. The learning process is supported by the facilitation of extension workers or skilled experts.

Learning cycles

Learning processes follow similar trajectories as described in the RA learning process, which consists of planning, implementation and reflection. ICRA has rich experiences in learning programme development and has started incorporating learning in the on-going R&D programmes with a specific guideline for fieldwork composed of three practical steps (Hawkins *et al.* 2009): (i) Developing partnerships with other organizations or individuals who have interest in a common 'development challenge'; (ii) Achieving a common understanding of this challenge, taking into account the perspectives of different stakeholders, the wider context of the challenge, and the expected change that summarizes the view of all stakeholders in the 'system'; (iii) selecting and evaluating different options ('ex ante') or activities carried out ('ex post') to improve technology, service delivery to rural people, and policy and institutional changes that further enable innovation and improve rural livelihoods.

Many successful cases have been recorded at individual and team levels with the implementation of these learning programmes. Also, many projects designed following the learning cycle, have been successful in initiating and facilitating multi-stakeholder interactions. However, greater emphasis must be put on the organizational and institutional aspects to sustain this interaction and mainstream IAR4D processes.

Learning alliances

The concept of 'Learning alliances' was developed by the Rural Agro-enterprise Development Project at the International Center for Tropical Agriculture (CIAT). It has the potential to contribute to institutional and policy change. It entails:

(a) The development of linkages between rural people, researchers, donor and development agencies, the public sector and private enterprises to achieve more effective processes of rural enterprise development;

(b) The establishment of an innovation system that responds to the demand of new ideas at the field and policy levels;

(c) The opening of communication channels that sustain information flows between diverse organizations with necessary information and experiences;

(d) The designing and testing of tools and methods for analysis and documentation that facilitate collective learning within and between organizations.

Actions are undertaken through three steps: (i) reviewing the framework with the goal of identifying factors limiting the success of partners' interventions;

(ii) implementing strategic actions, which include the integration, validation and adaptation of selected options, as well as efforts for capacity buildings; and (iii) documentation and analysis of results through various media: workshops, reflection sections and virtual platforms.

How to put this principle into use?

Practical application of this principle will happen through three domains: creation of time and space for learning, organization of reflective learning and documentation, and capitalization of learning. Related actions and activities are presented in Table 2.2.

Table 2.2: Actions to undertake and activities to carry out to create time and space for learning, to organize reflective learning and capitalize learning

Domains of application	Actions	Activities and/or outcomes
Creating time and space for learning	Creating time and space for exchange of experiences and reflection among staff members	Technical and administrative meetings (formal) Joint coffee times, open-plan offices, and open doors (informal)
Creating time and space for learning	Developing project proposals, work plans and budgets that allow flexibility and modification to reflect lessons learned and new good practices	Work meetings and workshops
	Creating opportunity for dialogue and alliances within projects and between projects during budgeting	Space of discussion during budget sections
	Designing joint monitoring and evaluation procedures to encourage learning and accountability	Monitoring and evaluation workshops
	Development of incentive structures and managers to improve performance and increase responsibilities, and encourage risk taking	Formulation of rewarding policy

	Building reflective learning processes	Sessions of discussion on the on-going experiences
Organization of reflective learning	Joint organization of feed-back and reflection on experiences and lessons around themes of common interest	Sessions for discussions
	Establishment of learning teams within and across organizations around specific development issues	Sessions for discussions
	Facilitation of learning	Appointment of third party professionals where necessary to facilitate the interactive and joint learning between stakeholders
Documentation and capitalization of learning	Documentation of lessons learned on intra and inter organizational processes	Documentation in the form of report with objectively verifiable outputs such as technical research results and informal and subjective opinions about personal and inter-organizational relationships and outcomes
	Development of explicit knowledge management procedures	Appointment to develop procedures that encourage multidirectional flows of information between staff within and between organizations
	Facilitation of participatory research practices and processes	Creating an enabling policy environment for innovation; Developing the culture of participatory research and reflection on interactive learning

Source: developed by authors using their own experience and available data from literature

***Principle 3:* IAR4D integrates analysis, action and change across the different dimensions of development**

Clarification of the principle

Agriculture in Africa and other parts of the World had been for a long time productivity-centred. But efforts directed to address the challenge of meeting the food need of Africa's ever-growing population were disappointing. Abundant reflections were devoted to the achievement of sustainable agriculture by balancing the key societal goals: economic growth, careful management of natural resources, social inclusion and equity, as well as food security.

IAR4D regards the integration of analysis, action and change across these different dimensions as preconditions for triggering poverty reduction and pro-poor development.

Supporting theories and experiences

Rural livelihoods

The term livelihood is sometimes defined as the way in which five important capitals or assets are combined to meet the demand of living. The five capitals are physical, natural, human, social and financial capitals. These five capitals are part of the 'livelihoods framework' presented by the Department for International

Development (DFID) in 1997 as a tool for livelihood analysis. DFID's approach is influential, but other approaches to study (and define) livelihoods exist. A livelihood that is 'sustainable' is the one that has the potential to endure and break through adverse situations (stresses and shocks), while maintaining or enhancing its capabilities and assets both now and in the future without affecting the natural-resource base. Thus, improving livelihoods means much more than securing the immediate needs for income. It integrates the broader human objectives of assuring food security and health, providing a house, reducing vulnerability to climatic, economic or political shocks, and increasing the ability to control one's own destiny (power). As integrative approach, IAR4D may be implemented by considering all the socioeconomic dimensions that contribute to sustainable agriculture. This entails a change of perspective from a narrow focus on production and income generation to positioning agriculture in this broader context. The expected outcome from IAR4D implementation is to successfully address rural poverty by balancing the five dimensions of livelihoods while considering the prevailing policy and institutional environment.

Integrated natural resource management

Integrated natural resource management (INRM) is a research approach that aims at improving livelihoods of stakeholders. It holds the view that solving the complex problems of agricultural communities necessitates strategies that foster natural and social resources to gain the benefits of improved crop varieties and animal breeds. Based on this more holistic understanding, INRM has been defined as 'an approach that integrates research on different types of natural resources into stakeholder-driven processes of adaptive management and innovation to improve livelihoods, agro-ecosystem resilience, agricultural productivity and environmental services at community, eco-regional and global scales of intervention and impact'. This approach is operationalized through a set of activities which aim at empowering relevant stakeholders and solving their conflicting interests, enhancing adaptive management capacity, addressing complexity by focusing on key causal elements, integrating levels of analysis, merging disciplinary perspectives, making use of a wide range of available technologies, guiding research on component technologies, and generating policy, technological and institutional alternatives. The multidimensional issue addressed in NRM such as natural-resource, soil-fertility and pest management excludes the possibility to address them using mono-disciplinary, sectoral or even a purely technical approach or action at just one level of organization. Hawkins *et al.* (2009) argued that an integration of disciplinary and stakeholder perspectives and adult-learning mechanisms that treat farmers as co-equals in the learning process are needed if technical solutions are to be applied to solve these problems.

Value chains linking farmers to markets

A Value Chain "describes the full range of activities that are required to bring a product or service from conception, through the intermediary phases of production, delivery to final consumers, and final disposal after use" (Kaplinsky, 2004). This includes activities such as design, production, marketing, distribution, and support services up to the final consumer (and often beyond, when recycling processes are taken into account) (Herr and Muzira, 2009).

Value chains are a central component of market systems (Figure 2.2), which assume their role by providing products and services to the market. The immediate environment is formed by supporting functions (such as business development services and finance) and institutions (rules and regulations) relevant to the chain (including labor rights). The broader environment affects the immediate environment as well as setting its own conditions.

One of the strengths of a value chain approach is its understanding of the boundary-crossing nature of economic processes. This would allow to identify actors at each segment and node, the stake at hand and the perspective of stakeholders, and to manage all by applying an IAR4D approach. Implementing a value chain approach will give insight into the geographical location of the market and what are its quality requirements. Once the quality requirements are known, farmers will be empowered to meet such criteria. Relationships between farmers and traders or markets can be strengthened through written agreements that commit each party to fulfill the terms of the contract.

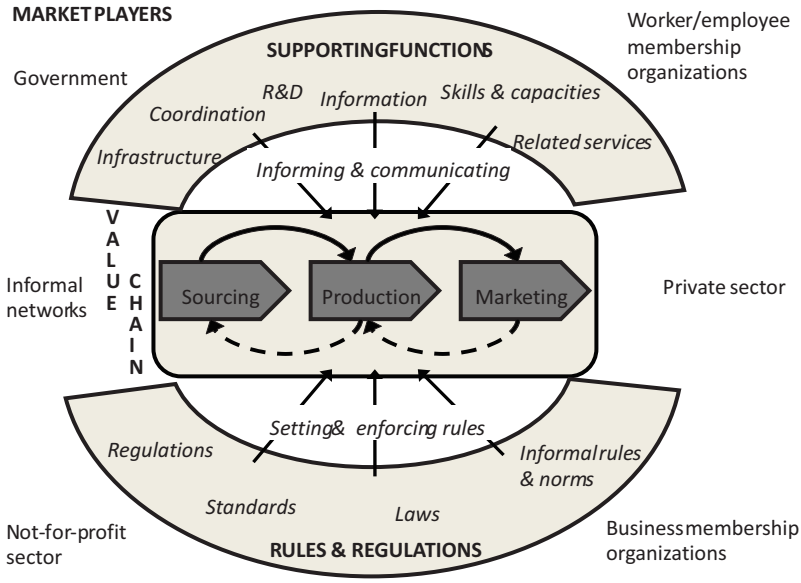

Figure 2.2: Market systems embedding the value chain
Source: DFID/SDC, 2008. The M4P operational guide, www.m4pnetwork.org (Accessed July 10th, 2016). See also http://www.meyerstamer.de/systematic.html (Accessed July 10th, 2016)

Social equity and gender frameworks

Development rarely provides equal benefits to all social groups. Also, it has been observed that technology, policy, process and innovation have hardly ever been neutral. All IAR4D practitioners should be aware of these truths that are determinant in understanding how inequity is unintentionally created. Knowing this, facilitators should make the distribution of expected benefits from innovation and change explicit to all stakeholders. That is why it is important to sensitize IAR4D practitioners to the importance of addressing matters of social inequity during the facilitation of multi-stakeholder processes.

What then is 'social equity'? 'Social equity' implies fair distribution of the benefits and costs of development between different social groups, which are determined by changing social norms and institutions. The aim to achieve social equity can be applied to any commodity to balance the benefits and costs associated with socio-economic activities, especially along the value chain in which all actors are interconnected.

Many different gender frameworks have been proposed. Among other are the Harvard framework and the Women empowerment framework. The Harvard framework is a gender-roles analysis framework (March *et al.* 1999) developed in the

1980s which aims at including a gender perspective in the analysis of the project to improving the benefits to women. The women's empowerment framework in contrast seeks to investigate projects from the perspective of women's development needs in order to find out whether the project will strengthen or weaken the position of women. It makes, if required, adjustments to mitigate adverse impacts or take the relevant steps for empowering women. Other gender analysis frameworks are: People-Oriented Planning, Moser Framework, Gender Analysis Matrix (GAM), Capacities and Vulnerabilities Analysis Framework, and Social Relations Approach. Those frameworks are detailed in March *et al.* (1999).

Inter-disciplinary research and development

Specialization within disciplines has been accompanied by separation and lack of integration of disciplines. Owing to the fact that no single discipline can satisfy the various societal dimensions of development, IAR4D should adopt inter-disciplinary approaches. An inter-disciplinary approach is defined as a systematic and systemic process by which professionals of different disciplines organize their analyses, synthesize their findings, and organize their actions around a common problem. As argued by Hawkins *et al.* (2009), this does not imply that professionals become generalists, rather disciplinary competence has to be complemented with a 'meta-disciplinary' competence (such as systems analysis, planning skills, adult learning skills), and 'social and personal skills' (communication, facilitation, leadership, etc.), so that individual disciplinary skills can be integrated with other disciplines in a problem-solving approach. IAR4D practitioners and facilitators should be aware of this, and develop a capacity building program to fill the existing gaps from the onset of any project in which disciplinary professionals are involved.

Agricultural development goals

Three agricultural dimensions represent the three goals which agriculture must pursue to become sustainable. These are environmental sustainability (development that does not degrade the natural resources needed for future production), economic sustainability (development that allows continued, long-term economic growth) and socio-political sustainability (development that benefits all social sectors, especially the poor). That is what has been recognized in the report of the Brundtland Commission to the United Nations which called for a new type of economic development that 'meets the needs of the present generation without compromising the ability of future generations to meet their own needs'.

How to put this principle into use?

Creating a conducive environment and incorporating a broad assessment of outcomes will be the goal in applying the third principle. Actions and activities to engage in this direction are presented in Table 2.3.

Table 2.3: Actions and activities to create a conducive environment and incorporate a broad assessment of outcomes

Domains of application	Actions	Activities and/or outcomes
Creating a conducive environment	Developing organizational R&D mandates, governance mechanisms, policies and programs which acknowledge the multi-dimensional nature of agricultural development.	Appointment of an expert professional in sustainable agriculture and IAR4D as facilitator Submission of terms of reference (ToR) to the expert Validation of ToR at inter-organizational Workshop
	Development of Integrated action plans or activities by stakeholder partnerships with alignment with economic, environmental and social policies.	Workshop with third party professional as facilitator
	Organization of professionals in abroad inter-disciplinary team to address research questions related to development issues	Network building and linkages through partnerships
	Developing an agreed impact-analysis framework to integrate the three dimensions of sustainable development (environment, economy, socio-political)	Workshop with third party professional as facilitator

Incorporating a broad assessment of outcomes	Assessment of Integrated action plans with recognition of tradeoff between economic, environmental and social outcomes.	Report that highlights the benefits and adverse effects for the social groups, actors, organizations and stakeholders
		Report that highlights the impact on natural resources, in terms of soil fertility and conservation, water availability and quality downstream, biodiversity, pollution, etc.
		Report that highlights the profitability for the different actors in the value chain, and the overall competitiveness of the business cluster compared to other regions and/or countries
	Assessment of changes in the five capitals of the livelihood framework (of DFIDs) and assessment of the implications for the vulnerability of key stakeholders when assessing innovation.	Reports that highlights changes in the five capitals and the implications for vulnerability of key stakeholders

***Principle 4:* IAR4D integrates analysis, action and change at different levels of spatial and social organization**

Clarification of the principle

Agricultural Innovation System thinking gives equal consideration to knowledge regardless of the source from which this knowledge emanates. Thus, scientific research is not considered as pivotal for innovation as was the case in the NARS perspective. From an AIS perspective, research is a component of the innovation system, which also includes value chains, knowledge and information systems, as well as policy and institutions that shape and guide interactions between all the components.

IAR4D practitioners have to be aware of this reality and actively foster not only learning at the levels of various components that shape the system, but also foster change by supporting relevant factors that contribute to sustainability and facilitate

the scaling out of the emerging innovation from the experimental fields. The various levels can be organized in terms of spatial (field, farm, communal lands, district or region, et.); economic (firm, value chain, business clusters, etc.) and human or social (individual, group, cooperative or community, organization, innovation systems) units or more holistically in terms of multiple levels structured as landscape, regime and niche (Geels, 2002).

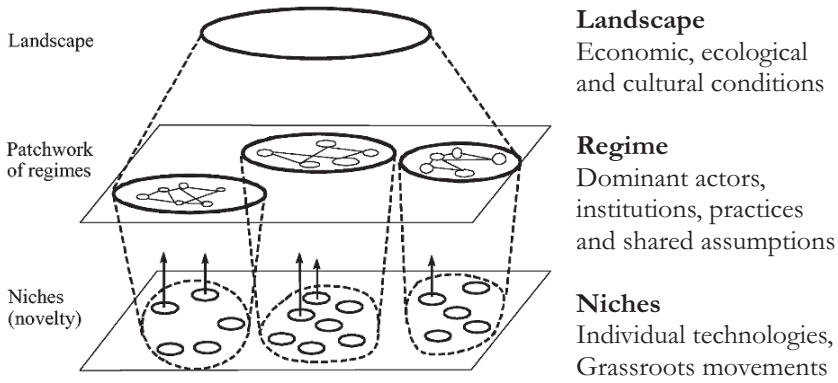

Figure 2.3: Multiple levels as a nested hierarchy (Geels, 2002)

Supporting theories and experiences

System

A System can be defined as an arrangement of interrelated components which function as one entity to determine the attributes of the whole system. The system features are determined by its components, boundaries, environment (external factors), inputs and outputs, hierarchy and feedback (positive or negative), and emerging properties (unpredictable by studying the functioning of individual components). Interest in the possible rise of emerging properties puts great emphasis on systems thinking and its associated regard for the whole instead of the parts while paying greater attention to the relationships between the components. Understanding the context in which the system is operating is also of great importance.

Farming systems research, client-oriented approaches

Farming system research (FSR) emerged to correct the failing adoption of technologies developed on research stations. This approach to research was born from insight about the importance of interrelations between components within the farm, which led to the adoption of integrated perspective on farms and farm

outputs. FSR encourages farmer field research and the participation of farmers in research. Also, it applies inter-disciplinary analysis and stresses technical, economic and social aspects, as well as the evaluation of new technology.

FSR evolved into 'client-oriented research' approaches, as a result of the progressive recognition that decision making in farming is required and that innovation is dependent on a higher level socio-organizational context that surrounds the farms. This implies the necessity for research to go beyond individual farmers to work with farmer groups and communities, and to integrate other actors besides researchers, extension workers and farmers, and to consider additional spatial, social and economic levels.

Integrated rural development

IRD is a broad multi-sector approach that integrates analysis, action and change at different levels of spatial and social organization. IRD is also a practical action research which brings together organizations and people located in a particular rural community to work in partnership, to achieve shared aspirations and objectives beyond their own interest. This research approach is based on four principles, which are (i) Integration of policy, (ii) Individuality of local circumstances, (iii) Involvement of local communities, and (iv) Investment in social, economic and environmental capital.

IRD was expected to improve income and livelihoods, as well as interrelationships between sectors that were prone to deliver wide-ranging benefits. But after many years of implementation in the 1970s and 1980s, evaluation showed great discrepancies between expectations and outcomes, rising from insufficient understanding of key aspects of livelihoods, insufficient focus, and insufficient strengthening of existing institutions. In addition, IRD failed to foster participation of key stakeholders and lacked focus on multi-stakeholder learning. The difference between this approach and IAR4D is that IAR4D has a narrower focus or entry point, and focuses on strengthening institutional capacity. Therefore, it creates an enabling environment that sustains engagement of stakeholders.

Scaling up and scaling out

IAR4D has solved scaling up/scaling out problems at least partially by involving many stakeholders from different perspectives across a broad range of backgrounds, and integrating actions across the different dimensions of development from the onset of the multi-stakeholder processes, as well as interventions at different levels of spatial and social organization. This allows quick uptake of emerging technology. Also, IAR4D encourages the documentation of processes with special focus on factors that enable or limit the

performance of good practices. Such outcomes are needed during scaling up and scaling out processes.

Agricultural sector policies and strategies

Agricultural practices play an important role in the agricultural sector by shaping and contributing to the adjustment of policies to match the requirements of technologies and innovations that have been put into use at local level. Local experiences either in value chains or in NRM help to identify the domains where there is a need to change or adopt a specific regulation or to issue a new policy that creates an enabling context and policy environment to sustain engagement and active involvement of stakeholders. It has been argued that IAR4D can achieve this goal if policy and decision makers are involved early in the innovation process, and if policy change is integrated with technical and organizational change.

New Institutional Economics

Being a combination of economics, business and organizational theory, sociology and law, New Institutional Economics (NIE) emphasizes the role of institutions in economic, social and political domains. Institutions are composed of formal and informal rules that guide and facilitate interactions and relationships between individuals and groups. NIE has been found to be relevant to the challenges of SSA agriculture in which transaction costs and risks are high. It stresses the need of having a good understanding of institutions at both micro and macro levels to successfully address market failures. Micro level includes institutional arrangements such as markets, formal and informal contracts that control transactions, while macro level is referred to as international context shaped by laws and socio-cultural 'ground rules'.

Failures in management and coordination of economic sectors and commodity value chains were observed and well documented with state-owned marketing boards. Coordination has been improved by actors in the private sector, but only in limited areas and for very specific value chains. Innovative institutional arrangements that would facilitate mutual learning and coordination are crucially important in order to have positive impact on rural livelihoods and to allow people in rural areas to profit from market-driven development. This would in our view be the focus of the IAR4D.

How to put this principle into use?

The focus will be placed on the organization of stakeholder interaction and the integration of interventions at different levels. Related actions and activities are presented in Table 2.4.

Table 2.4: Actions and activities to organize stakeholder interaction and integration at different levels

Domains of application	Actions	Activities and/or outcomes
Organization of stakeholder interaction at different levels	Formation of new forms of social organization to manage natural resources at different systems levels (e.g. group, village, watershed, or region).	Initiation of new policies and appointment of skilled facilitators
	Formation of partnerships or operational linkages between research groups or organizations working at the local level and those working at national or regional level.	Coordination and facilitation by very skilled facilitators
	Formation of linkages between innovation partnerships at local level and other partnerships or organizations operating at regional and national levels.	Coordination and facilitation by very skilled facilitators
	Co-option of staff from other organizations to fill in gaps where expertise is needed but lacking.	Strengthening of partnership and/or making contract based arrangements
Integration of interventions at different levels	Identification of specific needs of defined geographical areas, agro-ecological zones, social groups and value chains, and the development of measures to satisfy those needs	Planning of a study
	Development of a coherent set of integrated technological, institutional and evidence-based policy changes that jointly enable and promote innovation	Appointment of soft-skilled facilitators
	Scaling up and scaling out (including adaptation) of innovations that are piloted at local level.	Facilitation of farmer to farmer diffusion of innovation. Integration of a broad range of stakeholders in the process from the beginning

	Implementation of agreed and coordinated measures by the different actors in the value chain (individual farms, firms, service providers, etc.) working in partnership	Formulation of a written set of governing rules
	Initiation of measures to improve support services (input supply, production and marketing information, business development and administrative services) to all actors in the value chain or partnership (producers, transporters, processors, traders, etc.)	Formulation of a written set of governing rules

Source: developed by authors using their own experience and available data from literature

2.4. Conclusion

It appears clearly from what precedes that:

IAR4D is not limited to the gathering of actors, rather it goes beyond to create a space where learning is stimulated through the engagement of actors to work together to address common challenges; and to integrate analysis, action and changes across different dimensions of development (economic growth, careful management of natural resources, social inclusion and equity, as well as food security) and various hierarchical levels (landscape, regime and niche). Strong partnership among stakeholders is thus needed to encourage trust, secure interests and ensure good returns from the collective action on the short or medium run. As mentioned above, such a relationship hardly takes place where wide gaps exist with social status and income levels of the selected people, e.g, the case with government officials, businessmen and farmers. Experienced innovation brokers are those needed to achieve such a goal.

IAR4D is a knowledge-intensive approach involving many theories, approaches and experiences, which require a certain level of mastery not yet available everywhere. Each of these theories and experiences requires for implementation and practices the "know how to". Hence the necessity to have skilled facilitators. Special programmes could be developed to involve specific curricula for the training of graduates that could assume the position of facilitators. For it to happen, it will

require strong and longstanding public private partnerships between universities, NGOs, research organizations, extension services, ministries of agriculture at continental and regional levels with the goals of releasing a critical mass of graduates well trained in IAR4D theories, experiences and practices. The successful ongoing experiences and failures will serve to enrich this training with examples from the field. FARA and Humidtropics programme could initiate reflections on such eventualities to enhance IAR4D experiences and practices, and to guarantee success and greater impact in Agricultural Research for Development systems.

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3.0

Operationalizing IAR4D:

Multi-stakeholder innovation platforms as operational tools

3.1 Introduction

In recent times, innovation has gained prominent interest in the sight of actors in Agricultural Research for Development Systems who are increasingly looking for sustainable agricultural development and more impact on livelihoods and poverty alleviation. Much emphasis has thus been placed on how to turn research outputs, such as technologies and inventions into use for the socio-economic benefit of their users and for society as a whole. The key challenge in that matter will no longer be to create new inventions, but to adapt and use existing ones, especially to address market demand or specific problems. Disciplinary research approaches failed to meet the rising innovation demands (World Bank 2006b). Research in agricultural development then needs to heighten its performance through improved articulation with demand, effective partnerships at both national and international levels, and better market integration (World Bank, 2012), which could be achieved through Agricultural Innovation System (AIS) approach. The new understanding of the purpose of research has shifted the view from Agricultural Research for Development (AR4D) to Integrated Agricultural Research for Development (IAR4D) in which research and technology have been positioned as one part of the innovation process, exemplified by the fact that research was a major trigger for innovation in only a few instances. In most cases it played a relatively small role (Rajalahti *et al.*, 2008).

The shift in focus has also been accompanied by the understanding that innovation embeds not only technological artifacts, but also organizational, economic, institutional and policy dimensions. Another change has taken place in actors' configurations to involve a wide range of actors across various backgrounds, creating a specific network known as innovation system.

Innovation rarely emerges spontaneously. It arises mostly where potential niche opportunities for added value are discovered and exploited. Niche opportunities may be exploited after the harvest by addressing issues of quality, processing, packaging and marketing, or by addressing societal and environmental problems through fair-trade and organic food; or by adding monetary value using traditional opportunities like increasing the volume, value, or size of an operation. As for many other innovations, this kind of innovation could emerge just because relevant information was provided by actors outside of research agencies, such as advisory services and the private sector (Rajalahti *et al.*, 2008).

For innovation to take place, apart from information, space for interaction and learning should be created, as well as linkages for accessing knowledge and learning. Linkages between various actors and the role of the policy and institutional environment are drivers of interaction, information flows and learning and change. Innovation systems are rarely built up without any external intervention – even where opportunities for mutual benefit exist. Rather, they are

often organized by the intermediary organizations that broker linkages, negotiate change and facilitate access to information and other resources needed for innovation (Mur and Nederlof, 2012). Learning could be achieved through extensive linkages with various sources of knowledge (scientific and technical), forms of knowledge (tacit and codified). It argued that patterns of interaction between different sources of knowledge constitute the core component of the capacity of an organization to innovate. Linkages for accessing knowledge and learning can be promoted through partnerships in which many organizations pool their knowledge and jointly develop innovations. Linkages may also take the form of networks, which can be provided with information on changing market trends and data on consumer preferences or technology. These linkages and the relationships that govern them ensure the knowledge flows. The integration of stakeholders and the demand side within this network are also a matter of high priority because stakeholders' demands provide indications that determine the focus and direction of innovation processes while strengthening collaborative relationships between users and producers of knowledge (World Bank, 2006).

Knowing that innovation can be tailored based on different types of knowledge embodied in different actors, including local, context-specific knowledge (which farmers and other users of technology typically possess) and generic knowledge (which scientists and other producers of technology typically possess), the challenge is how to overcome information asymmetry while ensuring the two flows of information. In other words, to bring those possessing locally specific knowledge (farmers or local entrepreneurs) closer to those possessing generic knowledge (researchers or actors with access to large-scale product development, market placement, or financing technologies).

One of the suggested ways for addressing the issue of information asymmetry is the development of innovation platforms that would encourage and foster learning, sharing, communication, and innovation (World Bank, 2006). Two other suggestions which are complementary to the development of innovation platforms are formulated as follows: (i) encouraging user innovation through the development of capacity in the private sector to develop more innovations through advanced knowledge of the market; and, (ii) investing in public research and advisory systems with careful identification of knowledge demands and joint strategic planning with the multiple stakeholders of the system.

Innovation Platforms (IPs) have been viewed as a driving force that will enable a paradigm shift in agricultural research for development (AR4D). IPs are expected to contribute to more integrated, systemic innovation that is essential for achieving agricultural development impacts through facilitating interaction, negotiation and collective action between farmers, researchers and other stakeholders (Adekunle and Fatunbi, 2012; Kilelu *et al.,* 2013; van Mierlo and Totin, 2014; Schut *et al.,* 2015)

In the following sections, we will deepen our knowledge on the concept of Innovation platforms by confronting various definitions and presenting some suggested IP typologies from various authors, the function of the IP, process of IP establishment, the hierarchical levels of IP establishment, goals pursued in IP setting up, and the interplay between research and innovation platforms, as well as the revised roles of advisory services.

Box 3.1: Operationalization of some concepts

Knowledge: is the set of concepts, meanings, skills and routines developed over time by individuals or groups as they process information.

Technology: Sum of knowledge —of received information — which allows things to be done. It is a flow of new knowledge.

Invention: Delivers new technology and knowledge as solution to a problem — things new to the world.

Innovation: economically successful use of invention is innovation. It delivers social and economic change.

Innovation System: refers to a network of stakeholders involved in innovation.

Agricultural Innovation System: "A set of interrelated components (i.e., individuals, organisations, public agencies or institutions) working through collaboration and competition to generate, diffuse and utilise knowledge and technology that have (economic) value within the agricultural sector." (Sumberg 2005: p. 37)

Agricultural research for Development (AR4D) is research that

- Operates on the principles of subsidiarity: activities are best conducted at the level at which there are the responsibilities and accountabilities, and where research results need to be applied;
- Builds its priorities from the bottom up through socially inclusive processes involving the poor and the disenfranchised;
- Brings into play a diversity of approaches, technologies and practices, including combinations of traditional knowledge, conventional technologies, agro-ecological methods and modern biotechnology;

- Exploits and integrates participatory approaches with scientific and experimental methods;
- Ensures results-based management effectively integrated with innovative science and development;
- Routinely devises methods to assess progress of implementation of processes even at the local level through systematic independent monitoring and evaluation;
- Maintains its identity and operation separately from development actors though it seeks effective partnership strategies and linkages to all other relevant agricultural and rural development investments and policies at all levels;

AR4D is not development but contributes to it through greater sensitivity, active partnerships, and vigorous commitment to building the capacity of partners - including particularly the beneficiaries - and increased accountability for more and better results on all fronts. It aims at poverty reduction, productivity growth and environmental sustainability. It makes trade-offs explicit and helps decision makers to choose better options. (Lele *et al.* 2010)

3.2 **Concept of Innovation platform**

The concept of Innovation platforms (IPs) is grounded in the innovation systems approach. Broadly speaking, this concept represents "mechanisms to operationalize the Agricultural Innovation Systems approach". IPs have been viewed as a significant improvement over the linear and prescriptive approach of research and development, which has been described as a less inclusive and less interactive traditional agricultural research and extension approach. IPs are ways to bring together different stakeholders to device solutions to specific problems or to achieve agreed expectations. Since IPs go through a dynamic process of challenges and opportunities, learning and change, actors operating in IPs engage to ensure that different interests are taken into account, and various groups contribute to finding solutions. This concept was used by the private sector to gather information and improve networking among key stakeholders in a particular economic sector, but has caught the attention of development agencies at the end of the 1980s. The concept of IP has increasingly become common in research and development endeavors.

Several definitions have been proposed for innovation platforms, ranging from the simplest to the broadest. All of them emphasize the fact that an IP is a group of

previously independent stakeholders, operating in a concerted way to achieve a common goal. The differences in such definitions concern the focus of the concerted work (commodity, value chain …) and the nature of the impact (socio-economic benefits) which IP members intend to achieve.

Among such definitions, four are presented to indicate the similarities and discrepancies between them.

An IP is **an arrangement** in which a set of relatively interdependent stakeholders are identified and - usually through representatives - invited to meet and interact in a forum for conflict resolution, negotiation, social learning and collective decision making towards concerted action (Röling 2002).

'An IP is a **physical or virtual forum** established to facilitate interactions and learning among stakeholders selected from a commodity chain leading to a participatory diagnosis of problems, and joint exploration of opportunities and investigation of solutions leading to the promotion of agricultural innovation along the targeted commodity chain' (Adekunle and Fatunbi, 2012)

An innovation platform is a **space for learning and change.** It is a group of individuals (who often represent organizations) with different backgrounds and interests: farmers, traders, food processors, researchers, government officials etc. The members come together to diagnose problems, identify opportunities and find ways to achieve their goals. They may design and implement activities as a platform, or coordinate activities by individual members (Homann-KeeTui *et al.,* 2013).

Innovation platform: A diverse group of actors that voluntarily contribute knowledge and other resources (such as money, equipment, and land) to jointly develop or improve a social or economic process or product (World Bank, 2012).

The literature offers a diversity of terms to indicate innovation platforms such as: innovation coalition, innovation configuration (for descriptions see Nederlof *et al.,* 2011, Hawkins *et al.*, 2009), multi-stakeholder platform, research for development (R4D) platforms, innovation clusters, concertation and innovation groups (Nederlof and Pyburn, 2012), innovation networks (cf. Klerkx *et al.*, 2010, World Bank, 2012), and agri-business clusters (Alhassan *et al.,* 2007).

Apart from their engagement to make innovation happen, IPs watch over the interest of smallholder farmers and smallholder agriculture in that they act as countervailing powers against acts that may harm farmers' interests. Also, they give voice to small farmers and offer opportunities to connect with various actors along the value chain. Farmers' integration in decision making processes and strategizing beyond the farm level would lead to an empowerment needed to trigger change in the system in which they are engaged. Furthermore, the connection with other

actors can evolve into the formation of alliances that could lead to readjust power imbalances and shake the so-called pervasive bias by means of convergence of sciences (Huis and de SteenhuisjenPiters, 2012).

3.3 Typology of multi-stakeholder innovation platforms

Innovation platforms have been distinguished according to (i) the level of hierarchies where the challenges are located; (ii) the importance of the role of research in the innovation system; and, (iii) the type of innovation the platforms are willing to achieve (Fatunbi *et al.,* 2015; Sanyang *et al.,* 2014). According to the type of issue they need to address, IPs are set up at various levels of hierarchies, in particular, at strategic and operational levels.

Strategic Innovation Platforms (SIP)

Strategic Innovation platforms draw their relevancy from the insight that agricultural activities carried out in rural and remote areas are governed and managed by decisions made locally and at the centre. Actors have then to be strategically positioned to induce change in policy and institutions that would positively affect activities carried out at the grassroots level. Strategic Innovation Platforms are set up at higher levels of governance and management hierarchies, where strategies are devised for the development of agriculture in the domains of interest. Thus, Strategic Innovation Platforms could be set up at national levels or sub-national levels covering regions, districts, local governments or prefectures. Strategic Innovation Platforms are also established at national and regional levels where they attract the chief executives of research institutions and of universities, working with the chief executives of extension, input agencies, agricultural financing agencies, processing firms, transporting agencies, end users of commodities, farmers associations and meteorological stations. Members work together to foster innovations in the agricultural sector of the country, region or district. They meet and strategically determine the agricultural development agenda for the country or region or district and they may determine the location for activities or even commodities as determined by national, regional or district plans or priorities.

Operational Innovation Platforms (OIP)

Operational Innovation platforms are set up at community or grassroots level to respond to target commodity or system of production need for a specific market. Operational Innovation Platforms do respond to the strategies developed by the strategic innovation platform. Operational Innovation Platforms are different in focus. They involve mandated representatives from the same organizations as in

the SIP, who mainly facilitate operations for their organizations at community or grassroots level. They are integrated to the platform because of the relevance of their expertise to contribute to addressing specific challenges on the platform and to serve as catalysts in translating strategies set by the platforms at the higher levels into operations for greater impact.

Groups of Operational Innovation platforms are also called Innovation Clusters (IC). They are based at each sector of the agricultural value chain in different communities. Innovation Clusters may be set up to respond to the same output market or to multiple output markets. ICs may also be set up along different agricultural commodity chains to facilitate operations.

Both the strategic and the operational innovation platforms are needed by any country, region or district that wants to change its agricultural research system from the linear model to the multi-stakeholder model using the IAR4D model.

Sanyang *et al.* (2014) also distinguished Type 1 and Type 2 innovation platforms based on the target mission and activities.

In Type-1 innovation platforms, agricultural researchers see innovation platforms as space to promote the adoption of best practices among farmers, often coupled with the provision of packages of high-yielding planting material, fertilizers and credit. The difference between the conventional package approach and the new one resides in the added value of innovation platforms due to the presence of service providers, finance and microfinance organizations, traders, policymakers, researchers and other actors in the innovation platform which facilitates the consideration and implementation of all manner of experiences. On this type of platform, actors gain knowledge about each other and about their interdependence, develop trust and experience collaboration that becomes beneficial to all, such as collective marketing and seed system development. Sanyang *et al.* (2014) indicated that this happens when agricultural domains start moving from arenas of struggle to integrated value chains, industries, or organized market sectors to the benefit of consumers, producers, processors, traders, retailers, and ultimately the nation as a whole.

In Type-2, innovation platforms are used to create enabling conditions for smallholder innovation. In this case, the platform does not impose what should happen (for example, that a high yielding variety of plantain should be introduced). Instead, the platform's entry point is based on the outcomes of the scoping and diagnosis studies, especially on constraints and perceived opportunities of smallholders in an agricultural domain. Such a process was applied by the CoS-SIS programme in Benin, Ghana and Mali (www.cos-sis.org) and led to entry points that (1) are not technological but institutional, (2) focus on levels that are higher than the field or farm, and (3) represent system innovation rather than product innovation.

Nederlof *et al.* (2011) suggested a typology of platforms based on twelve case studies using two criteria: (i) the immediate objectives of the programme under which the platform operated, and (ii) the role of research within the platforms. The second criterion is directly related to whether those providing financial resources to the platforms were research-oriented organizations or other development actors. This results in three main types of platforms:

Learning & Research-Oriented: this includes the platforms for which the foremost aim is learning on how innovation emerges and is sustained, and in which research organizations play a prominent role from the preparation phase to the implementation phases of the platforms. These platforms take more time to get established, since more scoping studies on the context or possible opportunities are carried out. Researchers could play the brokering role; otherwise, they can be recruited to study and learn from the platforms. In the case studies analyzed by Nederlof *et al.* (2011), brokers were specifically recruited and paid for.

Development & Research-Oriented: this category comprises those platforms which primarily aim at local economic development, where research plays a prominent role. They often start with proposals from organizations involved in the field. Brokers are selected among platform members including researchers. Research often plays the brokering role.

Development & Non-Research Oriented: this includes platforms that aim to achieve local economic development, but in which research does not play a prominent role. The prominent role could be assumed by the private sector and will limit dependence on public organizations. This represents an opportunity for possible continuation of funding after the outside support has been withdrawn. Brokering tasks could be carried out by stakeholder organizations or individual members of the platforms, who add this task to their own specific tasks and roles. The authors indicated that these platforms do not cover both local and national levels at once. This leads to some difficulties in achieving their objectives.

This approach of characterizing IPs was used to help understand how initial choices can influence the way the platforms operate and the nature of results they are (better) equipped to reach (Nederlof *et al.,* 2011). However, the limitation of this typology is ascribed to the difficulty to find learning and non-research oriented platforms.

3.4 Composition of innovation platform

Innovation does not occur in isolation with actors solely embedded in an agricultural innovation system (AIS), but through interaction with other actors—farmers, firms, farmer organizations, researchers, financial institutions, public organizations and the socioeconomic environment. In other words, agricultural innovation is an organizational phenomenon prompted by individual and collective behaviours, capabilities for innovation, and enabling conditions (World Bank, 2012). There is the need to carefully select actors that will work closely to make the desired change happen. The qualities required from members depend highly on the level of operation and the related responsibilities of the platform. Diversity in participation is most likely to take place with middle level platforms. Participation can occur formally or informally. But representatives need to be selected because of the impossibility to individually involve each stakeholder in the agricultural innovation system. As such, the importance of representation to the platform's effectiveness should not be underestimated, because representatives negotiate and take decisions on behalf of their constituencies, which is a crucial role in innovation processes (Steins and Edwards, 1999). However, effective representation will require specific effort to ensure adequate communication between the representatives and their organizations or constituencies (Mur and Nederlof, 2012).

It is worth noting that selection and recruitment of participants are dynamic and continuous processes which can be considered as part of the package of tasks related to facilitating innovation. Based on the mission assigned to the platform, the selection should balance between representatives of the following categories of actors:

Farmers and other rural people. They use innovation groups to express their interests and guide activities that are intended to benefit them.

The private sector, including transporters, traders, input suppliers, processors, industrialists, wholesalers and retailers. They benefit from innovation platforms that aim to boost economic activities and make value chains more profitable.

The service providers such as NGOs, local government, local, provincial and national policy makers, extension workers, finance institutions, environmentalists, researchers. These are supporting actors on the platforms.

Like in Research Into Use (RIU) experiences, most platforms are farmer-dominated and, as a result, also largely focused on farmers' interests. This often prevents the integration and the full participation of actors from the private sector who might not see opportunities to promote their own business through such organizations. A tradeoff in representation should be sought to avoid such a pitfall. Even in that case, some internal challenges attached to each organization may exist that would prevent the successful representation of each category of stakeholders. First, not all stakeholders are organized in groups (Schut *et al.,* 2011). Second, it is quite impossible for representatives to fully represent the interests of their constituencies (Steins and Edwards, 1999). Also, constituencies seldom form a homogenous group, even if members belong to the same community (Cullen *et al.*, 2013; Klerkx and Nettle, 2013). For example, there are wealth-based differences between farmers reflected in their livelihoods, knowledge, priorities and needs (Cullen *et al.*, 2013). Moreover, men and women's interests, roles and needs may not converge in the innovation process. Klerkx and Nettle (2013) indicated the difficulty to integrate all this diversity in the platform due to purposive selection of participants.

Besides, mounting consideration is giving to the role of 'innovation champions' (Klerkx *et al.,* 2013) in the platforms. It should be made explicit which area the innovator is a champion of, e.g. technology, power, process, or network. Innovation champions can be formally appointed, but they can also emerge informally within the multi-stakeholder processes(Klerkx *et al.,* 2013).

3.5 Process of multi-stakeholder innovation platform establishment

Innovation platforms can emerge spontaneously or through deliberate efforts in domains or economic sectors where existing constraints or opportunities require collective action. The relevancy of collective action is justified by the fact that no single actor controls all the resources required to innovate at the pace demanded by markets (Powell and Grodal, 2005). Informal collaborations are initiated to access the resources and information that are lacking.

Formal innovation platforms are established following various phases. The number of phases varies from 4 to 10, according to the literature (Table 3.1). However, great similarities can be noticed with the phases, leading to a general pattern described as follows: Initiation with stakeholder identification, identification of common objectives and problems, search for solutions, implementation of actions and evaluation of these actions (Boogaard *et al.,* 2013). These phases appear to occur in a logical sequence; but in reality, they are embedded in an iterative process of adjustment, refining and re-evaluation with an

important place to the feedback loop. As such, phases are repeated over time and can sometimes take place simultaneously.

Table 3.1: Innovation platform phases according to various authors

Authors	Innovation platforms phases
Varma *et al.*, 2009	**6 phases:** Identify stakeholders; Establish learning alliance; Assessment, knowledge sharing and consensus building; Visioning and prioritizing; Planning and implementation; Monitoring and evaluation
Adekunle *et al.*, 2010	**10 phases:** Location of sites; Identification of commodity or system; Identification of stakeholders; Engagement of researchers; Development of governance and management guidelines; Facilitation of interaction of stakeholders; Development of business plan; Implementation of business plan; Establishment of participatory M&E measures; Review of implementation and lessons learnt.
Tenywa *et al.*, 2011	**6 phases:** Identification of research and developmental challenges; Site selection; Consultative and scoping study; Visioning and stakeholder analysis; Development of action plans; Implementation of action plans
Nederlof and Pyburn 2012	**4 phases:** Scoping and preparation; Process management; Learning and restructuring; Renegotiating
Homann-Kee Tui *et al.*, 2013	**7 phases:** Initiate; Decide on focus; Identify options; Test and refine solutions; Develop capacity; Implement and scale up; Analyze and learn
Makini *et al.*, 2013	**6 phases:** Initiation; Establishment; Management; Sustainability; Innovation; Learning and knowledge
CoS-SIS, 2013	**9 phases:** Domain selection; Exploration; Diagnosis; Visioning opportunity; CIG formation; Facilitation; Experimentation and Joint learning; technological, institutional and organizational change; Reflection and evaluation.

Adapted from Boogaard et al., 2013

3.6. Platform responsibilities and functions across different levels

Whatever the position at which innovation platforms have been set up, they can actively be operational in nature and function to bring about important changes across various levels. As a reminder, innovation platforms can be set up at national (country), middle (district/subcounty, county, or departmental) and local (village, community) level. We have already presented the hierarchical levels at which an innovation could be set up. The aim in this section is to come up with the rationale of setting up platforms at various levels with emphasis on their proactivity.

National level: at this level, innovation platforms will have to bring information about broad opportunities in domains of national priority and to integrate the innovation programme into existing policy and institutional context, while also accessing some degrees of legitimacy. A national level setting can be considered for the programme which has been designed to improve the functioning of a national level innovation system through improved collaboration between support organizations. This related innovation platform could mainly serve as a think tank for advising national level decision makers on improving the efficiency of the innovation system. At the national level, innovation platforms tend to have a policy development orientation or play an important role in evidence-based policymaking, often on the basis of findings from activities taking place at the middle and local levels. In the light of experiences in the RIU program, these platforms can properly function only if higher-level decision makers are co-opted to contribute and participate, or to act as champions. For this reason, and as suggested by Mur and Nederlof (2012), it could be advisable to attach a national platform to an existing decision making body, or even to entrust the envisioned tasks of the national platform to an existing national stakeholder forum.

Middle level: The middle level provides the optimum space for interaction between stakeholders. At this level, participation of direct representatives of grassroots actors such as producers and small processors is required, as well as that of service providers which are directly linked to local intervention. The middle level serves as interface between national and local levels by relating lessons from grassroots practices to policies and 'feedback from local stakeholders to national policy makers'.

Local level: Local level IPs are essential for the functioning of IPs set up at the middle level. Ensuring the participation of large groups of stakeholders by a proper selection of representatives is a demand for the local forms of organization to comply with. Such local forms of stakeholders' organization provide entry points for practical action for innovation decided on the platform, as well as space for joint experimentation for improving practices and for linking farmers to markets and to other stakeholders.

Table 3.2 provides a summary of IP responsibilities at each level for quick consultations for IAR4D practitioners. In some specific cases where middle level platforms are not initiated, the responsibilities of local innovation platforms should encompass that of middle level IPs. In this regard, careful selection of the relevant actors should be emphasized.

Table 3.2: Responsibilities across different levels

Level	Responsibility
National	• Signaling need for outside support • Signaling broad economic opportunities and constraints • Signaling promising pilot experiences worthy of national level support campaigns • Coordinating joint action and avoiding duplication of mandates • Voicing local and middle level concerns to national decision makers • Addressing systemic constraints to effective interaction
Middle	• Identifying opportunities and constraints requiring action • Providing arenas for planning of joint action • Matchmaking between service demand and supply • Articulating demands for systemic change • Articulating needs for policy change • Providing space for improving interaction between input suppliers, producers and buyers
Local	• Building capacity of local actors • Organizing producers for bulk products • Organizing producers for access to inputs and other services • Focusing on improving practices through joint experimentation • Linking of farmers to markets and other stakeholders

Adapted from Mur and Nederlof (2012)

Other functions ascribed to innovation platforms and described in various publications with a great emphasis on the role of research are summarized by Boogaard *et al.*, (2013). Innovation platforms can:

- support the operationalization of research and development
- contribute to improving the relevance and impact of research
- contribute to increasing returns on investment in agricultural research for development
- stimulate and strengthen interaction between multiple stakeholders
- link different stakeholders to achieve a common objective

- contribute to jointly identifying and solving complex problems
- provide an enabling environment for innovation
- contribute to overcoming institutional barriers and creating institutional change

Role of technology, research and advisory service in the innovation processes

The shift from Agricultural Research system to innovation system approaches has implications for how technologies are considered, and how research and advisory services should operate to serve the purpose of development and of society. But before unraveling the new roles of technology, research and advisory services, it seems worthwhile to highlight some key principles that guide innovation processes.

Key principles for innovation processes: (Pyburn and Woodhill, 2014)

- Innovation is a multi-stakeholder process involving not only researchers, extension workers and farmers, but many other value chain actors and value chain supporters.
- Different stakeholders hold different kinds of knowledge.
- Innovation is an on-going, evolutionary process.
- The context matters in terms of enabling or constraining innovation processes.

- Context refers to concrete policies, institutional frameworks and research, development programs, as well as to the infrastructure which allows stakeholders to interact and the mechanisms to facilitate and foster the interaction.
- Innovation happens at different levels– e.g. local and national, or niche and regime.
- Learning is integral to innovation processes.
- Learning processes can be designed and facilitated and are context dependent.
- Power imbalances between stakeholder categories (e.g. gender, age, caste, health, economic status etc.) need to be actively managed throughout a multi-stakeholder learning process for innovation.
- Gender equity and inclusion need to be addressed not only in multi-stakeholder processes, but throughout the whole AIS.

Role of research and technology in innovation platform processes

From the perspective of Agricultural Innovation Systems, research and technology development are required for innovation, but constitute only part of the innovation process. In fact, AIS focuses on innovation, involves a wide range of actors, emphasizes the institutional context and the environment that supports dominant interests, and contends that innovation systems are social systems. Most often, innovations arise in response to the potential for added value often associated with niche opportunities that could possibly be identified in many segments along the value chain and in any other sphere of society. As such, innovation often goes beyond formal research settings and processes and can happen anywhere, while bearing a technical, social, managerial, and/or institutional (or other) nature. Also, innovation is a journey of discovery and adaptive management of knowledge and information more than a specific destination.

The limited role of research in innovation processes have been revealed in many case studies in which was observed that research organizations played a remarkable role and that research findings were not the major triggers of innovation (World Bank, 2006). Outcomes from these experiences call for a revision of the role of research in innovation processes in order to meet new demands, which include the demand to articulate social aspirations to fulfill environmental, economic, and social goals for innovation in agriculture. Success in articulating social aspirations could be effectively achieved through deliberative, democratic processes involving many stakeholders, and thus many types of knowledge and many social beliefs. By essence, the major role for researchers is to serve as honest brokers, contributing to policy formulation by filling the knowledge gaps while answering the "what is," "what if," and "if, then" types of questions, leaving the "what ought to be" questions to non-scientific forums (NRC, 2010; Pielke, 2007). As one actor,

research organizations are actors which play this role effectively through their representatives, using their expertise to help identify and clarify issues, and seek to expand the choices available for any actor be they policy makers, commodity organizations, farmer groups, or individual farmers - to make appropriate decisions about the management of agricultural systems (NRC, 2010).

The interplay between research and platform could be summarized as follows (Box 3.2).

Box 3.2: Interplay between research and innovation platforms

It was arguably acknowledged that it is not necessary to include researchers in the platform, and that platforms can function successfully without research input, or with only peripheral involvement of researchers (Lema and Schut, 2013). However, three ways have been identified for Research to play 'honest broker' roles, especially in terms of contribution to knowledge that would be beneficial to platforms (Figure 3.1):

Traditional research. By using this approach, Research will contribute to the platform by the following:

- Produce authoritative, objective and value-free knowledge and technologies
- Provide answers to specific questions by carrying out specific studies requested by the platform
- Develop technologies requested by the platform
- Conduct baseline studies
- Assess the impact of the innovation platform

Knowledge management and action research. Joint-research carried out with researchers and platforms makes research more accessible and simple to the public. This facilitates the use of the outcomes. Research agendas are jointly developed, implemented and assessed with the other stakeholders. The process of carrying out action research can be unfolded as follows: (i) Identification of shared objectives, (ii) Joint production of knowledge, (iii) Joint learning, (iv) Documentation of innovation processes and best practices, and (v) Communication of the results. The process can be repeated while refining some specific research questions.

Enabling environments for innovation. Institutional factors (rules, norms, routines, policies…) and political factors (such as conflicts among stakeholders) can be enablers or disablers of innovations. Researchers can

support platform members to remove those constraints that hamper progress and platform activities. Through their supporting activities, platforms can gain a certain degree of legitimacy with microfinance structures and policy makers that would help them access more credits and secure funds. Research can also contribute to building the capacity of members to address power dynamics in the platform. Such functions are essential to achieve the right balance to prevent powerful individuals from using the research agenda to serve their own interests.

On the other hand, innovation platforms can also support research to jointly test some issues that are relevant to both research and platforms (Figure 3.2):

The process starts with a joint identification of topics to learn about (1), followed by ideas to generate knowledge for the community of users or practitioners (2) and previous findings (3). Platform members discuss prototypes (methods, approaches, tools or technologies) that may address issues at stake (4). This could be followed by capacity development programs required to test the prototypes (5). Members establish jointly a timetable and procedures, and set roles and responsibilities to test the prototype (6). Prototype testing may be supervised by research, or by outside specialists. It may lead to further adaptations and improvements. Documentation of the process can enhance learning and experiences can be shared so stakeholders (7). Results can then be analyzed (8), published (9) and disseminated (10). It can also lead to new questions for the platform or traditional research (11). Throughout, research provides support and backup to platform activities (12).

Overall, research and innovation platforms gain mutual benefits from their collaboration. Innovation platforms are strengthened by research because IP works are better informed and conducted in more systematic and credible ways. On the other hand, research is strengthened by platforms which offer space to research activities, leading them to be more contextualized, which facilitates quick uptake by end users. The role of researchers may vary in innovation platforms and may change over time. Researchers can assume the position of coordinator or facilitator, but also minor or supporting positions.

The involvement of researchers in innovation platforms may bear some drawbacks such as:

Platform hijack: can occur because of the higher and well educated status of researchers compared to other members on the platform. In that case, the platform is used only to fulfill researcher agendas, not minding about the interest of other platform members.

Differing timetable: research is conducted strictly on a time-based budget. Researchers have the mandate to carry out some research according to the pre-determined timeframe. This may lead to bypass the participatory approaches which take more time.

Differing agendas: platform' research agenda may not align with the researchers'. In that case, the leading researcher may refrain from allocating sufficient time and resources to activities that do not give credit to his or her personal achievements.

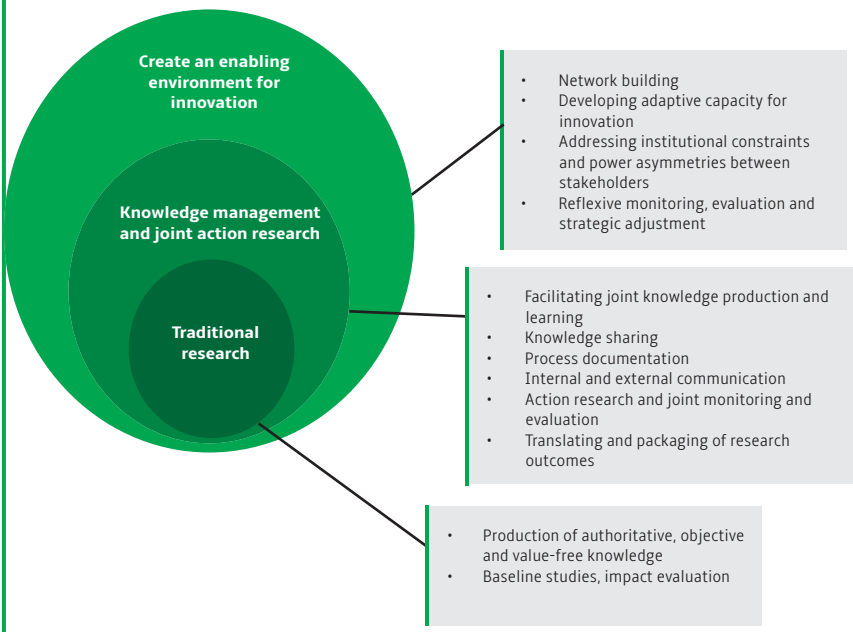

Figure 3.1: Three ways that research can contribute to innovation platforms
Lema and Schut, 2013

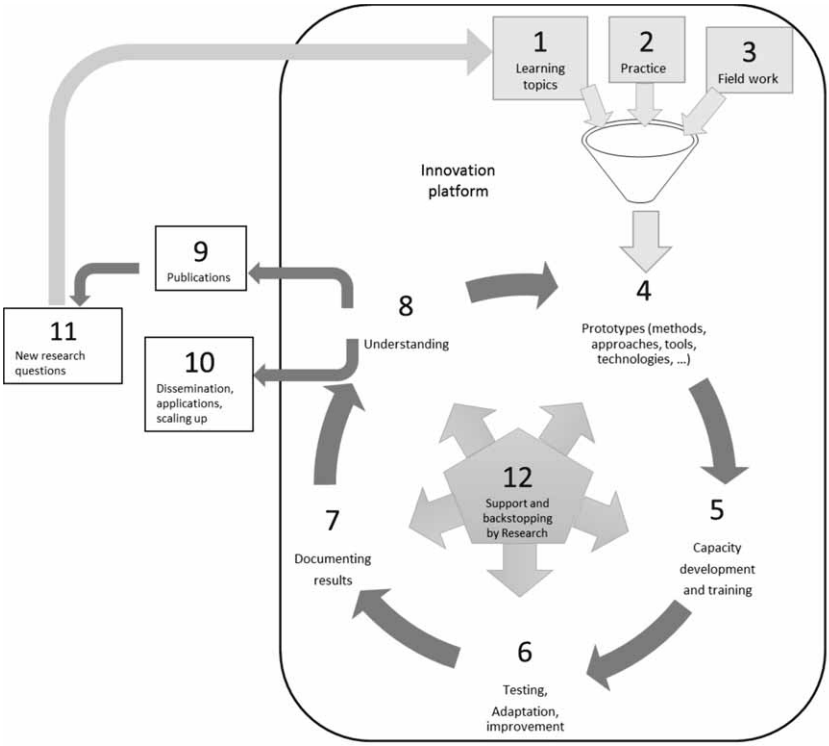

Figure 3.2: The research process in innovation platforms
Lema and Schut, 2013

A Significant and Revised Role for Advisory Services

The adoption of an AIS approach has brought significant changes to the role of research, and then to the research and extension system. This transformation has strong implications for actors who serve as mediators. The role of advisory-extension services should evolve accordingly to match the new demands required from it as mediator in the innovation process. The revised role for advisory services is summarized in Box 3.3.

Box 3.3 Implications of Innovation Systems Thinking for Advisory Services

Because the success of the agricultural innovation systems approach often depends on coordination and partnerships, mediators play a critical role. Advisory services can fill this important role if their mandates and roles are revised.

A revised mandate for extension. The primary emphasis of extension should shift toward creating connections to outlets, institutions, and people. Extension needs to provide a wider range of services to a more diverse clientele to improve their capacity to access, adapt, and use knowledge, inputs, and services. Extension systems must be flexible, user-driven, and focused on local problems. Developing better habits and practices that promote wider interaction and learning is perhaps the greatest challenge for extension organizations.

A changed role as a knowledge broker. As potential intermediaries and knowledge brokers, extension services are ideally placed to lead the local innovation agenda by scouting for needs and opportunities among smallholders and other actors. Additionally, extension can serve as a bridge among the actors in an innovation system and facilitate partnerships, building coalitions of different stakeholders by linking farmers with other farmers, research, agribusiness, exporters, training, investors, and financial services. Essential activities and mechanisms include: organizing forums and supporting the establishment of producer organizations, promoting information flows, and experimenting with new approaches to facilitate access to knowledge, skills, and services from a wide range of organizations. Specific attention must be given to empowerment, capacity building and teaching (particularly among smallholders), the organization of producers and the rural poor, and the identification, articulation, and building of demand through financing and capacity building.

Partnering with other actors is the only way forward. Capacity building and incentive structures aimed at reforming extension services should support the revised functions of extension. Extension organizations require a wider range of skills and partners to address the increasingly complex rural innovation agenda. Partnerships have generally been weak in public extension services. The weak links between extension and research remain a matter of great concern. Independence has unfortunately been emphasized at the expense of interdependence.

Institutional innovations. Technical innovation is not necessarily the starting point for extension. Institutional innovations will be equally or more important in dealing with the complex challenges facing agriculture and rural development. Institutional innovations may include new ways of organizing production, input management, marketing, or sharing common resources. It may include the development of a new producer company or a new way of providing extension support. Flexible funding and governance arrangements are needed as centralized funding, implementation, monitoring, and evaluation have proven to be ineffective in fostering locally relevant institutional innovations.

Source: Rajalahti R., W. Janssen, E. Pehu; workshop working group on advisory services; Sulaiman V, Hall, and Raina 2006.

3.7. Conclusion

In order to set up and successfully manage innovation platforms, it is important to know from the beginning the type, the purpose and the orientation (research or development) of the innovation to generate out of actors' interactions. The identified constraints or opportunities set the basis and help select the relevant actors whose contribution are really needed for the innovation to occur, as well as the hierarchical level(s) at which IPs could be set up for innovation to emerge. IPs that emerge spontaneously through informal initiative and commitment can survive and sustain along the process without or with a minimum facilitation support. In contrast, the likelihood of innovation to occur in formally initiated platforms depends largely on the level and quality of facilitation. Innovation does not always require the contribution of researchers. However, when they are needed, their role should be limited to that of honest brokers that are there to clarify issues or shed light on issues that requires their expertise, or bring to surface some alternative options to enlarge the panel of available choices. Facilitation role could be ascribed to them, and/or to extensionists, but only in the case where their mindset full transformation has been realized; simply to avoid the process to be hijacked by them to achieve their own goal or to be transformed into the conventional mechanism of research and extension technology diffusion strategy. Middlemen, traders and marketers can be fully part of the whole process, but there are not interested in regular meetings. Their contribution and commitment could be fully engaged when opportunities are offered to them to expand the size of their business and increase their revenue. Such actors should be involved in innovation platforms with much cautious.

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4.0

Conceptual & Operational Experiences on R4D & Innovation Platform (IP)

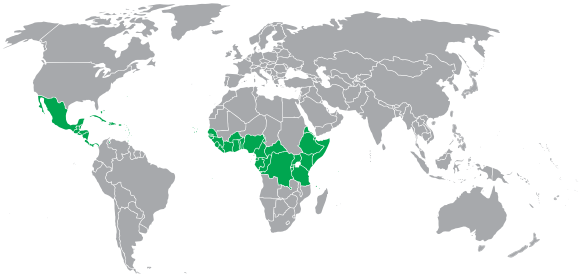
4.1 Introduction

The Sub Saharan Africa Challenge Program (SSA-CP) was launched in Africa under FARA auspices as a research program to address the main constraints that undermine agriculture in Africa, i.e. failures of agricultural markets, inappropriate policies and natural resource degradation. SSA-CP aimed to facilitate substantially greater impact from agricultural research for development to improve rural livelihoods, increase food security and enhance sustainable natural resource management throughout SSA. This program was designed to foster synergies among disciplines and institutions along with a commitment to adopt an Integrated Agricultural Research for Development (IAR4D) approach at all levels from farmers to national and international policy makers. The program intended to develop and disseminate technologies for intensifying subsistence oriented farming systems, ensure the development of smallholder production systems that match the requirements of sustainable natural resource management, improve the accessibility and efficiency of markets for smallholder and pastoral products, and catalyze the formulation and adoption of policies that enable innovation to improve the livelihoods of smallholders and pastoralists. SSA-CP was implemented in three Pilot Learning Sites (PLS) across the continent using IAR4D with Multi-Stakeholder Innovation Platforms (MSPs) as operationalization tools. After the concept was tested and the proof was given that IAR4D has the potential to work and transform African agriculture and its economy, many Innovation Platforms (IPs) were initiated and spread across the continent to boost various commodity value chains.

The MSPs have been adopted by several CGIAR research programs to achieve impact as drivers of agricultural innovation and development (van Paassen *et al.,* 2014). Their role is to facilitate continuous interaction and collaboration among actors embedded in Agricultural innovation systems including farmers, extension officers, policymakers, researchers, the private sector, and other relevant stakeholders to foster technical and institutional innovation. They have also been acknowledged to provide spaces for learning and negotiation (Sumberg *et al.,* 2013) that enable the development of 'capacity to innovate' within and across stakeholders' networks. MSPs also ensure the wide adoption of innovation through collective agency and action, as well as proper enabling processes.

The CGIAR Research Program on Integrated Systems for the Humidropics known as 'Humidtropics' has adopted the MSP approach for achieving its research-for-development outcomes across three continents including Africa. Humidtropics has been implementing this approach through five flagship projects. The first flagship project addresses crosscutting issues across the entire program, in both research and capacity development. The remaining four flagship projects are selected in such a way that different geographic zones are represented.

The zones are the ***East and Central African highlands, West African lowlands, Central Mekong, and Central America and the Caribbean regions.***



These flagships aim to achieve a ***fourfold goal:***

Livelihoods Improvement,	Sustainable Intensification,	Women & Youth Empowerment,	Systems Innovation.

Each of these geographic zones represents an Action Area which is composed of several actions sites, while each action site involves many field sites (districts, counties or other administrative units). Within each action site, Research for Development platforms (R4DPs) have been established while innovations platforms (IPs) were set up on each field site (Figure 4.1). R4DPs target issues at regional level and are composed of different stakeholders' groups (e.g. farmers' networks, development organizations, the private sector, the government, and researchers) and scaling actors (politicians, donors, and the media). IPs operate at local level and are composed of representatives of stakeholders similar to those in the R4DPs. The R4DPs aim to provide a more conducive environment for the IPs to implement their activities, and for successful innovations to go to scale. Entry points for integrated productivity, natural resource management (NRM), and institutional innovations are identified using participatory rapid appraisal to support sustainable intensification of agricultural systems (Vanlauwe *et al.,* 2014). These entry points further serve to set priority research for IPs at local levels. Humidtropics adopted the following development pathway including (1) situation analyses; (2) Research for Development (R4D) innovation ('new farm opportunities') at action site level using system interventions; and (3) 'R4D scaling' to action area level ('opportunities mainstreamed'). This chapter attempts to discuss facilitation issues that supports the functioning and the outputs of R4DPs and IPs as designed and implemented by the Humidtropics program.

- Do local dynamics really matter in Humidtropics R4D program design?
- Does the impact pathway enable to trigger changes at local levels?
- How does the program measure change in the livelihoods of actors?
- How does the systems intervention approach adopted by Humidtropics enable the sustainability of the program outcomes (if any)?

- Does the approach strengthen linkages and partnerships along the commodity value chain?

This chapter attempts to provide answers to these questions, comparing the FARA based approach with Innovation Platforms and the approach of the Humidtropics program.

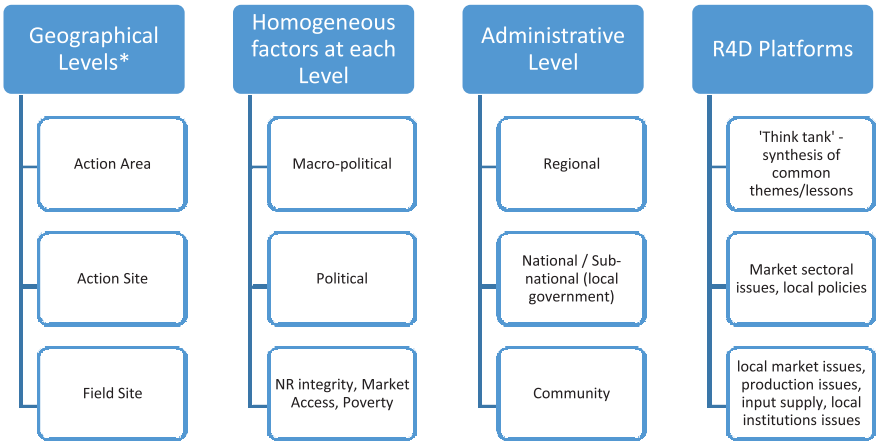


Figure 4.1: Humidtropics Research Level Hierarchy
Duncan et al. 2014

4.2. Multi-stakeholder processes for building R4D platforms and Innovation platforms

The initiation of R4D platform and innovation platform starts in the Humidtropics program with a consultation of key stakeholder groups working in Agricultural Research for Development (R4D), followed by Rapid Appraisal of Agricultural Innovation Systems (RAAIS) workshops. Five major stakeholder groups in agricultural R4D are gathered during these workshops: farmers, NGOs, government, the private sector and research. In collaboration with a facilitator appointed at national level, the R4D stakeholders systematically identify constraints and opportunities for innovation to address complex agricultural problems. The R4D stakeholders also analyze the constraints and opportunities, considering various problem dimensions (biophysical, technological, socio-cultural, economic, institutional and political) and different levels (national, regional, local) and subsequently prioritize them (Lamers *et al.,* 2015a, Lamers *et al.,* 2015b). The five main stakeholders groups mentioned earlier form the basic component of R4D platforms. The number of stakeholders groups represented in the platform may vary according to the number of organizations that are operating at national level or sub-national level in the country. The R4D platforms are mainly dominated by

research organizations and NGOs representatives, while farmers are more abundant in the innovation platforms. Other actors in these platforms are researchers, landowners, local policy makers, extension workers, and private sector representatives. Within the program, R4D platform activities often take place before those of the related innovation platforms. Table 4.1. presents the succession of phases and the related activities conducted during the establishment of Innovation platforms by the Humidtropics program, while Box 4.1. provides details on system integration approach.

Table 4.1: Steps to build innovation platforms with the Humidtropics program

Steps to build R4D related innovation platforms (Humidtropics program)
1. Identification of potential field sites
2. Thematic group formation to discuss constraints, opportunities, entry themes and related partners (through RAAIS workshops)
3. Groups split to discuss integration of entry themes
4. Field visits and focus group discussions to discuss the best fit system integration
5. Selection of the system integration
6. Meetings with various local stakeholders
7. Planning of activities
8. Identification of actors to implement the activities
9. Implementation of planned activities by individuals or groups of farmers or by project partners or NGOs
Lamers et al., 2015a

Box 4.1 The System Integration Approach

Why system integration?

An integrated farming system is an often diversified agricultural production system that seeks to effectively link all farm enterprises to improve the efficiency of land, labor, financial and nutrient investments. It consists of a range of resource-saving practices that aim to achieve acceptable profits and sustain production levels, while minimizing the negative effects of intensive farming and preserving the environment (Rota and Sperandini, 2010). Simultaneously, it provides opportunities to strengthen the resilience and sustainability of farmer livelihoods.

In an integrated system livestock, crops and trees are produced within a coordinated framework (Figure 4.2). The waste products of one component serve as resource for the other. Therefore, the incorporation of livestock, crops and trees in one farming system provides an opportunity to improve sustainable access to income and nutrition by spreading risks and by raising production. It also sustains the natural resource base through nutrient recycling, erosion control and pollination services, among others. Due to the limited farm size in Mukono and Wakiso, livestock is often kept under zero-grazing and farmers rely on additional feeds and fodder from outside the farm, at least for part of the year. This makes livestock- keeping an expensive enterprise. However, improving on farm fodder availability throughout the year is feasible, e.g. by planting fodder trees such as Calliandra and through re-use of crop residues from vegetables, banana, sweet potato and other crops. In this regard the platform is involving different partners to respond to the knowledge requirements of farmers on how best to use their existing on-farm resources to feed their animals and cater for their energy needs.

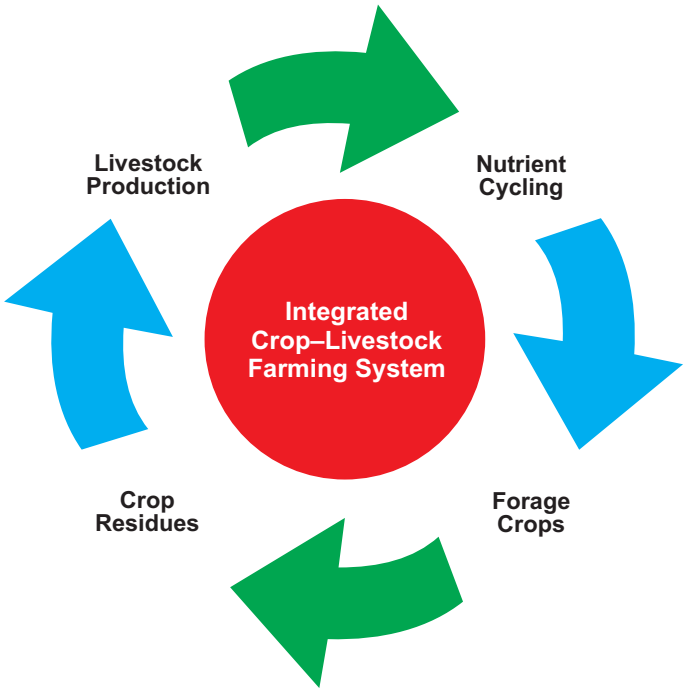


Figure 4.2: Integrated crop–livestock farming system – key aspects
Namazzi et al., 2016

Box 4.2. Understanding Value Chains in Agriculture

Understanding Value Chains in Agriculture

The agricultural value chain can be defined as the set of steps and processes that a commodity goes through from its production to consumption. Most agricultural commodities are primary products and will go through different processing before they are finally consumed. The linkage of these processes and the value that is added to the primary commodity is described as the value chain. There are various definitions with more elaborated details on the intricacies of the chain, but essentially, a value chain is thought of as the set of activities, services and products that a commodity goes through till it reaches the final consumer.

The value chain analysis is a business tool that elaborates the factors that affect the profitability of the different enterprises required in the entire production process of agricultural commodities from farm to end user. The value chain analysis could provide the following information:

1. The movement of the commodity from the producers to the final consumer.
2. The economic relationship among the different enterprise actors involved in the commodity process.
3. The pattern of change in the activity and economic process including the weakness and opportunities to ensure efficiency and profitability.
4. Identification of treats to the entire value chain.
5. Determinants of the profit shares realized by each actor and the value added to the commodity by each of them.

The value of the value chain analysis in the innovation systems approach to agricultural research and development is its ability to ensure the generation of innovation and its accompanied socio-economic benefits. These benefits are the increase in productivity and competitiveness of the commodities prominent in the value chain. Thus the business component of the agricultural activities, viz. the availability of markets, the supply chain, the input and output market efficiencies, the infrastructural availability and conversion of market opportunities to effective demands becomes a priority in value chain consideration. Thus when using a value chain approach within innovation systems thinking, a holistic view is employed right from the phase of technology development to ensure that cost and benefit issues have their interplay in a profitable manner.
Fatunbi *et al.* 2015

4.3 The R4D platforms, IPs, and the place of commodity value chain

Building strong relationships and partnerships is a prerequisite to ensure a continuous information flow; to co-create knowledge and to guarantee sustainable innovations that meet real demand of stakeholders. The R4D platforms are systems oriented and established at action site level and cover various commodities. Each commodity value chain represents a sub-system within a larger system. Using value chain approach for innovation seems to be a good departure from a focus on a single system component to the construction of the whole picture of the bigger system. Each value chain represents a certain level of complexity compared to the more complex system embedded in each action area. Apart from being a component of the biggest system, each value chain encompasses actors on local or niche, regime and landscape levels. Moreover, it integrates the three dimensions of productivity viz., natural resource management, markets and institutions, which also constitute the three components of the Strategic Research Theme (SRT) 2 in the Humidtropics research program. SRT2 has been oriented toward Integrated Systems Improvement which consists of researching and achieving impact at scale using systems interventions related to productivity, natural resource management, and markets and institutions (Figure 4.3, Box 4.2). From this comparison, it can be assumed that a commodity value chain well embedded in the systems of the action site possesses the same characteristics as systems defined at the action site level. Regarding a commodity as an entity of the system provides a certain level of simplicity that could further facilitate the creation of impact at scale. Focusing on various commodities at the same time, as demanded by the system integration approach could be a challenge to effectiveness. Reflection on multiple commodities issues was carried out by Namazzi *et al.* (2016) based on the experience of the Mukono–Wakiso innovation platform set up within the context of a system that integrated crops, livestock and trees in Uganda. The authors indicate the difficulties to discuss two commodities simultaneously during IP meetings. They observe that only one variety (Nakati) dominated the discussion when IP members exchanged on vegetables, while the reflection on integration with poultry and piggery were waiting on the platform. They also highlight the challenge to fund integration, pointing out the fact that farmers without livestock are interested in livestock incorporation into their cropping system. But, unlike the World Vegetable Center AVRDC and World Agroforestry Centre ICRAF which provided respectively seed kits and tree seedlings, no organization helped farmers in Mukono-Wakiso to acquire livestock. This experience with this platform has shown that focusing on one major commodity only helps pull other commodities (Namazi *et al.*, 2016).

Box 4.2 Strategic Research Themes in the Humidtropics Program

Humidtropics has the following three main Strategic Research Themes (SRTs) that underpin the research process in the realization of its Theory of Change. The SRTs are increasingly integrated into the functioning of Flagship Projects:

- *Systems Analysis and Synthesis* establishes the baseline situation and models progress towards the expected outcome situation.
- *Integrated Systems Improvement* involves researching and mainstreaming promising systems interventions related to productivity, natural resource management, and markets and institutions. This theme also includes the use of modeling tools and analysis, gender considerations, research-development interactions, and scaling-out dimensions. Sustainable intensification and diversification are key drivers in this respect.
- *Scaling and Institutional Innovation* focuses on co-evolving institutions via social innovation with the technologies emanating from the integrated systems improvement theme. As such it is expected to improve stakeholders' capacity to innovate and support the scaling of interventions at farm, national and global levels.

The structure depicted below shows the three strategic research themes that are linked through monitoring and evaluation processes.

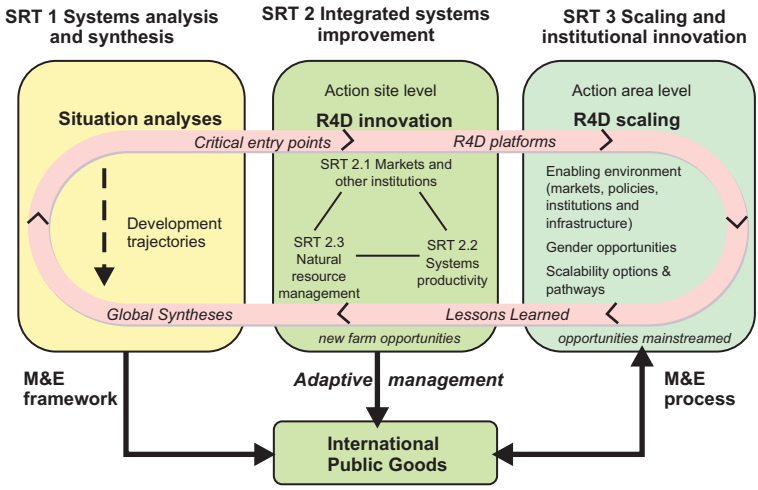


Figure 4.3: Representation of the Strategic Research Themes in a figure
Source: http://humidtropics.cgiar.org/

4.4 Research in R4D platforms and IPs

While research is essential to continuous generation of innovation on an IP, research outputs needs to be aligned with other institutional and infrastructural factors to yield innovation. The R4D Platforms are research and technology based platforms. Planning research activities scored highest in priority among the R4D platform activities according to its members (Figure 4.4). In the Humidtropics research program, experiments are conducted in experimental sites (villages, communities) within the field sites. According to the Humidtropics practice, the research activities are carried out linking innovation platforms, on-farm research and systems modeling to generate sustainable intensification (Figure 4.5). Practical on-farm interventions were tested with a certain number of volunteer farmers in each field site. The intervention was guided through dialogue with local stakeholders at local innovation platform level. The result was the development of intensification scenarios involving improvements to crop, livestock, tree and natural resource management.

The dynamics from the field also involve research, within platforms (field sites) with volunteer farmers, bilateral partner, NGOs linked to Humidtropics. In line with such a vision, Humidtropics undertook many research activities in R4D platforms in the field involving NGOs. As an example, WeRATE participated in various technologies including testing varieties at the field and action site, as well as scaling activities at the landscape level. WeRATE is an umbrella NGO which operates on behalf of its members, and serves as a complete R4D Platform that assists scientists to undertake complex developmental research activities in Kenya. WeRATE and its partners have recorded many success cases in many research areas. These include marketing the imazapyr-resistant maize to combat striga, introduction of improved climbing bean and soybean varieties, and creating demand for Biological Nitrogen Fixation (BNF) technologies, particularly BIOFIX legume inoculants (a form of Rhizobium inoculant) and Sympal blended fertilizer. Sympal contains not only phosphorus, calcium and sulfate, but also potassium and magnesium. Channels to reach thousands of farmers in shortest time were also created. This NGO played an outstanding role in the marketing of imazapyr-resistant maize by positioning it at the shelves of a great number of retailers, thus creating massive demand from tens of thousands of households (Woomer *et al.*, 2016). Some visits were organized to experimental fields in 'field sites' to present the ongoing performance of technologies that have been tested (Mume and Lema, 2015) become adaptive to support coevolution of innovation (Kilelu *et al.,* 2013). In this regard, R4D platforms should not overlook the available technologies that just require a small push to be put into use for the benefit of stakeholders and the whole society. There may be a need to place great emphasis on the possible development of incremental innovations based on the existing technologies (e.g. valuing or refining them), as well as connection to markets and microfinance services.

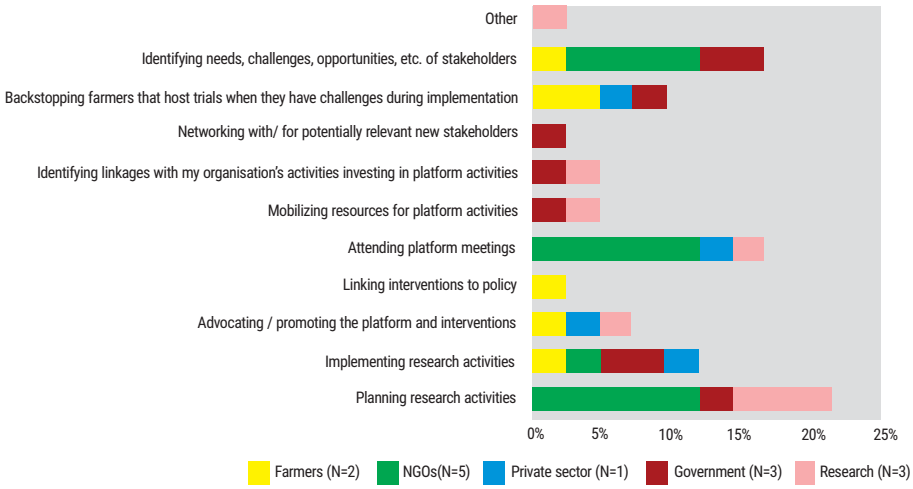


Figure 4.4: Top 3 priority activities of R4D platform members as ranked by stakeholder group. Results derived from questionnaire completed by R4D platform members during Humidtropics platform reflection meeting January 2015. *Source: Lamers et al., 2015b*

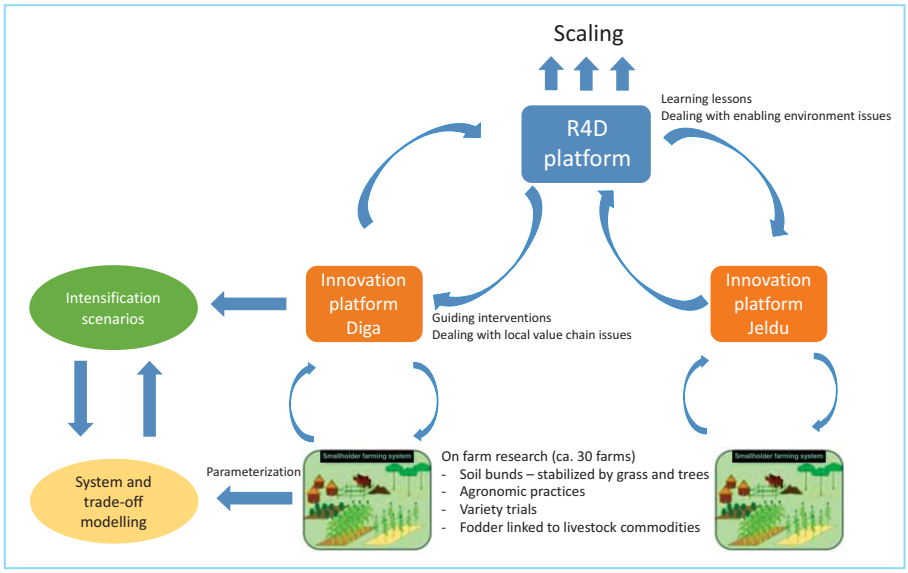


Figure 4.5: Suggested framework for research activities in R4D platforms in Ethiopia *Source: Mume and Lema, 2015*

4.5 Conclusion

The R4DPs as implemented within the Humidtropics program were positioned to address the complexity of agricultural challenges using system integration, this is not only technically demanding, but also requires a certain level of investments especially in the context of SSA. The system integration approach is well embedded in landscape, thus enabling multilevel dynamic and the scaling of outcomes to countries (action sites) and to similar regions (action areas) of Humidtropics programme. However, R4DPs are also dominated by research organisations which hold great decision making power using it to trigger strong research based solutions to agricultural challenges. The prevailing power of landowners in the system integration solution option suggested through R4DPs may be too high to fully comply with the context of smallholders' farmers who could be tenants on most of their cultivated lands. In contrast value chain approach, though it is already complex, adopts a certain level of simplicity. It has the merit to trigger local dynamics and stimulate freedom to innovate on the playing ground of local stakeholders. But, as a sole crop intensification approach, it abides the risk of being easily affected with unpredicted economic shocks, climate variation and pest outbreak. As such, it is worth suggesting a mix approach that enhances the complementarity between value chain and system integration approaches while promoting a certain level of simplicity and investment that match the socio-economical context of most farmers operating in SSA Agriculture. Such a combination may be designed in a workshop that involves participants from Humidtropics programme and other value chain promotion organizations. This could help fill the exiting gaps between value chain and integrated systems approaches and bring greater positive changes in the implementation of Humitropics programme.

It was envisaged that the design of the R4DPs would have experienced an evolution through learning should the program have continued through its planned 15 years' life span. This was cut short by the development of the second generation of the CGIAR research program that gives more attention to the commodity based food systems and aim to next systems research within the commodities.

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5.0

Zooming on Innovation Platforms:

From concept to practices

5.1 Introduction

The IAR4D concept has been developed as paradigm to change the way agricultural research and development activities were conducted in Africa. In this line, FARA proposed innovation platforms (IP) to implement the IAR4D concept. Since they have been proposed and initiated in 2008, innovation platforms have kept gaining worldwide interest from research, development, and funding organizations. Proof is that many innovation platforms (IPs) have been established in many countries of the world with various levels of success. But to be recognized and adopted worldwide, there is a need to prove and strengthen the performance of those IPs. To inform about IP experiences, this chapter first addresses the concept of innovation from its origin to date while reviewing the various typologies made over time. The second part addresses innovation platforms as a concept and discusses its definition, principles and key determinants of their success. The last part addresses facilitation as key determinant of IP success, tries to pull out the best profile of a facilitator, and presents some practices of facilitation drawn from field experiences.

5.2 Innovation

Nowadays, innovation is a universal, pervasive word. Social, economic as well as management scientists make use of it, so do media and public policy. From a rejected word in early antiquity, it has acquired a central place in everyone's vocabulary nowadays. This section discusses how innovation has become such a central word. It also focuses on its various definitions and typologies.

5.2.1 **Origin and evolution**

Until the end of the 18th century, innovators were often rejected by society. They were considered untrustworthy adventurers and crooks. Innovators were also rejected by churches and abused as heretics. Godin (2008) has developed a comprehensive analysis of the historical evolution of this concept from Antiquity to date. Innovation in Greek ***kainotomia***[1] means ***making new.*** From its very emergence, the concept had a political connotation in Ancient Greece according to Godin. Innovation meant introducing change into the established order. It had a revolutionary connotation. Innovations as well as innovators were perceived negatively. Innovation was therefore explicitly forbidden by law in the Ancient Greece. 'Innovator' was matched with the term abuse used by opponents to insult one another. At that moment, no theory of innovation had yet been developed.

[1] Combination of kainos =new and the radical tom= cut.Aristotle used the concept in a metaphorical sense (kainotomia= making new).

Since the second half of the 19th century, there has been a gradual shift towards a more positive connotation of innovation. The drive to explain the revolutionary changes which they observed in all spheres of life pushed scientists to develop theories of innovation. The concept evolved first in sociologists circles and later also in economists. The first theory of innovation comes from Gabriel Tarde, a French sociologist in the late 19th century. He was interested in explaining social change or social evolution. For him, the term innovation means novelty; he did, however, not provide an explicit definition. Rather, he used a whole cluster of terms to discuss social changes ranging from invention, ingenuity, novelty, creation, originality, imagination, discovery to initiative. Rogers was in 1962 the next sociologist who developed a broad theory of innovation. Many other sociologists have worked on innovation theories; however they have no common definition. Among economists, J.A. Schumpeter was the first to perceive innovation as a process. For him, innovation is the commercialization of technological invention (Godin, 2008). Unlike the sociologists, economists have consensus about the meaning of the concept of 'innovation'. For Schumpeter, capitalism is a creative disturbance of existing structures, and it brings unceasing novelty and change. In his view, innovations are responsible for this disturbance. Theories and conceptual models of technological innovation have been developed over time by business schools and economics scholars. The perception of innovation as technological innovation and as commercialized innovation came to dominate literature. More recently another conception of innovation attracts attention, i.e. social innovation or rather social invention.

Nowadays, innovation is becoming more and more a buzzword and a slogan. Any change in any sphere of life is now considered an innovation. Innovation is no longer only a scientific concept but a catchword for attracting investors. Marketers use it as a buzzword in advertisement campaigns for consumption goods and for political programs. Since the beginning of the 2000s, fundamental models like the national innovation system and evolutionary models of innovation are gradually drawing to their decline. New models of innovation are rising, amongst others:

- disruptive innovation theory or the value chain evolution theory by Christensen and Raynor, (2003);
- the strategic innovation process model by A. Afuah (2002);
- Geoffrey Moore's category-maturity life cycle model (2005) and
- Gary Hummel's business strategy innovation model (2000).

Complementary concepts evolve too, for instance the financial innovation concept, the eco-innovation concept, the user innovation concept, the social innovation concept as well as the collaborative innovation concept.

5.2.2 **Definition and typology of innovation**

According to the Oslo Manual, 3rd edition, 2005, an innovation is the implementation of new or significantly improved good, service, process, a new marketing method, or a new organizational method in business practice (OECD, 2005). In other words, innovation is about bringing novelty or improvement. All innovations, by definition, are about novelty: they are different from what existed before. Yet all innovations are not the same. Indeed, scholars have over the years proposed a number of different innovation typologies. According to Chandy and Prabhu (2009) most prominent typologies of innovations that scholars have highlighted in the literature existed in isolation from each other. However, Lopes *et al.* (2016) assume that it is possible to say that the ideas behind these typologies are similar and that they strengthen the typology presented in the Oslo manual, whose most recent edition is of 2007. This section presents a summary of the most prominent typologies.

In 1930, Schumpeter proposed several types of innovation that can happen by various forms (Lopes *et al*, 2016).

- New goods made available to the consumer;
- New production methods, currently considered new processes;
- New inputs, raw-material or semi-finished products;
- Reorganization of an industry; creation of a new organization.

Lopes *et al.* (2016) reports also that Pavitt made in 1984 taxonomy of the concept of innovation. Pavitt's taxonomy was later complemented by several authors. It is currently part of the Oslo manual. According to the authors, Pavitt's taxonomy is based on particularities and peculiarities which he identified in the characteristics of technological trajectories, for instance focus and direction, knowledge sources, performance strategic variables, and types of users, among others. Table 5.1 presents the evolution of Pavitt's taxonomy.

Table 5.1: Pavitt-based innovation taxonomy further developed by later scholars

Authors	Type of innovation
Freeman in 1987	Incremental Radical Changes in the technological system Changes in the techno-economic paradigm
OECD in 2007 Oslo manual	Product Process Marketing Organizational

Tidd in 2008	Product Process Position Paradigm
Carvalho in 2009	Radical Incremental
Damanpour in 1991	Administrative Technological Of product Of process Radical Incremental

Source: Adapted from Lopes et al. (2016)

A literature review made by Kotsemir *et al.* (2013) presents a classification of six types of innovation:

- Multi-type' classification,
- Classification of the degree of 'strength' or 'power' of innovation,
- Multi-layer classification,
- Dichotomic classification,
- Dually-dichotomic classification ,
- Linked to steps of innovation process classification.

First, the 'multi-type' classification groups all types of innovation into several non-crossed classes. According to Kotsemir *et al.* (2013), this classification is the most widespread in literature. Second, the degree of 'strength' or 'power' of innovation is used as a classification key. The degree of innovation may range from 'incremental' to 'technological revolutions' as proposed by Freeman in 1982. It may also range from 'regular' to 'revolutionary' as Coccia proposed in 2006. Third, the multi-layer classification of innovation distinguishes several levels of innovation classification. Johnson and Jones in 1957 are among the first to make classifications of such type. Fourth, dichotomic classification distinguishes only two non-crossed types of innovation. It always opposes two innovation types. Fifth, dually-dichotomic classification of innovation simultaneously encompasses two dichotomous classifications. Sixth, the degree of maturity of new technology was used by Geoffrey Moore in 2005 to identify fourteen types of innovation: application innovation, product innovation, platform innovation, line-extension innovation, enhancement innovation, marketing innovation, experiential innovation, value-engineering innovation, integration innovation, process innovation, value-migration innovation, organic innovation, acquisition innovation (Kotsemir *et al.* 2013).

Table 5.2: Typologies of innovation

Classification	Resulting type of innovation
Classical	Product innovation Process innovation Service innovation Marketing innovation Organizational innovation Design innovation Supply chain innovation.
Innovativeness degree	Weak: Incremental/routine/minor/regular/non-drastic/basic innovation
	Medium: Architectural/fusion/evolutionary/sustaining innovation
	Strong: Radical/major/disruptive/revolutionary/paradigm innovation.
Dichotomic	User-driven/supply-side innovation Open/closed innovation Product/process innovation Incremental/radical innovation Continuous/discontinuous innovation Instrumental/ultimate innovation True/adoption innovation Original/reformulated innovation Innovation/renovation

Source: Adapted from Kotsemir et al. (2013)

Some types of innovation fit into several of the typologies above. Table 5.3 below presents short definitions of some types of innovation.

Table 5.3: Definitions of some innovation types

Innovation types	Definition
Technological breakthrough	A product, service, or process that involves scientific principles that are substantially different from those of existing products, services, or processes
Product innovation	Commercial introduction of a product that is new to customers
Service innovation	Commercial introduction of a service that is new to customers
Process innovation	Use of a new approach to creating or commercializing products or services
Radical innovation	Employs substantially new technology and offers substantially higher customer or user benefits relative to existing products, services, or processes
Component innovation	New product, service, or process that uses new parts, modules, or materials, but relies on the same core technology as existing products, services, or processes
New to the firm innovation	Adoption of a product, idea, or behavior by a firm that did not previously adopt the innovation
Competence-destroying innovation	Requires new skills, abilities, and knowledge in the development and production relative to those held by existing firms in an industry
Competence-enhancing innovation	An order of magnitude improvement in price, performance, or efficiency that builds on existing know-how within a product or process class
Discontinuous innovation	Requires customers to establish different behavior patterns. It alters existing patterns of use or creates new patterns of use

Source: Adapted from Kotsemir et al, 2013; Chandy and Prabhu, 2009.

5.3 Innovation Platform

Innovation platforms are fora for learning and action, involving a group of actors with different backgrounds and interests: farmers, agricultural input suppliers, traders, processors, researchers, government officials, etc. These actors get together to develop a common vision and find ways to achieve their goals (Homann-KeeTui *et al.*, 2013). Fatunbi *et al.*, (2015) defines Agricultural Innovation platform as a physical or virtual forum/network established to foster interaction and learning among stakeholders selected from an agricultural commodity value chain and or system of production actors sphere. The stakeholders interact in a commercial mode to jointly identify problems, source solution, implement solution options and learn lesson in cycles until benefits from the interventions and activities yield benefits to all the stakeholders in a win-win fashion. Developers are more and more using innovation platforms as tools to achieve their goals. This section aims at presenting the reasons that explain the use of IPs for resolving agricultural issues. It also makes a point about IP typology and key determinants of success.

5.3.1 **Rationale of IPs**

The concept of IAR4D was presented in 2008 with the challenge to fix the failures observed in the linear approach to research and extension (Adekunle *et al.* 2014). The traditional research approach assumes that experts (i.e. researchers) generate knowledge, which farmers and others adopt, resulting in change. In reality, such a linear approach often has a limited impact: the research turns out to be inappropriate and the findings are not often used. In response, the IAR4D approach shifted research towards a more collaborative and reflexive mode, with much more collaboration between researchers and other stakeholders (Homann-KeeTui *et al.* 2013). The benefits of the IAR4D approach are enormous, ranging from the establishment of a platform for effective partnership of the public and private sector partners in agriculture to the effective engagement of policy-makers in R&D endeavors (Adekunle *et al.* 2014). IAR4D is based on the innovation systems approach and requires systemic interaction among all stakeholders around a specific commodity or system of production. Its implementation needs the innovation platform as a tool. One may ask why is the IAR4D concept using innovation platforms rather than other tool. Innovation platforms are recommended as a promising way to find solutions to complex problems, such as those in agriculture and natural resource management. According to Schut *et al.* (2011), since social, economic and environmental problems become more complex, researchers need to engage more actively with stakeholders such as farmers, development practitioners and policymakers to explore, design and implement solutions. Innovation platforms offer them the opportunity to do so. Many other authors recommend the use of IPs by highlighting IPs usefulness in

the agricultural sector. The following reasons are discussed/mentioned/presented by Homann-KeeTui *et al.* (2013)

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IPs are spaces for learning and change

Innovation platforms are able to identify and address common concerns more effectively by bringing together stakeholders (farmers, agricultural input suppliers, traders, processors, researchers, government officials, etc.) in various sectors and from different levels. They can also be used to explore strategies that can boost productivity, help manage natural resources, improve value chains, and foster adaption to climate change. Furthermore, IPs create motivation and a feeling of ownership of the solutions that they develop. People readily buy into solutions that they have jointly developed. Additionally, weaker actors like small-scale farmers can easily express their views on an equal basis due to good communication potential within the IP.

IPs provide space for joint policymaking

In order to enhance effective policy development, implementation and monitoring and evaluation, governments, private sectors, civil societies and other policy stakeholders can make use of IPs. By putting together the expertise, experience and interests of different members, innovation platforms can provide a valuable contribution to the development, implementation, monitoring and evaluation of policies. Rapid adoption of policies or widespread implementation of new policies is enhanced by a joint policymaking process.

IPs help many actors to better perform their tasks.

- IPs help agricultural research organizations to make their research more relevant and to facilitate the adaptation and dissemination of findings.
- IPs help NGOs and development agencies to identify areas for sharp interventions, to ensure that the interventions are appropriate for particular situations, and to enable stakeholders to influence policy making and development activities.
- IPs help private sectors, including traders, input suppliers, service providers, processors, wholesalers and retailers to strengthen their economic activities and make value chains more profitable.
- IPs help to provide space to stakeholders to develop a common vision and mutual trust. In addition, they offer a 'neutral' space to air disagreements and conflicts and for members to state their requirements and needs.
- IPs help to go beyond what individual actors can achieve alone by helping partners to identify the bottlenecks impeding innovation, and to develop solutions.

To finish, Pali and Swaans (2013) assume that IPs help to add value to the initiatives already launched by national and regional teams in coordinating and exchanging information.

5.3.2 **Typology of IPs**

Basically, a typology depends on the criteria used to realize it. The common criterion found in literature to classify the IPs is the level of their implementation. This level is hierarchical and ranges from local to national and sometimes even to regional level. The platforms established at these different levels have different objectives and perform different functions. Local platforms tend to address specific problems or opportunities such as improving the efficiency of a specific value chain. They are well placed to test new ideas and generate action on the ground. Platforms at national or regional level often set the agenda for agricultural development and allow stakeholders, including farmers through their representatives, to influence policies.

Nederlof *et al.* (2011) used the immediate objectives of the programs under which the platforms operate and the role of research within the platforms as criteria to distinguish three main types of platforms: learning and research-oriented, development and research-oriented, and development and non-research-oriented. The first type includes the platforms for which the foremost aim was learning how innovation emerges and is sustained, and in which research organizations played a prominent role. The oil palm innovation platform in Ghana is a typical example of a learning and research-oriented platform. It was set up under the Convergence of Sciences – Strengthening agricultural Innovation Systems (CoS SIS) program to improve the quality of palm oil and as a result to access markets. A case study of this platform is described in Nederlof *et al.* (2011). The second type (development and research-oriented) comprises the platforms primarily aiming at local economic development. In those platforms, research plays a prominent role. The last type (development and non-research-oriented) refers to the platforms aiming to achieve local economic development, but in which research does not play a prominent role. The maize and legume platform described by Nederlof *et al.* (2011) illustrates the development and research-oriented type. It was funded by FARA through its SSA-CP to promote the maize-legume production system in Northern Nigeria. Funded by the International Centre for Research on development-oriented Agriculture (ICRA) and the International Fertilizer Development Center (IFDC), the National Innovation platform for the Agricultural Sector in Benin (PNISA-Bénin) falls under the development and non-research oriented type since it is not operating under a research program. This platform aims to promote multi-stakeholders innovation processes in order to remove obstacles that hamper synergy, efficiency and sustainability in the agricultural sector.

5.3.3 **Determinants of success of IPs**

Success refers to the accomplishment or achievement of a purpose. Defining the concept of success at IP level is not easy. Success of an IP can relate to its performance and impact, or whether the platform prompts real change or innovation. Success can be sought at three different levels. The first level is at the setting up of the platform. The second and the third levels are respectively related to the functioning of the IP, and to its outcome and sustainability.

A strong start of IPs is crucial to ensure that the objectives and aims are well-defined and adapted to the local context. According to Nederlof *et al.* (2011), the way a platform is initiated determines the composition of the platform, who takes the lead in facilitating the process, and the main objectives it tries to meet. This stresses the first level where IP success can be achieved and/or assessed. Various factors determine a good setting up of the process. Among these factors, the choice of the entry point is vital. Following Coulibaly *et al.* (2014), entry points emerge from the problems faced by actors at the beginning of the process and can be situated at different levels of the value chain. These entry points include production, processing, marketing and consumption.

Once an innovation platform is established, it needs to be maintained and nurtured. Stakeholders interaction must be maximized and this requires good facilitation. Facilitating stakeholder interaction is the backbone of an innovation process and has been the focus of recent publications on agricultural innovation (e.g., Klerkx *et al.* 2009; Nederlof *et al.* 2011; Nederlof and Pyburn 2012). At the level of functioning, the success of IPs depends largely on facilitation. Due to the importance of this factor, we dedicate a whole section i.e. section 3 in this review, to discuss it.

At the level of sustainability, the main concern is what happens when the project which initially supported the IP ends or after the initial problem is solved. Generally, when a problem is solved, new ones emerge and the IP evolves. But in both cases (end of project and initial problem resolution), the problem of funding is crucial.

5.4 Facilitation as key determinant of IP success

5.4.1 Definition and principle

Rooyen *et al.* (2013) define facilitation of innovation as a flexible and adaptive process during which facilitators manage dialogue and stimulate collective problem analysis by multiple stakeholders in order to overcome challenges or make use of opportunities. In literature, no set of principles have been clearly stated and commonly shared by scholars about IP facilitation. Rather, many authors have written about general principles relating to IP formation and management as well as to the IAR4D approach. This section makes a brief summary of them.

Pali and Swaans (2013) described several principles that govern IP formation and management. They assume that to facilitate site level and (sub)-national IPs it is important to ensure the following principles:

- **Building on existing structures and activities.** It is advised to first assess to what extent existing activities and fora at the local level can be used as a starting point for the site level IPs. But sometimes it may be better to set up a new IP to avoid baggage of existing structures instead of building on existing structures and mechanisms.

- **A participatory approach and local ownership.** One of main factors that should determine the success and sustainability of site-level and (sub)-national level IPs is local ownership. Although project staff at site and national levels may sometimes take a leading role in the formation and facilitation of the IPs, the work plans and activities have to be developed together with other members of the platforms, and opportunities for the leadership to the beneficiaries over time should be explored.

- **Building capacity for facilitating IP formation and functioning.** It requires intensive and skilled facilitation and also training and personal coaching to form and facilitate IPs. In addition, reflection and learning meetings have to be organized periodically among project staff to learn from experiences and guide further actions.

- **Monitoring and evaluation of IPs.** The crucial element of the IP implementation process is monitoring and evaluation. It is crucial to monitor and evaluate the effectiveness of the IP to achieve the intended outcomes of the project and to learn which strategies work and which do not.

FARA implements the IAR4D concept through innovation Platforms (IP). For Adekunle *et al.* 2014, FARA's IPs adhere to the following facilitation principles of IAR4D.

1. IAR4D IPs simultaneously address R&D as a fused continuum for innovation.
2. They engage all the required stakeholders along the commodity or system innovation sphere to interact and jointly identify the problems, source solutions, implement the solution and learn lessons until an innovation is generated.
3. The all-inclusive partnership arrangement addresses technological and non-technological issues.
4. All stakeholders on an IP make contributions and enjoy benefits which sustain their interests and continued participation.
5. Innovations generated through IAR4D will benefit all stakeholders on the IP.
6. IAR4D engages the policy makers at different levels throughout the process of R&D until innovation is generated.
7. IAR4D demands investment by partners, which is followed by returns on the investment.
8. IAR4D ensures a smooth public–private partnership in ARD through its holistic consideration of the commodity value chain and operation in a commercial mode.
9. IAR4D links all kinds of research endeavors (blue sky, strategic, basic and adaptive research) for the benefit of the farmers.
10. IAR4D IPs ensure effective engagement and capacity strengthening of the National Agricultural Research System (NARS). (Adekunle *et al.* 2014: 2)

In addition, Posthumus and Wongtschowski, (2014) also name some principles and philosophies that should be respected when engaging in IP activities. These are:

- Diversifying composition of stakeholders.
- Addressing a shared problem or opportunity, instead of the agenda of one or two members only.
- Facilitation by a neutral person or organization with convening authority.
- Motivation of the members to commit to the platform depends on initial success.
- Change resulting from the innovation should benefit multiple members.
- Exchange and learning should remain central.
- Platform members must show respect to one another despite diverging opinions and knowledge.
- Systems for ensuring transparency and accountability must be in place.

5.4.2 **Practice of facilitation**

Experiences have shown that skillful facilitation is needed to enable the platform members to reach a shared understanding of the issues at hand, agree on common goals, communicate, cooperate and coordinate activities to address their challenges, and take advantage of opportunities. In this respect, many authors and institutions[2] have written facilitation guides to provide some guidelines to practitioners to perform their facilitation tasks well. These guides inform about core functions of facilitation and key qualities required of a good facilitator. However as stated by Nederlof etal. (2011), facilitation is easily said than done. Providing facilitation guidelines for each type of network is difficult. There are, however, a number of lessons that can be drawn from field experiences that can assist practitioners aiming to facilitate IPs. More understanding is needed of choices made in facilitation to allow platforms to perform well within varying value chain environments (Paassen, 2013). This section first highlights the critical facilitation tasks and functions. Second, it presents a range of practical choices drawn from field experiences in diverse countries.

5.4.3 **What are the critical roles of IP facilitators?**

The roles of an IP facilitator are called either functions or tasks and are drawn from the IP facilitation principles previously presented. According to Paassen (2013), facilitation includes many tasks. The five critical ones are:

- *Scoping and networking to identify the area of intervention and platform composition:* this is the first step of the process whereby the potential members decide whether they want to join or not. Here, facilitators' first task is the identification of an overriding purpose and of partners with a matching stake.
- *Ensuring dialogue among platform members to establish relationships and a joint vision:* it is critical that the facilitator ensures open dialogue not only to attain mutual understanding but also to find common ground about the IP vision and first priorities for action.
- *Establishing the rules of conduct and collaboration:* to build and nurture trust, positive group interaction, and platform performance. It is essential that the facilitator brings the member to jointly establish 'rules of conduct', such as confidentiality; equal, open, and respectful communication, and the possibility to opt out at any time.
- *Enhancing fact-finding and development of possible solutions:* in addition to the common vision for action, it is important that the facilitator supports the exposure and confrontation of ideas to improve the quality of solutions during the early period of innovation before investment accumulation goes beyond the point of 'no return'

Institutions such as ILRI, CORAF-WECARD and FARA

- *Enhancing innovation performance:* networking and communication for innovation are essential to improve the quality of learning in the platform. Facilitators need to support actors in developing a web of cooperative relationships by removing institutional constraints through awareness-raising, negotiation, or persuasion of their constituencies and/or powerful actors.

Klerkx *et al.* (2009) consider IP facilitators not as mere meeting facilitators, but as innovation brokers. They are persons or organizations that catalyze innovation by bringing actors together and facilitating their interaction. To do so, brokers perform a variety of functions, ranging from facilitating interactions between actors, linking and strategic networking, technical backstopping, mediation, advocacy, capacity building, management, and documenting learning.

- Facilitation includes convening and managing regular meetings to identify key constraints and strategies. Nurturing relationships among the members, negotiating, coordinating interactions, and facilitating collective learning are also part of these functions.
- Linking and strategic networking includes building relationships with other relevant actors for collaboration, support and funding of the activities undertaken by the platform.
- Technical backstopping includes providing technical advice to the members. Here the facilitator may either provide them himself or link the platform to others who can do it. He may also solicit further consultations to identify or confirm problems and information needs.
- Mediation includes preventing possible power struggles and addressing them if they arise. Here the facilitator has the heavy task to help the platform members realize they all have an interest in finding solutions and creating opportunities.
- Advocacy. Adopting an innovation sometimes requires a conducive environment. To ensure favorable conditions, the facilitator may help the platform to advocate for policy changes, generate new business models, or stimulate new relationships among the actors. He needs also to ensure the buy-in and the support of all the stakeholders.
- Capacity building includes equipping the IP members with the technical, organizational and management skills to effectively play their role. This can be done through training by institutes, exchange and exposure visits to other platforms.
- → Management. The facilitator sometimes has to combine the function of broker with that of manager ensuring thus financial management, reporting and communication with the donor.
- → Documenting learning includes documenting and reporting the meetings and the process to relevant actors and other parties. In doing so the facilitator helps stakeholders to reflect on and learn from actions which they initiated. He also supports the overall innovation process.

5.4.4 **Practical choices in facilitating IPs: learning from field experiences**

After we described the facilitation tasks and functions, let us address some practical choices in terms of facilitation. These practical choices are drawn from reported field experiences in diverse countries. Although this could be done following the three main lines of support as presented above, we rather focus on two key determinants of the success of IP facilitation: *(i) Who facilitates? (ii) How to manage emerging conflicts inside Ips?*

(i) Who facilitates?

As it can be understood from the points developed above, facilitation of innovation platforms includes a number of roles which require specific competences. It could seem obvious that the organization responsible for implementing and managing a project should take the facilitating role. However, members of research organizations do not often possess the right combination of skills and attitudes that can allow them to take up all facilitation roles independently. Hence, there is a need to invite other competences from organizations such as NGOs, farmers organizations, or extension agencies. Some experiences with the Dissemination of New Agricultural Technologies in Africa (DONATA) cases, empirically documented by Sidi *et al.* (2014) demonstrate that different organizations' can effectively share the task of facilitation. According to the authors, the choice for a specific facilitating organization or a combination of organizations depends on many factors. The facilitator may not remain the same person over time, and/or certain facilitation tasks may be divided between the platform actors: for instance, one actor may be in charge of convening and chairing the meetings, while another one ensures the tasks of reporting on the meetings. DONATA cases exemplify a diversity of situations of who facilitates. Research and extension organizations, NGOs and farmers organizations all act as innovation brokers, and often work in combination. For instance, IPs in Cameroon are explicitly working towards a model with multiple brokers. The emerging facilitation strategies depend on four main factors: (i) availability of alternative organizations; (ii) acceptability; (iii) competences and (iv) IP level. In the Burkina Faso, The Gambia and Cameroon cases, availability of animportant NGO, farmers' organization or extension agency has provided opportunities to engage these organizations in the facilitation of the platforms. Key features of a successfully facilitating organization are neutrality, credibility and authority to be accepted by all stakeholders. Since research institutes, NGOs and extension agencies do not often or openly have commercial interests in the value chains, they are generally accepted as neutral. Furthermore, a farmers' organization as facilitator ensures the focus on smallholder producers and can contribute to building agencies among farmers as was the case in Burkina Faso. In terms of competences, NGOs and farmers organizations are particularly recognized and well skilled to work in a participatory manner, adopting flexible approaches to agricultural development. Extension organizations, on the other hand, tend to

apply top-down transfer-of-technology approaches. In the Gambia case for instance, a local NGO named 'Agricultural Training Centre' is trusted and appreciated by the local actors and has a wide experience in community development. As for the level of implementation of the IP, Sidi *et al.* (2014) assume that some organizations are better placed to work at a certain level than others. NGOs and extension organizations often have the required experience to work with farmers and farmers' groups directly at the grassroots level. This was the case of a farmers' organization called 'Fédération NianZwè' in Burkina Faso, which ensured the vertical linkages of the platforms to the grassroots.

(ii) How to manage emerging conflicts within or among Ips?

Conflicts can entail a dilemma: they can either potentially trigger an innovation process, or they may lead to the disruption of the innovation process. There are different strategies to address such a conflict; no panacea exists. A good broker is supposed to have the ability to deal with each specific case. He can mediate by discussing separately with the parties involved and then bringing them together to discuss the issue face-to-face. He can also put the issue up for discussion at a platform meeting, where other members can propose ways to solve the problem. An example of a conflict that led to a stronger platform has been documented by Nederlof *et al.* (2011):

> *"The case of the maize-legume platform in Nigeria, where farmers wanted to grow their own seeds while seed companies wanted to supply seeds to the farmers. As a result of this conflict, an innovative solution surfaced that benefited both actors: farmers became the out growers of cowpea seeds for Premier Seeds Ltd"* (Nederlof *et al*, 2011: 50)

5.4.5 **Profile of a good facilitator**

Brokering is a highly dynamic role, requesting a variety of skills and knowledge ranging from communication and conflict management skills to content knowledge about the issues at stake in the IP. This section further discusses the skills required for an agricultural innovation broker. For Nederlof *et al.* (2011), whether brokers are organizations or individuals, their choice involves four main criteria. The first criterion as seen above is "neutrality": vested interests may lead to a lack of transparency or trust. A second criterion is knowledge of the topic. Knowledge of the topic in stake is important to gain IP members' trust. Brokers could receive training from organizations placed outside the platform. However, being a good broker goes beyond training. It is not only about bringing knowledge to persons. The third criterion that matters is attitude, especially having patience and cultural sensitivity. The fourth criterion is being open-minded and responsive to needs of all stakeholders. In addition, an effective broker is a good team player

with an enquiring mind. Some practitioners argue that brokers do not necessarily have to be specialists in a specific field. What matters, is that they understand the context: culture and norms, as well as values.

Conclusion

This chapter zoomed in the IP concept and practice by highlighting its origins, evolving definitions and typology and analyzing the determinants of innovation platform success and the importance of facilitation and facilitators therein. It stands out that the determinants of a good facilitation/facilitator include among others the ability to create and maintain trust; to motivate and engage stakeholders in learning, action, and reflection; to manage and disseminate useful information; to organize and facilitate meetings and discussions; to facilitate negotiations and contractual arrangements; to prevent and manage conflicts; to mobilize resources; and to liaise with input providers and markets.

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6.0

Dynamic Power of Facilitation in Multi-stakeholder Processes in East, Central and West Africa:

Experiences from the field

6.1 Introduction

The world is constantly in dynamic making. The word dynamic is used to refer to a force that stimulates change or progress within a system or process. It is also used to describe a process or system characterized by constant change, activity or progress. When it is applied to a person, it indicates positivity in attitude, fullness of energy and creativity in ideas. It could be said of any being that is growing according to the direction and pattern designed for its kind.

An innovation platform can be referred to as a living being with a mission to grow while being nurtured, to reach a standard of living where it becomes independent. Such a sustainable stage is the state where IPs are expected to become drivers of Sub-Saharan African agriculture and economies. Such necessary changes require a constant forward pushing force known as investment, partnership, coordination, creativity, all packaged in a single word known as facilitation. Facilitation is then a day to day innovative process involving interactive relations among different stakeholders, and with the object at stake. It follows a non-linear path characterized by complicated feedback mechanisms. Having adopted a systemic approach, the innovation process cannot be predicted; as such it cannot be decomposed into several isolated phases that take place in a strictly proceeding sequence (Utterback, undated).

Facilitation is critical in innovation processes because those processes are exposed to competing forces whose relative strengths determine the outcomes (success or failure) of the whole experience. These competing forces can be internal or external. Earlier facilitators, as well as those appointed along the process form the driving forces. At the opposite side are resisting forces that inhibit the process. Whatever is the position of stakeholders and socioeconomic and socio-political actors in the Agricultural Research for Development (AR4D) system, they will intentionally or unintentionally play one of these two roles. Thus, the outcomes of the process will depend on the dynamic interactions between both forces leading to various outcomes: success or failure, lock-in or deviation creating a specific path based on the coupling of the context (be it enabling or disabling) and the empowerment level of facilitators and IP managers in place.

Many IP experiences are ongoing in Sub-Saharan Africa within the Humidtropics program leading to various types of IPs. Some are newly created IPs while others are those constructed under the Sub-Saharan African Challenge Programme (SSA-CP) and taken over by the Humidtropics program. This implies that these categories of IPs undergo various facilitation experiences.

The present qualitative analysis of facilitation of performing and challenged R4DPs and IPs under the Humidtropics program in East, Central and West Africa will provide insight in facilitation dynamics with regard to the transition from SSA-

CP to the Humidtropics program (Transition from commodity value chains to systems integration), dynamics in IP structure and partnership, training and empowerment dynamics, innovations and facilitation dynamics at each level (R4DPs and IPs) and across levels, as well as the profile of the facilitators who support those innovations, and eventually challenges to facilitation within struggling IPs. The various characteristics of an ideal facilitator are presented in the last section of this chapter.

Although it might be tempting to jump to generalizations and to draw a general pattern of the way facilitation has been conducted in the three regions in Africa, we opt to present our findings case by case to inform on the weaknesses and the strengths of each facilitation to allow quick interventions if needed.

6.2 Facilitation experiences in Uganda

6.2.1 Dynamics on the ground

In Uganda, three IPs were investigated with regard to their experiences with facilitation. The three were established under SSA-CP and taken over by Humidtropics: Kashekuro Banana Innovation Platform (KABIP), Bubaare IP, and Bufundi IP.

The facilitation experiences followed the various initiatives and achievements accomplished within each IP. KABIP is located at Kashekuro trading centre along the Kabwohe – Kitagata road in Kitagata sub-county, Sheema district. KABIP focuses on plantain. Banana Bacterial Wilt (BBW) is the major constraint addressed to reverse the downward trend in yield. This constraint was addressed successfully under SSA-CP using a strong awareness raising and Training of Trainers (ToT) program with great focus on knowledge acquisition on BBW, destruction of affected banana trees, the use of clean banana planting materials, the use of disease free tools, cleaning of tools using fire for disinfection. As a result of the awareness campaign, banana plantations have been revived and production has greatly increased. This was followed by a collective marketing of the product, and to date, over 400 bunches are collected from members on a weekly basis, leading to an increase in the incomes of the IP members.

The need of system integration arose at the end of SSA-CP. The Humidtropics program came as a response to the various unanswered questions that surfaced. KABIP members took advantage of this Humidtropics program by strengthening food security and income generating activities. They were provided with seed of climbing bean by CIAT, used as an intercrop with bananas. They also undertook the production and processing of cereals such as maize and millet. They also added

apiculture by installing a large number of beehives provided by Humidtropics through Makerere University and by the local government at district level. Honey has become a source of substantial revenue for KABIP members. At that point, natural resource management (NMR) became a necessity. Farmers intensified their dairy activities using zero grazing. In collaboration with SNV the milk produced is used to promote a school nutrition program in Sheema district. This program is implemented in line with the Ministry of Education and Sport's guideline on school nutrition. As a result of this program, 7325 pupils in ten schools are fed with fresh cow milk. The purpose of this program is to combat malnutrition while improving the enrolment rate and concentration level of pupils. As part of NRM, KABIP members developed environmentally friendly technologies which include (i) the production of charcoal briquettes using dried banana leaves, waste paper, banana peels, saw dust and cassava flour and (ii) the use of cords made of pseudo-stem to prevent banana trees from lodging. Tree branches are no longer destroyed to make sticks to sustain banana. Also, biogas is produced and used for cooking. This technology is highly appreciated since it does not produce smoke and contributes to a healthy environment at home. It is beneficial for women, who no longer need to waste their time and expose themselves to the risk of snake bites and rape in looking for firewood, but can use their time for other activities, and improve the love life in the family. It also helps school going children to read without irritating their eyes, especially in rural areas. In addition, bioslurry is collected and used as organic fertilizer. Value has been added to many products by producing, processing and packaging honey, bean flour (plain beans, or mixed with soybean), millet flour for porridge or mixed with cassava for food, maize flour, and banana wine.

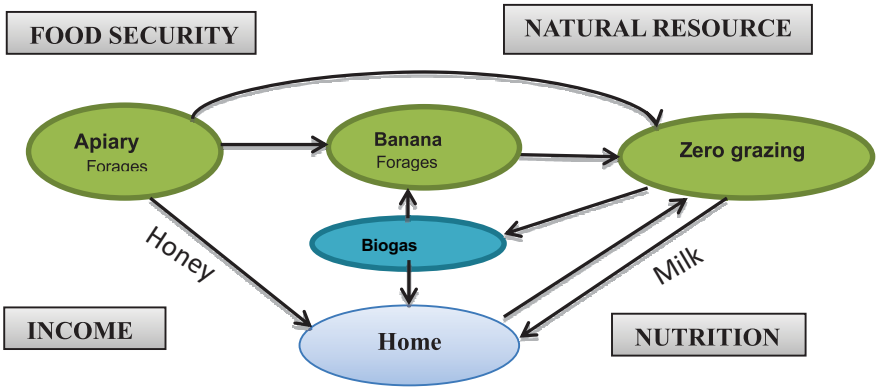

Figure 6.1: Key pillars of KAPIB operational framework
Source: Presentation KABIP

Similar dynamics were recorded with Bubaare IP in Kabale district. This IP was set up in 2009 under SSA-CP. Its entry point was to address constraints underpinning the low productivity of sorghum. One factor that depressed its productivity was soil nutrient depletion. The focus on sorghum was due to the socio-cultural value of this crop. Sorghum is considered in Kabale a solution to prevent starvation when other crops are suffering from drought during years of drought. In fact, sorghum is harvested in the dry season keeping farmers out of food insecurity. Moreover, the crop is processed into porridge and used to feed children. With the support and assistance from the National Agricultural Research Organization at regional level, new sorghum varieties were introduced and IP members trained in good agricultural practices (GAPs). The result was successful and led to the adoption of the recommended practices (including fertilizer application), an increase in yield, as well as the improvement and diversification of processing methods. Many value chains were developed including those of two types of non-alcoholic beverages known as Mamera drink. Apart from these beverages, other products were developed such as malted and unmalted sorghum flours used respectively for porridge and for solid food. A milling machine was purchased for sorghum processing. Before the diversification of sorghum value chains the need was felt to shift from sorghum to other crops. Potato was then integrated in rotation with sorghum. The rise of potato production was followed by the development of potato chips value chains. A specific processing device was acquired for this purpose. Along the line, Bubaare IP became a relevant economic actor in Kabale district contributing to the achievement of development goals. At this stage, it started attracting more consideration and facilities from local authorities. For instance, the IP was offered a venue to hold meetings, provided with a warehouse to store sorghum, was supported during its registration as cooperative, and provided with land for the construction of a Bubaare Innovation Platform multipurpose cooperative society Ltd value addition facility. The construction is still ongoing and has now reached the beam. This infrastructure is meant to host the IPs office, a community bank, a potato processing unit, a sorghum milling and packaging facility and a computer room. After Bubaare IP's registration as cooperative, the Huntex Company, which processes Mamera drinks, was able to contract the purchase of members' sorghum through the cooperative. Along the process, Huntex Mamera production capacity has increased due to new equipment acquired to accommodate the increase in sorghum production. Huntex is currently able to purchase the required quantity and quality of sorghum from cooperative members at a friendly agreed price.

The local dynamics in place in these two IPs are sustained by the creation of a community bank for saving and loans with the high engagement of grass root actors composed mainly of farmers organized in self-help groups (SHG). 48 and 54 SHG have been recorded respectively within the scope of KABIP and Bubaare IPs, each group being composed of 20-30 members. This community bank philosophy is based on the Village Savings and Loan Associations (VSLA) concept.

VSLA is a savings-based approach that enables members to pool financial resources as a group and to lend the same money to its members at low interest rates. It provides insurance in cases of emergency from its welfare fund as well as credit services. It has proven to substantially fill the gap between the needs of the poorest of the rural poor for financial services like those offered by Banks and Micro Finance Institutions (MFIs), and the unwillingness of financial institutions to serve the rural poor. It provides sustainable and profitable savings as group members pool their own money. Moreover, this approach enhances the saving culture, group cohesion, and raises members' income. Members went to intensive trainings to ensure that the savings that will be accumulated by the VSLA groups will be fully utilized by plowing them back to group members so that more interest is generated for future group sustainability, and to equip group members with knowledge and skills so that they have capacities to utilize the revolving loans in viable micro projects and continue generating some income, which raises incomes of both group members and their groups (Muhangi, 2015). To guarantee transparency in the methodology, saving kits have been introduced in each SHG.

6.2.2 **Facilitation channels within KABIP and Bubaale IP**

The mechanisms through which facilitation is carried out in KABIP and Bubaare IP differ. In KABIP, facilitation is done through a team of thirteen facilitators who are the people that gathered at the early stage of the IP when BBW was causing great damages in plantain plantations. They use a task division in which each facilitator's specific position indicates the scope of facilitation assigned to him or her. Seven scopes of facilitation have been defined:

- Partnership and marketing: Chairperson of the IP and his deputy, a young man.
- Data collection, monitoring and evaluation: a male.
- Gender issues: a female and her deputy, a young man.
- Scaling and formation of new platforms: a male and his deputy, a female.
- Trials and demonstration: a male and his deputy, also a male.
- Exchange and visits: a female and her deputy, also a female.
- Meetings and training, a male and his deputy, a female.

In order to be able to assume their respective role, they partnered with many organizations which provided training programs and/or material assistance.

- With Presidential Initiative on Banana Industrial Development (PIBID) the IP benefited from training on banana production and pest management and on soil fertility management.
- Makerere University: Training on Life Long Learning for Farmers (L3F) and community banking training.

- NARO and CIAT: Training on climbing bean production and business skills development.
- Durosh Empowerment Consult (DEC): Saving and loans.
- National Organic Agricultural Movement in Uganda (NOGAMU): Training on organic farming. The IP was also provided with materials and funds.
- CIAT: Funds for training logistics (transportation, lunch, etc…), scaling out of the training and extension.
- Makerere University under Humidtropics, and local government: Provision of beehives.
- Humidtropics: Support and assistance to Village Savings and Loan Association (VSLA) including a Kit: saving box, members' passbook, records books, calculator, ruler, stamps, ink, padlocks, saving bowls.

The facilitation story of Bubaare IP followed a different trajectory than the one adopted by KAPIB. In the early stage of the IP, the Kachwekano Zonal Agricultural Research and Development Institute took an important facilitation role in searching solutions to the various challenges faced by the IP, which were related to the quality of planting materials and poor varieties. An agronomist and the outreach officer were appointed for this research. A district officer was appointed to facilitate the integration in the district's development program. Along the line, the IP required different stakeholders to come on board (AHI, Makerere University, NARO, Huntex Industries, local government and others). Each organization identified an IP facilitator who had an expertise, knowledge and skills to facilitate and support the IP. These were co-opted as members of the IP. They would attend IP meetings and activities, develop and review IP work plans but also participate in Monitoring and evaluation of IP activities with the IP executive committee. Each of these IP facilitators, representative of an organization had a specific contribution to the IP based on the organization's specialization. Funding for the IP activities came from the SSACP/ HT program. Each organization was given its budget for facilitation based on the IP work plan and the organization's work plan. This reduced conflicts and enhanced efficiency in performance.

All these projects and organizations implement activities through their IP facilitators based on the work plan and report to the task force leader which is Makerere University under the SSACP. The university was appointed National facilitator under Humidtropics.

Other organizations that hold specific roles and responsibilities with the IP are the following:

- African Highland Initiative (AHI) - Facilitation, NRM byelaws and training, Market linkage
- Makerere University - Task force leader, facilitation, training, NRM bylaws,

market linkage, ICT, processing and value addition
- Local government - NRM byelaws, facilitation and trainings
- IP farmers - Implementation, facilitation, reporting, participate in training
- DULOSH - Training and facilitation
- WARID provided mobile phones to link farmers to markets
- Kampala trader's association - Buying of potatoes, negotiating MOU (Memorandum of Understanding), credit provision to farmers, training on required quality of potatoes
- CIAT - Project level coordination
- NARO - variety production, facilitation, training and site level coordination
- Huntex Industries - facilitation, credit provision to farmers to be reimbursed after harvest, processing and value addition and training

This way of sharing roles and responsibilities made the IP perform well and prevented conflicts between partners due to the clear roles and responsibilities. This started with the SSA-CP and transitioned into the present HT. It is worth noting that the IP facilitators and organizations came on board based on what they could offer to the IP and on demand from the IP members. For example, WARID only came on board eight months after the start of the IP under the SSA-CP; that is only when the IP voiced a need to link farmers to markets through mobile phones. DULOSH was not a member of the IP during the SSA-CP but this organization came on board when there was need for access to credit through VSLA.

The strategic role of Makerere University in facilitating connection of the IPs to research, microfinance, and development partners is worth mentioning. All requested assistance and support to IPs is provided on the basis of demand. Two way communication channels have been established between IPs and Makerere University. IPs express their needs and give feedback to the national facilitator at Makerere University. The national facilitator, in collaboration with a pool of lecturers and researchers, identifies the expertise within the university or in research or development organizations outside the university that could best respond to the demand. Particular attention is given to each IP by one appointed lecturer. These lecturers work closely with the national facilitator and have the mandate to support and assist in all spheres where needs arise. The national facilitator and the team of lecturers serve as an interface between R4DPs and IPs. Two types of R4DPs were identified during the survey. The first is constructed under the IAR4D SSA-CP from 2013 and includes CIAT, Makerere University, NARO, NOGAMU, ICRAF, Huntex, local government, and SACCO. The second is developed under Humidtropics, also from 2013, and is composed of organizations such as IITA, Makerere University, NARO, AVRDC, ICRAF, Bioversity, ILRI, VEDCO, UNFFE, and local government. Each organization may contribute to the achievements in the field of its expertise.

6.2.3 **Profile of the ideal IP Facilitator as perceived in Uganda**

According to the interviewees, the best facilitator should meet the following criteria:

1. Vision of the desired future, and how to attain it jointly
2. Knowledgeable about facilitation and support
3. Interest and benefits
4. Commitment and availability
5. Able to document learning processes
6. Personal mastery of soft skills (Conflict resolution, teamwork, flexibility, communication, social intelligence, management of change)
7. Transparency and trust
8. Skills and tools of facilitation
9. Foster participation of stakeholders
10. Good listener who maintains neutrality
11. Ability to question
12. Foster joint ownership of the process
13. Flexibility, ability to switch pathways and plans
14. Judge context of operation and ability to switch tools (contexts such as conflict areas, culture, gender)
15. Ability to learn continuously
16. Good leadership skills

6.2.4 **Challenges faced by Bufundi IP**

Like Bubaare IP, Bufundi IP was set up to address the challenges of low productivity and soil erosion. Three strategies were proposed to address these challenges, the establishment of trenches and interception ditches, planting of trees and use of fertilizers. These strategies were discussed using trainings, demonstrations and exchange visits. Demonstrations were given during farmers' visits, enabling them to learn and to get ideas and to go back and replicate these on their own individual plots. The IP followed them up and oversaw whether they worked well. The IP reported during the monthly IP general meetings. This also helped the IP members to formulate the byelaws, whose performance was monitored by the IP committee. Besides addressing NRM the IP also pursued the development of value chains for commodities including potato, sorghum, barley and honey.

Bufundi is operating under the same Bubaare IP facilitation team composed of two representatives from NARO and one from local government. This IP is linked to the same stakeholders and partners as the Bubaare IP. In addition, the IP received support and assistance from IFDC, from the Barley Development Centre, and

from the Centre for Rural Development (CBO)-NRM. But Bufundi IP did not perform like Bubaare IP due to the following challenges:

- Remoteness and poor infrastructure: Bufundi is 65 km from Kabale district and is hard to reach due to the rough road;
- Lack of exposure visits: lack of continuity and regular visits by the facilitators;
- Poor flow of funds;
- Limited support from various stakeholders. Other IPs have stakeholders who can invest in their different value chains. Bufundi's remoteness made it less attractive to investment.
- Creation of a new district broken away from Kabale district called Rubanda required facilitators in the new district conversant with the IP approach, consequently, skilled facilitators abandoned Bufundi;
- Lack of agricultural inputs like improved seeds, etc;
- Low facilitation for soil and soil conservation;
- Poor accessibility of clean water for domestic use. Time is spent fetching water.

However, some achievements of this IP have being recorded:

- Ugandan breweries give cash in hand for barley.
- Apiary: honey is sold in bulk by groups of beekeepers with the support of Barclays Bank.

6.3 Facilitation experiences from central Africa -DR Congo

6.3.1 Dynamics on the ground

The innovation platform CHOKALA in Bukavu is one of the newly established IPs under the Humidtropics program. Four farmers groups or associations are involved in the formation of this platform. These farmers groups are based respectively in Mushinga, Mulamba, Burhale and Lubona, the headquarters being in Mushinga. The establishment of CHOKALA IP started in 2014 with the farmers group in Mushinga before being extended to the other three villages. This IP has been set up around cassava-banana-legume (bean) and livestock integration to improve nutrition and raise farmers' income while accessing a better market (Figure 2). Natural resource management constitutes a major part of this IP's activities. It entails the development of strategies to improve soil fertility and to control erosion by means of planting fodder. This fodder can be harvested and used as forage to improve the nutrition and health of livestock.

The hilltop approach was initiated in 2012 by CIALCA, which introduced a cassava and bean intercropping system. Five rows of beans used to be planted between two rows of cassava. After the harvest of cassava the space not covered by beans used to be exposed to erosion. Under the Humidtropics program, the number of bean rows was reduced to two and the space between rows of cassava was lowered accordingly. It was decided to consider adding an anti-erosive technology. After some reflection, forage production was agreed upon. Participative trials were set up to select the fodder species which performs best according to the following criteria: production cycle (less than one year), productivity in the field, and appetence. The hilltop approach was used in order to demonstrate the effectiveness of the technology. This approach was based on field occupation using an integrative design which involves cassava, beans, forage and livestock. Forage plantation was done using two contour lines planted with cassava and bean. Other dynamics of forage production were taking place with some households on about 0.4 ha. Also, the production of various livestock species such as pigs, cows, goats and guinea-pigs developed rapidly. This led to a contract based arrangement with forage producers. In this arrangement, forage is exchanged for manure. The livestock keepers rely only on livestock production and use fodder produced through system integration. In return, they provide a certain amount of manure as organic source of soil fertilization to farmers. In addition, livestock credit has been developed to support and promote livestock based on the type of labor, experience in the domain and other available resources. Those arrangements are under construction and need to be documented and evaluated.

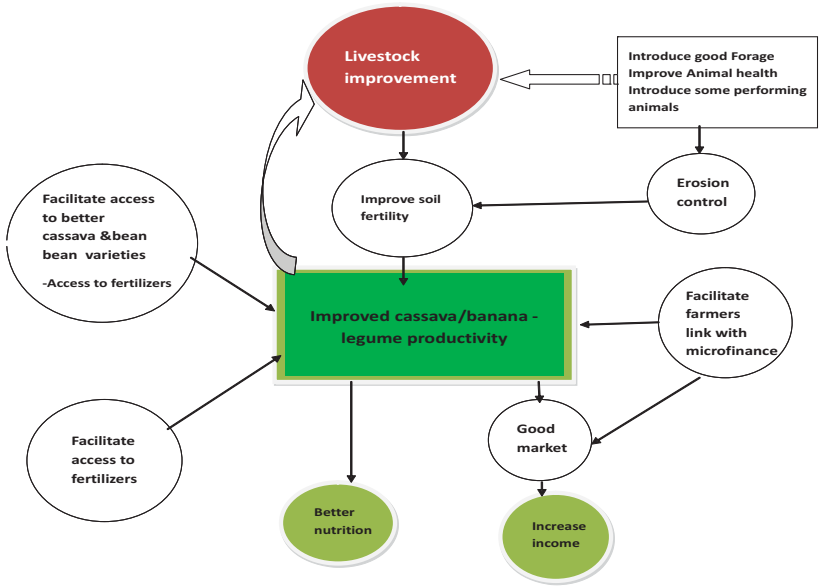

Figure 6.2: Improved Cassava/Banana -legume system through livestock integration in RD Congo

6.3.2 **Facilitation mechanism with R4DP and IP in RD Congo**

In RD Congo, the R4DP has been set up at provincial level and is managed by a committee composed of a chairman, a vice chairman, and a team of three persons in charge of monitoring and evaluation. At the IP level, the management committee is composed of a chairman, a vice-chairman and two persons in charge of mobilization. Like in the other cases mentioned above, the national facilitator is at the interface between the R4DP and the IP. He carries the following assignments within the R4DP: organizing meetings, communication and dispatching of information received from the flagship project, translation of information from English to French, monthly reporting, partnership development, and facilitation of R4DP missions to the field site.

The IP relies mostly on the skills of the national facilitator whose profile and experiences in research and development settings prevailed highly in his appointment at this position. The national facilitator is an agronomist who has 28 years of experience in research and development. He took a course in research for development at ICRA. He is currently working in the NGO DIOBASS and involved in Action Research activities. In this position, he holds critical knowledge of realities on the ground, and he is connected to many research and development partners and organizations such as projects, NGOs, and research institutes at national and international levels. He is also acquainted with various technologies in agricultural development. His moral credit and personality have been instrumental in catalyzing negotiations with agro-dealers who accepted to supply inputs such as pesticides and fertilizers to farmers' shops partly on credit. Farmers pay after the bean harvest. The input shop is managed by a special committee appointed for that purpose. The national facilitator is represented at IP level by a young and dynamic facilitator (also an agronomist) who organizes and holds once in two months a meeting with the IP members. He facilitates the planning of activities, conducts trials with IP members, and serves as channel of information and feedback between the IP and the national facilitator. He mobilizes IP members in collaboration with the IP committee and documents the overall process that is taking place. The trials conducted within the IP are sometimes described in theses by students especially from the Evangelical University of Bukavu (UEA). Activities carried out within the IP are supported and funded through the R4DP. This funding covers rent of the venue, transportation, research activities, communication, tools and kits for the experiments. Farmers on their side contribute to the process by organizing field meetings on their own, offer their fields to conduct experiments, and take part in the experiments. Meanwhile the facilitator maintains the contacts, organizes the meetings, monitors and evaluates, and does the reporting. The IP's impact on activities attracted political support from the Minister of Agriculture who is well engaged and supportive to the IP.

6.3.3 **Best profile of facilitator as perceived in DR Congo**

Congolese were asked to describe the ideal facilitator. The characteristics which they mentioned most are the following:

- Agronomist
- Have connections with various partners and stakeholders
- Have knowledge of the domain in which facilitation is required
- Have good knowledge of the realities in the action site or field site
- Able to communicate fluently in the local language
- Motivated, committed and passionate
- Able to relate easily to people (very sociable)
- Faithful
- Credible and honest
- Have quick understanding
- Available for quick intervention
- Knowledgeable in group animation
- Have great sense of role delegation and task division
- Negotiation skills (negotiation about the establishment of a shop for inputs funded by the Ministry of Agriculture to IP Mushinga)

6.4 Facilitation experiences from West Africa - Nigeria and Côte d'Ivoire

6.4.1 **Dynamics on the ground**

One R4DP and four IPs were created in Nigeria under the Humidtropics program. The four IPs are respectively Osunwoyin IP in Osun state covering six villages under two local governments, Iwara in Osun state covering seven villages under three local governments, Akindele in Oyo state covering seven villages under two local governments and Lagbedu in Oyo state covering five villages under two local governments. Before the advent of the Humidtropics program, farmers intercropped maize and cassava under cocoa. They also planted banana with cocoa with the rationale of using banana as shade provider to cocoa at the early stage. After the harvest of banana, cocoa plants were mature enough to stand alone. Under the Humidtropics program, cassava-legume intercropping was adopted. This was followed by raising awareness on the income that could be generated from plantain production. Such awareness has shifted the view of farmers from plantain being a mere shade provider to an income generating enterprise. To make best use of this opportunity, a banana cluster was formed and started functioning like a commodity based platform with the purpose of banana intensification. This platform enjoyed support and assistance from FARA. A facilitator was also appointed for this platform. Many farmers consequently intensified plantain

production. Plantains are currently grown in monoculture. Since maize is very common in this area and used as for food and income, farmers were provided with a short cycle variety of maize which completes its cycle in two or three months.

Trainings of Trainers (ToT) programs on the concept of IP, cassava-legume intercrop, land preparation, spacing, fertilizer application, pesticide application, and others were designed and sponsored by IFAD. With regards to plantain, farmers were given training in plantain cluster and plantain sucker multiplication. This training was given by the National Horticultural Research Institute (NIHORT), but funded by FARA, which also sponsored the establishment of a delivery shop in each of the four field sites providing working capital. In Osunwoyin IP, which is the most performing IP, the chemical shop is managed by one IP member who formerly was an input retailer. He got bankrupt and then joined the IP as cocoa seedling producer. He was supplying seedlings to cocoa growers until the opportunity to establish an input shop came in the IP. He then revived his input shop using the funds provided by FARA for farmers to get access to inputs. Akindele IP appeared to be the most challenged IP in Nigeria under Humidtropics, although it was set up using the same facilitation scheme. The challenges faced by this IP could be ascribed to (i) remoteness and lack of road infrastructure: the location is too distant and the road is bad, and (ii) the constant disagreement between groups of farmers: the platform was set up on political grounds. The first group of farmers belongs to the same political party. Along the process, members of other parties joined the IP. This nurtures constant discordance. As a result the input shop which was supposed to be established in Akindele was hijacked by a distant village, Olokogbora. This led to a conflict involving the local King of Akindele. Seeking a solution to the crisis, FARA set up a new input delivery shop in Akindele village.

The entry theme in Côte d'Ivoire, like in Nigeria, was the diversification and intensification of food crops in a cocoa-based farming system. The region of Soubré was selected to host the IP activities. Before the advent of the Humidtropics program, farmers mostly focused on cash crops (cocoa, coffee and rubber). Farming systems were less diversified with a scarcity of land to allocate to food crops. Three innovation clusters were established in three Cocoa Development Centers (CDC) immediately after the setting up of the R4DP in Abidjan. Those clusters consisted respectively of three farmers groups, four farmers groups and three women. Crop system integration with quick returns was pointed out as the most valuable to people within the selected communities. Cassava and legume integration was then identified to satisfy that purpose. In the three CDC, mother trials were set up with two improved varieties of cassava. Exchange visits were organized around those trials with discussion on the development of the varieties. After three months, many farmers who had not been involved in the clusters started demanding cassava cuttings because of the performance of those varieties in the field. At that time, the idea of innovation platform started to gain ground in the local communities. One innovation platform

was then set up in Soubré with rice value chain development as entry theme. Many other trials were set up involving thirteen localities: Wonsaely, Krohon, Meagui, Petit-Bondoukou, Dioulabougou-Bada, Bobouo 1, Djegnadou, Dabouyo, Bakayo, Kouamékro, Bobouo 2, Gallea, Grand-Zattry. Moreover, ideas relating to livestock integration surfaced. To date, 23 cassava mother trials were set up including some cassava-maize intercropping trials; three sites were allocated to trials on legumes, six maize mother trials were set up on a total area of 2 ha including some trials on maize and bean integration, three rice plots of 1 ha were planted, and more than 40 henhouses were built and roosters provided. Many training sessions were organized to support the dissemination of the innovations in the Nawa Region. These trainings were based on farmers' needs and included: (i) Fertilizer application in Cassava/Maize/Vegetable intercrops, (ii) Transformation of cassava into attiéké, (ii) Henhouse construction, fodder production, hygiene and prophylaxes. To respond to the demand for cassava cuttings by farmers, 1.5 ha of cassava was grown for cuttings and offered to beneficiaries at Kouamekro. Cassava processing dynamic was sustained with the provision of processing machines to local communities.

6.4.2 **Facilitation mechanism with R4DP and IP in Nigeria and Côte d'Ivoire**

In Nigeria, the overall facilitation is conducted by a national facilitator who is also a member of the R4DP. The R4DP decides upon activities to be carried out at IP level (based on constraints at IP level), manages the funds, develops proposals, and addresses issues raised at IP level. The R4DP also identifies opportunities for IPs. Constraints were pre-identified by the R4DP and then were validated by IP members during IP meetings.

The national facilitator is represented at each IP level by an IP facilitator. The national facilitator was an Agricultural Economist, lecturer at the University until he passed away and was replaced. He was a social person, outspoken and analytically minded. He held a wealth of experiences in many projects. He was in charge of the mobilization of stakeholders, partnerships, coordination of proposal writing and communication among stakeholders. The IP facilitators have the assignment to ensure that activities are carried out according to the proposals from R4DP, and to follow up on decisions taken at their IP meetings. They carry out such activities in close collaboration with an Executive Committee of five persons:

- A Chairman who convenes and presides meetings
- A Vice chairman who assists the chairman in his duties
- A Secretary who takes minutes, records, and does the reporting
- A Treasurer who manages funds
- A Public Relation Officer, in charge of communication and information including information about meetings.

The mechanism of facilitation in Côte d'Ivoire is very similar to that of Nigeria. The national facilitator, an Agronomist, is also member of the R4DP. He works in close connection with members of the R4DP. Due to his expertise he is often appointed to give trainings or to contribute to specific capacity building sessions. He relies strongly on the support and assistance of the West Africa flagship manager based in Nigeria and the System Integration Manager based in Kenya for the directions of activities, validation, and support and assistance. The backstopping role of those two managers from higher than national level has contributed greatly to the achievements and performance of IPs and innovation clusters in Côte d'Ivoire. The feedback to the R4DP is ensured directly through field visits and also through phone calls, email, minutes and reports by the national facilitator. Proper reporting from the field is ensured by the tight contact of the national facilitator with the innovation clusters set up in villages and the innovation platform in the Nawa region. Innovation clusters were mainly involved in participatory research trials and production and in income generating activities, while the IP endeavored to improve value chains to the benefit of smallholder farmers. Political support to the IP was ensured through the participation of local authorities in IP activities. The tight connection of the national facilitator with the IP facilitator allowed the information and feedback flows from R4DP to IP and vice-versa.

6.4.3 **Best profile of facilitator as perceived in West Africa**

Nigerians and Ivoirians, who were asked to describe the ideal facilitator, most mentioned the following characteristics:

Table 6.1: Ideal facilitator characteristics as mentioned by Nigerians and Ivoirians

As perceived in Nigeria	As perceived in Côte d'Ivoire
• Experienced in R&D program • Knowledgeable in the field and domain of intervention • Be able to coordinate activities • Good communicator • Speak the community language • Able to create trade-offs between donors and IP expectations • Good team manager and team player • Passionate and well engaged: total commitment	• Have vision • Psychologist, motivator and strategist • Available • Self-denial • Dedicated • Manager • Open minded and open to others • Capable to trust others • Knowledge of the country • Identify with the needs of farmers • Value the opinion of his collaborators

• Technical skills in the field of intervention • Identify with the needs of the community and of IP members	• Knowledge about sociology of the community • Love for the field • Credible and honest • Manage sensitivities • Have a sense of responsibility • Have a sense of anticipation • Firm at certain times

Adapted from Boogaard et al., 2013

6.5 Aggregated characteristics of the best facilitator in multi-stakeholder processes

Widely held agreement exists on most of the characteristics that distinguish the best facilitator in multi-stakeholders processes. These characteristics are related to personal attitudes, self-control and soft skills such as quick understanding, conflict resolution skills, honesty and credibility, sense of responsibility, self-denial, negotiation skills, etc. Some characteristics were related to the background of the facilitator and his/her past experiences, and were only mentioned in some countries, such as agronomist background, experiences in the R4D program, knowledge about the country and about the sociology of the selected community.

According to some facilitators, being an agronomist is critical and should come first among the defined criteria for appointing a facilitator. An agronomist has an understanding of the constraints affecting agriculture. He would have good contact and connection with partners and stakeholders in the domain, and may not have to struggle too much to get partners on board. This background gives him/her transversal skills and knowledge in both biological and social sciences. This would allow him to intervene quickly on issues to address in the platform, but also to easily identify and locate the needed expertise in any kind of area. Experience in a R&D program would strengthen the profile of the candidate and make him/her more suitable. However, most R&D programs in the field, although they claimed to impact the livelihood of communities, were not able to meet the expectations of actors at local level. They might also be limiting the outcome of the facilitator in the field. Some others mentioned simplicity and the ability to break great concepts and issues into small pieces to suit the knowledge level of actors on the ground as an import asset for any facilitator. This character trait is not easy to find, but in our sight very important since most farmers in SSA are illiterate. However, the neutrality requested from the facilitator should compel him/her to make trade-offs between expectations of donors and of communities in which the IP is operating.

Surprisingly, facilitation skills were not pointed out as affecting the challenged IPs, rather, those IP's performance was mainly held to be limited by poor road infrastructure and the distance to the facilitators' office. This distance does not only affect the frequency of visits and exchanges with facilitators, but also hampers the transportation of goods out of the location. These challenges related to distance prevailed in Bufundi IP in Kabale district in Uganda and Akindele IP in Osun State in Nigeria. It is worth noting that Bufundi IP was formerly identified as a performing IP under SSA-CP, but is now inhibited because of the state of the road. This IP made some arrangements with potato traders in Kampala, the capital of Uganda, but these traders soon stopped coming.

Table 6.2: Aggregated characteristics of the best facilitators in multi-stakeholder processes as learnt from field experiences

Criteria from the field	Uganda	RD Congo	Nigeria	Côte d'Ivoire
1. Agronomist background		+		+
2. Have connections with various partners and stakeholders		+		
3. Vision of the desired joint future	+			
4. Knowledgeable about facilitation support	+			
5. Knowledge of the country and about the sociology of the community				+
6. Experience in R&D programs			+	
7. Knowledgeable in the field of intervention			+	+
8. Speak the community language			+	
9. Interest and benefits	+			
10. Commitment and availability	+			
11. Able to document learning processes	+			
12. Personal Mastery of Soft skills (Conflict resolution, teamwork, flexibility, communication, social intelligence, management of change, quick understanding)	+	+		

13. Transparency and Trust	+	+		
14. Ability to speak a simple, non specialist language and to break things down into small pieces	+			
15. Encouraging participation of stakeholders	+			
16. Good listener who maintains neutrality	+			
17. Ability to question	+			
18. Fostering joint ownership of the process	+			
19. Flexibility, ability to switch plans and pathways	+			
20. Judge context of operation and switch tools (e.g. considering conflict areas, culture, gender)	+			
20. Ability to learn continuously	+			
21. Good leadership skills	+			
22. Be able to coordinate activities			+	
23. Able to create trade-offs between donors' and IP expectations			+	
24. Passionate and well engaged: total commitment and dedication		+	+	+
25. Technical skills in the field of intervention		+	+	
26. Identify with the needs of the community and of IP members		+	+	
27. Available for quick intervention		+		+
28. Psychologist, motivator and strategist				+
29. Self-denial				+
30. Ability to delegate and divide tasks		+		

31. Open minded and open to others				+
33. Value the opinion of his collaborators				+
34. Love to the field				+
35. Credible and honest				+
36. Respect all interests				+
37. Have a sense of responsibility				+
38. Have a sense of anticipation				+
39. Firm when needed				+
40. Having tools and skills of facilitation	+			

6.6 Remarks, lessons learnt and conclusions

6.6.1 Remarks

Innovation Platforms undergo in general three growth phases. The first corresponds to the nurturing phase in which the IP needs great care, support and assistance from R&D organizations as depicted in Figure 3. The second phase is the one in which the IP starts developing independence by taking initiatives like being involved in a specific contract based arrangement and providing the contracted product in the required quality and quantity. The third phase could be referred to as the phase of reinforcement of the achievements, also known as sustainable phase where the IP takes total ownership of the overall process and relies only on outside facilitation (backstopping) on demand. In this phase, leadership is almost or totally removed from R&D organizations and handed over to IP leaders. In this phase, the context has also been worked out to sustain and promote the various enterprises which have been brought about by the IP activities.

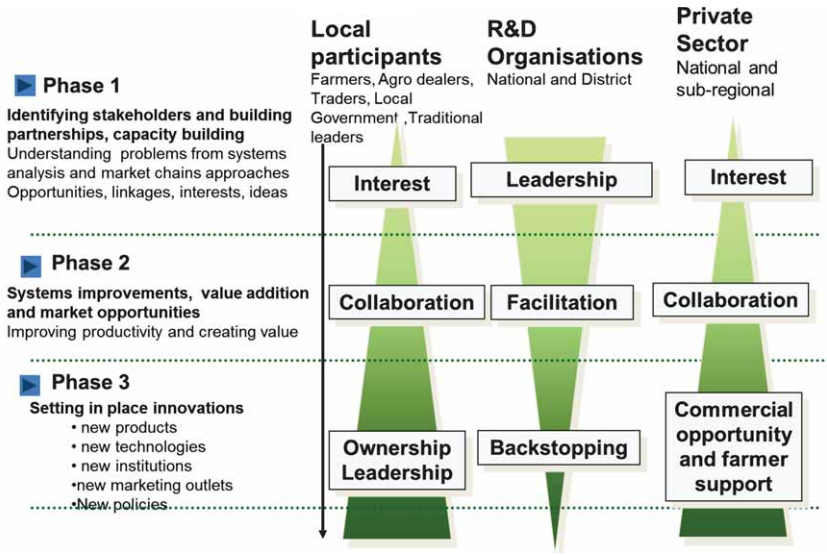

Figure 6.3: Phased IP process approach

Overall, seven IPs were investigated in this study, three in Uganda (KABIP, Bubaare IP and Bufundi IP), one in RD Congo (Chokala IP), two in Nigeria (Osunwoyin IP and Akindele IP) and one in Côte d'Ivoire (Soubré IP). Data gathered and presented in this study allow to locate each of these IPs on the growth scale based on their maturity. KABIP and Bubaare IP could be located at

phase 3 while Bufundi at phase 2. The positioning of KABIP and Bubaare IP at this phase is due to the extent of the ownership gained by these IP, exemplified by their structuring from the ground to the top, and the recent renewal of their body of governance. Also, their registration as cooperatives gives these IPs legitimacy to operate as legal entities, especially in the case of Bubaare IP. The identification of a processing company like Huntex with which contract based arrangements have been set up, as well as the successful implementation of the VSLA concept contribute to sustaining these IPs. Bufundi IP could have been at the same phase, but the poor infrastructure and the intensity of land degradation (erosion, landslides, nutrient depletion) have greatly hampered the efforts made by this IP and the degree of their exposure to facilitation and visits. Continuous efforts are required for these IPs to keep their position and to become more sustainable.

Chokala IP, Osunwoyin IP and Soubré IP and their respective clusters could almost be classified as being in phase 2, but the important number of trials these IPs are involved in, the intensity of the ongoing facilitation, support and assistance provided to those IPs and to the clusters call into question how far these IPs could take over activities without such support and assistance. Although many personal initiatives by members of these IPs to diffuse varieties and other technologies were recorded, collective action and local mechanisms for self mobilization, internal decision making and self implementation of action plans by these IPs still need to be constructed and promoted, so that the R&D facilitation can withdraw to a backstopping-on-demand role.

Being at phase 1 does not mean having no impact. Even at this phase, the knowledge acquired through the various training sessions could be valued by farmers in various ways in their own fields. But the leadership that could bring the team to the desired end may be lacking. Each R&D facilitation should be done with the expectation to be replicated through local leadership or local facilitators identified and trained accordingly.

Most of the challenges faced by IPs in Nigeria may be connected to the fact that they are set up under a multiparty system in villages where supporters of different political parties are reluctant to cooperate within the same IP. It could be advisable to look for a place where cohesion could be easily created without being disturbed along the process by factors that could be identified and avoided from the onset. The political conflict recorded in Akindele IP could be seen as an example.

6.6.2 **Lessons learnt**

Some lessons have been learnt for facilitation to be carried out and to move IPs toward sustainability:

1. A sustainable IP operates in continuous cycles of activities involving many commodities and is linked to local farming systems.
2. A sustainable IP is composed of private and public partners of whom many understand the relevance of their interdependence within the IP.
3. A good IP or sustainable IP is one in which all involved organizations are interdependent for the growth of their activities. They may not be strong from the beginning, but rely on each other to grow. This is the case of Bubaare IP, HUNTEX, and SACCO in Uganda. Connection with great companies from the beginning may end up in failure.
4. A sustainable IP builds its entry point on quick win commodities or technologies. The innovation cluster in Côte d'Ivoire is our best example in that case. Cassava is among the most consumed food crops in Côte d'Ivoire. The new technologies attracted even when they were still under trial many demands from people who were not involved in experimentations.
5. A sustainable IP is founded in strong social capital like in Bubaare IP and KABIP who are engaged in continuous formation of SHGs.
6. In a sustainable IP, facilitation is managed tightly through a suitable and replicable mechanism for a relatively long time.

6.6.3 **Conclusion**

The success of facilitation is site specific but also depends on the facilitator's background, personal attitudes and knowledge about the community, its sociology, as well as the quality of infrastructure available in the area. Talks about African agricultural transformation remain empty words without political engagement for infrastructure construction, especially roads.

Most of the experiences of platforms under Humidtropics still need a push forward, a push to help local leaders or facilitators to take over and to access required support and assistance on a demand basis. Leaving the platforms without unsolicited outside intervention at their current stage would probably lead to the loss of the efforts and investments which have been channeled toward those IPs. Special advocacy is really needed from FARA and other organizations at continental level to mobilize attention and resources to pursue the work in order to bring those platforms to level 2 or level 3.

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7.0

General Conclusion

This book documented facilitation experiences with some R4DPs and IPs in East, Central and West African countries. It drew lessons from successful and challenged IPs in Uganda, RD Congo, Côte d'Ivoire and Nigeria, with the purpose to inform any further initiative in multi-stakeholder processes (MSP) on how facilitation could be carried out to meet the expectations of communities and to contribute to the transformation of agriculture in Africa. It started indicating the complexity of the IAR4D approach and multi-stakeholder processes, outlined many theories, concepts and experiences that are attached to it, and presented reflections on how to implement such theories in practice. It also highlighted facilitation as a tool for a successful implementation of the IAR4D approach, while relating it with the various levels at which platforms could be set up. Finally, some ongoing experiences with R4DPs and IPs under the Humidtropics program served as cases to generate insight in the skills required from a good IP-facilitator. We observed two types of IPs in the selected countries. The first ones are those IPs set up under SSA-CP and who transitioned to the Humidtropics program; while the seconds are those directly formed under the Humidtropics program.

The transition from SSA-CP to Humidtropics has shown strengths and weaknesses of both commodity value chain and system integration approaches in addressing challenges of SSA agriculture and delivering the expected results. Our analysis also shows how the two approaches may complement each other. One important weakness of commodity value chains is their limited resilience to external shocks, and the fact that the approach does not reflect the reality of most farming systems. But the approach has the advantage that IAR4D can quite easily be appropriately applied to the material (read: agricultural products) which the value chains offer. In reality, it does not add to the complexity of the IAR4D itself. On the other side, the system integration approach emerged in order to approximate farmers' practices, which are rooted on many commodities at the same time. But the management of a system integration approach through multi-stakeholder processes is difficult, because it requires actors to address many issues with many commodities at the same time. It is appears common in such processes for one commodity to prevail on the rest, and for each farmer to prefer one particular commodity, at least at the onset of the process. As the process is going on it starts building itself, requiring another crop or value adding activities. This could be exemplified by Bubaare IP's experiences in Kabale district (Uganda) where the IP was formed under SSA-CP in response to challenges related to sorghum, including low productivity and low soil fertility. Those challenges were successfully addressed and productivity increased, inviting value adding activities to take place. Under Humidtropics the IP found it necessary to add another crop. Potato was selected based on its role in food security and income generation. This first step towards system integration was constructed with the rationale of ensuring a sustainability that could not be guaranteed with only one crop. It is then obvious to start with one commodity and enlarge the scope by widening the focus to other commodities which are well integrated and easy to manage together with the first commodity.

The study found out that it had been difficult to implement the IAR4D approach with the fullness of its benefits within a project time frame, owing to its complexity. A five years program may not be sufficient to allow the IAR4D to be grounded and start showing impact before the project's ending. It is then necessary to engage governments or national agricultural research and development organizations to take over after the ending of the project in order to allow the continuation of its activities for some years. It appears necessary to institutionalize the transfer of 5 year old IPs from their first to a second sponsor. In Uganda, a community of practice was set up within the University of Makerere to ensure among others the institutionalization of this transfer, starting with its integration in the curricula. This community of practice is composed of lecturers from natural and social science backgrounds who have started paying visits to the various IPs in order to take over the management of those IPs after the end of the Humidtropics program. The mobilization and task delegation skills of the national facilitator, who was himself a lecturer at Makerere, have contributed a lot to this achievement. This national facilitator endeavored to involve his colleagues to facilitate some IPs under his supervision. Currently, two master students and one PhD student have been appointed to document the overall ongoing IP experiences. This Uganda experience is unique and could better other initiatives of institutionalization.

Reflecting on the functioning of platforms at area site level in the four countries, it appeared that R4DPs were more inclined to play a backstopping role and provide assistance to the national facilitator than to assume the strategic role assigned to them. In fact, the strategic role of these platforms did not become clear through our interviews. From our analysis, the contribution of R4DPs had little impact on the achievements of IPs on the ground, apart from their technical support and assistance which relied mostly on individual expertise. This may be due to the brevity of the program, which cut short the process for ensuring impact. In most cases, the individual expertise was requested by the national facilitator when the need arose. Appointment of a national facilitator with a special team (like in Uganda) may help to solve issues raised on the ground and to connect to political decision makers. The fact that the R4DPs mostly involve international research organizations could be a hindrance in achieving this goal. Moreover, the practice to establish R4DPs before the IPs at the ground as in Côte d'Ivoire, DR Congo and Nigeria seems contribute to position the R4DPs in a superior position of decision making, and keeps the IPs from assuming strategic roles. Even if those decisions regarding trials and commodities or selection of system integration were validated by IPs on the ground, this seems not to stimulate reflection and dynamics on the ground. Looking at all the IPs from that perspective, it is clear that Uganda's IPs displayed more dynamics on the ground and more local initiatives than IPs in DR Congo, Nigeria and Côte d'Ivoire, and that R4DPs and their related IPs are mostly field research oriented. Another step toward the achievement of developmental goals is then required. Effort in this direction has already been made but still needs to be consolidated and sustained.

The literature reviewed in Chapter 4 suggests that facilitation is a key determinant of IP success or failure. We therefore paid particular attention to the facilitators and facilitation arrangements of the cases which we studied. We observed that the two most challenged IPs were under the same facilitation mechanism and partly under the same facilitators as some of the IPs identified as performing. Our informants blame the underperformance of those IPs not on the quality and skill of facilitators, but mostly on the quality of road infrastructure and on the distance between the locations of the IP and the place where facilitators were based.

[Even with the presence of facilitators close to the place where the IP is established], One key finding that emerged from the analysis of one challenged IP is to avoid organizing IPs on political ground, so that the risk of having to address political concerns at a later stage can be reduced. Akindele IP in Nigeria is an example where a political conflict arose leading to a fragmentation of the existing cohesion. Although the unity is currently being reestablished, the initial conflict greatly affected the performance of this IP. This effort invested in conflict pacification could have been avoided and directed instead toward the platform's agricultural innovation tasks.

There is an important need to accelerate the development of road infrastructures to allow quick transportation of goods and individuals. This was also identified as important factor in the success of facilitation as well as for the performance of the IPs. Transformation of SSA agriculture could be stimulated by addressing developmental issues at the nexus of road infrastructure simultaneously with IAR4D implementation. This would create a conducive environment for IPs to successfully carry out their activities.

The management of funds was indicated to go through a heavy administrative process before reaching the IP. Some IPs complained of not being able to access the funds until the end of the process, especially those related to cluster IV. These IPs had no plan B or mechanism to bypass obstacles with regard to IP funding. It is advisable for further MSP approach implementation to draw lessons from this experience. For the sake of comparison, similar cases with facilitation as a context dependent factor could be analyzed. Through the personal skills and abilities of their national facilitators some IPs were able to attract funds directly from Humidtropics and from other sources like FARA to make some achievements. This was the case in Côte d'Ivoire with a national facilitator relying on assistance from the flagship project manager and the system integration manager. Such skills are highly needed for funds to continue to flow.

We asked actors in the field which personal characteristics and skills the ideal facilitators should have. The skills they mentioned have not only to do with personal and technical skills, but also with their agronomist backgrounds, their past experiences in R&D projects; and knowledge of the realities of communities in which MSP is going to be implemented. But, as reminded in Chapter 6, experience

with R&D might also be a hindrance, because most past experiences with other R&D projects left people in local communities with bitter memories, frustrations and dissatisfactions. In case of difficulty to find an expert who fulfills all the desired criteria, one should not refrain from appointing someone who meets most of the skills desired by our informants in the field.

Lastly, the Humidtropics program developed its agenda to reach impact at scale in fifteen years, but has decided to stop abruptly after 5 years. Without knowing the exact motivation of such a decision, our opinion is that it could be difficult to attain such impacts at scale after five years. Activities that were reserved for the first five years might have been just the foundation for reaching impact at scale during the next ten years. This means that Humidtropics' projects might possibly need continuation with other projects or government as sponsor to build on the achievements of the first five years. In Côte d'Ivoire for example, the various trials conducted during the first few years have fostered great expectations with regard to productivity improvement and change among members of the communities where such experiences have been carried out. The enthusiasm of people from these communities is still very high. Stopping the program activities at this level would be considered 'suicide' of the emerging initiatives or a waste of resources invested so far. Advocacy to pursue activities until these IPs become sustainable (self-organizing) platforms is required, as well as refining the way how facilitation has been conducted so far. The various topics on facilitation addressed in this book may help to find good directions in this endeavor. We recommend that FARA and Humidtropics study thoroughly this book to design new ways of facilitation for other programs involving MSP.

About FARA

The Forum for Agricultural Research in Africa (FARA) is the apex continental organization responsible for coordinating agricultural research for development (AR4D) in Africa so as to increase its efficiency and effectiveness. It serves as the entry point for agricultural research initiatives designed to have a continental reach or a sub-continental reach spanning more than one sub-region.

FARA serves as the technical arm of the African Union Commission (AUC) on matters concerning agricultural science, technology and innovation. It provides a continental forum for stakeholders in AR4D to shape the vision and agenda for the sector and to mobilize them to respond to key continent-wide development frameworks, notably the Comprehensive Africa Agriculture Development Program (CAADP) of the African Union (AU) and the New Partnership for Africa's Development (NEPAD).

FARA's vision:
Reduced poverty in Africa because 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 through strengthening of the capacity for agricultural innovation across the continent

FARA's value proposition:
Strengthening Africa's capacity for innovation and transformation by visioning its strategic direction, integrating its capacities for change and creating an enabling policy environment

FARA's strategic direction is derived from and aligned with the Science Agenda for Agriculture in Africa (S3A), which is, in turn, designed to support the realization of the CAADP vision of shared prosperity and improved livelihoods.

FARA's programme is organized around three strategic priorities (SPs), namely:
Visioning Africa's agricultural transformation through foresight, strategic analysis and partnerships to enable Africa to determine the future of its agriculture, using proactive approaches to exploit opportunities in agribusiness, trade and markets, taking the best advantage of emerging sciences, technologies and risk mitigation practices and approaches, and harnessing the combined strengths of public and private stakeholders.

Integrating capacities for change by making different actors aware of each other's capacities and contributions, connecting institutions and matching capacity supply to demand, so as to create consolidated, high-capacity and effective African agricultural innovation systems that can use institutional comparative advantages to mutual benefit while strengthening individual and institutional capacities.

Enabling environment for implementation, initially through evidence-based advocacy, communication and widespread stakeholder awareness and engagement to generate enabling policies and institutions, then by ensuring the stakeholder support required for the sustainable implementation of program for African agricultural innovation.

Key to these outcomes is the delivery of three important results, which respond to the strategic priorities expressed by FARA's clients. These are:

Key Result 1: Stakeholders empowered to determine how the sector should be transformed and to undertake collective actions in a gender-sensitive manner
Key Result 2: Strengthened and integrated continental capacity that responds to stakeholder demands in a gender-sensitive manner
Key Result 3: Enabling environment for increased AR4D investment and implementation of agricultural innovation systems in a gender-sensitive manner.

FARA's development partners are the African Development Bank (AfDB), the Canadian Department of Foreign Affairs, Trade and Development (DFATD), CGIAR, the Danish International Development Agency (DANIDA), the UK's Department for International Development (DFID), the European Commission (EC), the governments of the Netherlands and Italy, the Norwegian Agency for Development Cooperation (NORAD), the Australian Agency for International Development (AusAiD) and the World Bank.

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About the Humidtropics Program

The Integrated Systems for the Humid Tropics tagged **"Humidtropics"**. Is part of the first generation CGIAR Research Program (CRP). This program seeks to transform the lives of the rural poor in the humid lowlands, moist savannas and tropical highlands in three major Impact Zones of sub-Saharan Africa and tropical America and Asia. These areas of the world have an estimated population of 2.9 billion people, mostly resource poor smallholder farmers. Humidtropics research is guided by the Hypothesis that "A range of livelihood strategies exists within the humid tropics where poverty reduction, balanced household nutrition, system productivity and natural resource integrity are most effectively achieved and contribute best to human welfare.

The Humidtropics program embraces the systems approach to generate sustainable solutions to agricultural productivity problems through high quality research. It also uses the innovation systems approach as a mechanism for generating impact. The expected intermediate development outcomes from the Humidtropics activities include: Income, Productivity, Gender, Environment, Innovation capacity, Nutrition.

FARA is one of the non-CGIAR partners participating actively in the Humidtropics program. FARA is active in the two-action area in Africa viz., West Africa Humid Lowlands (WA), East and Central Africa Highlands (ECA) bringing its experiences in the innovation systems approach with IAR4D concept to bear.

CGIAR

RESEARCH PROGRAM ON
Integrated Systems for the Humid Tropics

a legacy product of the CGIAR Humidtropics program

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