



Research Into Use *sharing lessons to enable innovation in agriculture*

PUTTING VALUE CHAIN ORIENTED RNRRS OUTPUTS INTO USE IN ASIA: CURRENT STAGE OF LESSON LEARNING

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Introduction

Ten years (1995-2006) of research, funded by DFID's Renewable Natural Resources Research Strategy (RNRRS), has generated new knowledge that is expected to address the needs of poor communities living in Asia and Sub-Saharan Africa (SSA). Subsequent to this, the Research into Use programme (RIU) was undertaken with an aim to maximise the poverty-reducing impacts with the newly generated knowledge. In practice it is about putting into use the knowledge generated by RNRRS in wider areas to reach larger sections of the communities and have positive impacts on their livelihoods. To be effective, it could only be done through a context-embedded process involving relevant stakeholders. In line with this thinking, different agencies implementing RIU components are trying different approaches in Asia and SSA. All these approaches have potential to generate lessons, which could be used for planning future research for development interventions. The Central Research Team (CRT), commissioned by RIU, is trying to synthesize these lessons, with focus on the processes involved in putting into use of the knowledge.

Among these diverse initiatives, a group of RIU projects in Asia are putting into use value-chain oriented knowledge generated from RNRRS initiatives. For the convenience of synthesizing lessons, the CRT has classified them under the opportunity-led innovations category. For this category, it is hypothesized that "opportunities presented by large markets of poor people are leading the emergence of new types of innovation processes and products. Also emerging are innovation process that are invisible to research and corporate communities due to alternative professional views of excellence and success. These are described in various forms such as 'bottom of the pyramid' innovation and 'below the radar' innovation. Innovation along value chains is a key feature of these developments."

This write-up briefly presents these value chain oriented projects, including strands of research that contributed for development of these initiatives, current stage of lesson synthesizing efforts and type of potential lessons that could be generated from the synthesis.

The value chain oriented projects – evolution of their respective approaches

Three initiatives of RIU in Asia are dealing with value chains by following three different approaches. One initiative in Nepal is adapting and adopting an approach, developed in a different geographical location for a different commodity, for linking vegetable growers to markets. The

second initiative in India is trying to connect producers of under-used crops with the market, through a multi-pronged approach that was developed based on components that were validated in different geographical locations for different commodities. The third initiative is developing fish seed value chain in Bangladesh, by adopting an approach that was developed in the same geographical location for the same commodity. The following section presents details of these three initiatives.

Case 1 Developing fish seed value chain in Bangladesh

Rangpur-Dinajpur Rural Services (RDRS) is an NGO that is working with a consortium of organizations in northern Bangladesh to put into wider use an approach called Decentralized (fish) Seed Production (DSP). This approach is expected to decentralize fish fingerling production by bringing rice field farmers and seasonal pond owners into the fish-seed value chain. They will make simple adjustments to their farming situations and produce fish fingerlings. This is expected to increase availability and address the problem of severe shortages of quality fish fingerlings in the area. This approach was originally developed in the same region, as part of a series of research and development initiatives, during a period spanning about ten years. In order to scale-out this approach in a larger area, some innovations around fish-seed value chains were necessary. Different actors, independently and in consultation with each others, are involved in those innovations.

Development of DSP in Bangladesh

Four groups of independent research, not necessarily undertaken with logical connections, seem to have underpinned the development of DSP approach. They are:

- Research on cultivating fingerlings in *hapas* (captive breeding and growing) and its subsequent adaptation research in different Southeast Asian countries
- Genetically Improved Farmed Tilapia (GIFT) development (number of years of selective breeding from eight different natural sources of tilapia) and its subsequent introduction into many Asian countries
- Rice field-based fish seed production and development of its value chain – participatory research by integrating local knowledge and researchers’ findings and development of the capacity of the system
- Establishing beneficial impacts of DSP on the livelihoods of rice farmers, fingerling traders, environment, etc. and subsequent promotion through media

The key stages in the development of DSP are presented in the following table.

Table 1 Timeline of events that led to the development of DSP in Bangladesh

Period	Significant event
	<ul style="list-style-type: none"> Rice fields used to contain natural fish and other aquatic animals There was local knowledge about fish seed production of common carp in ponds (collecting eggs using water hyacinth and stocking in newly constructed ditches to get the hatchlings which grown up to fry/fingerling)
1980s	<ul style="list-style-type: none"> Research work of AIT about cultivating fingerlings in <i>hapas</i> and spreading the success in Cambodia, Vietnam, Thailand and Laos through AIT's outreach project contributed to development of the decentralised seed production concept
1991	<ul style="list-style-type: none"> On-farm trial on translocating common carp eggs with aquatic plants from ponds/ditches into rice fields to produce fingerling and use it for table fish production as part of Northwest Fisheries Extension Project (NFEP). The DoF implemented the project during 1987 to 2001 with CARE, DAE and partner NGOs of CARE.
1994	<ul style="list-style-type: none"> GIFT was introduced into Bangladesh by BFRI through ADB's DEGITA (Dissemination and Evaluation of Genetically Improved Tilapia in Asia) Project. Their focus was performance trials to compare with previous strain with GIFT strain (on-station and on-farm trials). Production of GIFT seed in public and private hatcheries was promoted in order to supply to farmers (mostly mono-sex seed). This is a centralised seed production system
1999	<ul style="list-style-type: none"> GIFT seed in production in rice fields trialled in farmer participatory experiments as part of PhD research (from Asian Institute of Technology, Thailand) under NFEP, using ideas from research carried out in Northern Vietnam Following successful outcomes this was promoted in NW Bangladesh (8 districts) by CARE as part of the Inter-Fish Project (1995-2000)
2001-2005	<ul style="list-style-type: none"> Promoted largely in NW areas by CARE under the GO Inter-Fish project (2000-2005) with other stakeholders
2002	<ul style="list-style-type: none"> Impacts/ scaling up was studied by WorldFish Centre and University of Sterling, UK as part of Post-doctoral research Follow up impact studies conducted as part of additional PhD research from University of Sterling
2003-2004	<ul style="list-style-type: none"> WorldFish promoted DSP through their Decentralization of Sustainable Aquaculture Project (DSAP) (2000-2006) with around 40 NGOs throughout Bangladesh – focus on awareness and training of NGO staff on DSP
2003	<ul style="list-style-type: none"> DSP was promoted in Vietnam through Support for Freshwater Aquaculture (SUFA) project in hilly areas of two Northern provinces
2007-2009	<ul style="list-style-type: none"> WorldFish promoted DSP with common carp, GIFT and carps in rice-fields through their Adivasi Fisheries Project in NW (Rangpur, Dinajpur and Jaypurhat District) and N (Sherpur and Netrokona District) Bangladesh

Advancement of knowledge that contributed to development of the DSP approach can be traced back to a series of research and development efforts about developing appropriate hatchery system for low-cost freshwater fish by the Asian Institute of Technology (AIT). They collaborated with the WorldFish Centre, Institute of Aquaculture of the University of Sterling, UK, local government departments and NGOs in these efforts. As a result, technologies for tilapias in both commercial and smallholder situations (Little, 1989; Macintosh & Little, 1994, Hulata and Little, 2002), small carps such as the silver barb (*Puntius gonionotus*) (Djamanto, Little & Nietes, 1995; Kheang, 1994) and snakeskin gourami (Yoonpundh & Little, 1996, 1997; Yoonpundh, 1997) were developed or refined. Through their Aquaculture Outreach project, they promoted improved availability of quality fish seed at the farm gate. They promoted different approaches to suit different conditions; for example, in Northeast Thailand, where small fry are available through well developed trading networks, they introduced advanced nursing in *hapas* (fine mesh net cage) of

their own fry to farmers. In case of Laos and Cambodia, they institutionalized the development of simple hatchery, nursery and distribution systems (Haitook, 1997, Gregory & Little, 1997). During such efforts, the importance and usefulness of seed production by farmers or seed production with greater involvement of farmers was established (Gregory, Innes-Taylor, Guttman and Little 1997).

Some research efforts have advanced the knowledge base about the complex and dynamic nature of freshwater fish seed production in the region. Some key ones are the works of Surintaraseree (1988) and Middendorp & Verreth (1986) about carps and tilapias in NE Thailand; Hossain, (1995), Hassan, Edwards & Little (1996) and AIT Aqua Outreach (1997) about carps and tilapia in Bangladesh; Nguyen (1997) and Barman (1997) about carps and tilapias in Northern Vietnam and Northwest Bangladesh.

These advancements in knowledge formed the base for a research project on “Improving fresh water seed supply and performance in smallholder aquatic systems in Asia”. This project was financed by DFID and implemented by a consortium of University of Sterling, UK, the Worldfish Centre and the AIT. This project clarified many perceptions and further advanced the knowledge about freshwater fish seed production in Asia. The key ones are presented in Box 1. More importantly, this project further elaborated the relevance of Decentralized (fish) Seed Production (DSP) approach in the area.

Box 1

Key perceptions clarified by project on “Improving fresh water seed supply and performance in smallholder aquatic systems in Asia” (as given in the Project final report)

- The prevailing view that the major constraint to improving the value of seed being primarily through improved genetic management is misconceived. The project outputs indicate that changes in management during production and delivery can have greater, more immediate and, probably, more sustained impacts on the availability of quality seed for rural producers.
- The view that centralized Government seed is better quality and more reliable than that which can be produced by either clusters of private hatcheries or, for some species and situations, local people in rural areas was challenged. The project has documented major impacts on poor livelihoods of the decentralized production of mixed sex Nile tilapia. High quality Nile tilapia are in high demand in Northern Vietnam and Bangladesh and the project has disseminated important findings that should orientate policy towards this approach rather than an inappropriate high-tech, centralized mono-sex approach.
- Initial expectations by the project and its partners that seed quality could be improved through the development of appropriate tests were soon largely rejected as the complexity of the systems and the causes of poor quality were identified. A process led approach was initiated that led to key stakeholders viewing improvement in seed quality as a *process* rather than a *product*.

Case 2 Diversifying incomes through underused crops in India

The International Centre for Underutilized Crops (ICUC) is implementing/ piloting a multi-pronged approach to support promotion of underused crops in India. Different components of this approach

were developed and evaluated in different geographical regions for different commodities. This approach is expected to result in innovations around value chains of underused crops (UC) and connect smallholder producers of UCs to wider markets to support their livelihoods.

The approach has three essential components: Village Crop Fairs (VCF); Community Germplasm Orchards (CGO); and Food Processing Parks (FPP). The Village Crop Fairs, organized periodically, are the places where community members access information and discuss about potential UC, their production and utilization. They also select germplasm of suitable UC. The Community Germplasm Orchards take suggestions from the VCF and multiply and maintain planting material of selected UC, for supplying to interested producers. The Food Processing Parks are integrated resource centres where producers can access services for post-harvest, processing and marketing of UC. These FPP contain infrastructure for post-harvest operations, knowledge and information about all aspects of UC and facilitation services to connect producers to different service providers. The Annual Knowledge Fairs (AKF), organized annually at the project locations, provide opportunities for showcasing project initiatives to diverse audience, scaling up/out of activities and policy advocacy.

BAIF, which is the local partner in India, has extensive experience in establishing horticulture/forestry orchards in farmers' private lands through their *Wadi* programme and fruit processing facilities through their *Vrindavan* programme. These experiences form the base for the multi-pronged approach. The FPP are based on the foundations laid by the *Vrindavan* programme, while the *Wadi* forms the base for production of UC.

Development of the approach

Initial efforts through knowledge dissemination

Research and development efforts to unlock the potential of UC to support rural livelihoods have been a long-standing proposition by some sections of intellectual community. The ICUC was founded in 1992 by such people at the University of Southampton, UK. In the initial stages they were mainly involved in farmers' participatory surveys, agronomic trials on production and post-harvest technologies, and publishing extension literature in local languages. Simultaneously they promoted regional networks such as Underutilized Tropical Fruits in Asia Network (UTFANET) and Southern and East Africa Network for Underutilized Crops (SEANEU) for wider dissemination of knowledge and information about underused crops.

The Forestry Research Programme (FRP) of DFID is another agency that had been actively promoting research and development initiatives concerning UC. Their initial efforts focused on supporting research projects to look into the use of dryzone hardwoods to address fuel and fodder shortages faced by local rural communities. In the later stages, they supported research projects on locally important fruit trees, after identifying their potential role in supporting rural livelihoods. They collaborated with the International Centre for Research on Agro-forestry (ICRAF) and supported initiatives to collect and synthesize scattered knowledge about major species of indigenous tropical and sub-tropical fruits into monographs which are then widely distributed. They also supported research projects to determine the importance of such fruit trees are in the household and community livelihoods, and the constraints in increasing incomes or diminishing vulnerability through enhanced production, processing or marketing of fruits.

In 1996, a scientific conference at the University of Southampton, organized by ICUC, highlighted the need for developing monographs on key UC, which was reiterated in the subsequent regional meetings of UTFANET, SEANUC and MESFIN. These suggestions prompted ICUC to develop a project proposal to that effect and approach FRP for financial support. Approval from FRP resulted in the Fruits for the Future programme which was implemented from 1998 to 2001, with objectives such as production of 5 books, extension manuals/ pamphlets and annotated bibliography on selected species of tropical fruit tree biodiversity, culture, produce, post-harvest, and processing and marketing; production of media materials; and to disseminate technology to target institutions including ICRAF, IPGRI, CIFOR, NGOs, farmers associations, extension officers, capacity building institutions, traders and industries.

During the same period FRP supported projects such as the 'Wambui' Project in Kenya (RNRRS-R7425) which enlarged the knowledge about packaging of information material for up-scaling. This small research project in Kenya also demonstrated that places of social interaction such as churches can be better employed for conveying messages.

At this stage the general assumption seems to be that of collating and disseminating knowledge about production and processing of UC, would ensure putting that knowledge into use for the benefit of community members.

Increased knowledge on broader engagement with diverse stakeholders

While implementing the Fruits for the Future programme, ICUC developed working relationships with implementing partners in different countries. These implementing partners were primarily engaged for implementing farmers' participatory surveys, collecting local knowledge and disseminating the extension material that was developed through the program. During this association, they realized that making knowledge available addressed only one aspect of the problem. There were other constraints for promoting UC, such as – lack of free access to plant propagation material of required species; unavailability of post-harvest and processing technologies; and lack of linkages to markets and other service providers.

There were supporting evidences from the research efforts of ICUC and its partners (Anthony & Haq 1997, Haq, 2000, ICUC 2000) and discussions at a Regional Consultation meeting (Haq & Hughes, 2002) that the main hurdle in promoting UC was the existing gap in information on the present status of harvesting and post-harvest handling and on the processing and packaging technology for underutilized fruits. They also found that this technology has been developed by national research systems and is lying in the laboratory shelves and has not reached the village level processors or the small scale entrepreneurs. Moreover the technology developed by research stations needed to be evaluated and adapted for local suitability, as these UC have different characteristics and applications in different places of the same country.

The work of Vinning & Moody (1997) highlighted the problems faced by small-scale entrepreneurs. It concluded that they produce only low quality products and hence find it difficult to market them and attract good price. Lack of business skills poses challenges in sustaining their ventures. It also remarked that the capacity building efforts should not only focus on technical know-how but also deal with understanding processes involved in changes in farming and marketing practices.

Based on this learning, ICUC carried out a survey in 5 countries (Bangladesh, India, Nepal, Sri Lanka and Vietnam) in 2002 involving stakeholders to understand the need for research to overcome these constraints. After initial analysis of the survey results, ICUC carried out a series of discussion meetings with its network partner countries involving community groups such as women and youth groups, village level producers, NGOs, researchers and small entrepreneurs in Bangladesh, Sri Lanka and in India.

These consultations and learning formed the base for planning subsequent projects, such as the DFID supported project on “Improved livelihoods through the development of small-scale fruit processing enterprises in Asia” (RNRRS-8399), in which ICUC built capacities of local partners in the production and processing of UC. These local partners were then expected to promote potential entrepreneurs to set up production and processing facilities, so that producers of UC benefit from these. In India, BAIF which was the local partner for ICUC, established three fruit processing facilities through Self Help Groups (SHGs) of small entrepreneurs and called them as resource centres. However these fruit processing enterprises collapsed, after initial success. The main reason identified was the lack of business skills by these small entrepreneurs to access credit facilities, markets and raw material.

The research project on ‘Farmers’ Organizations for market access’ (RNRRS-R8275) which was implemented during 2003-2005 in Malawi created better understanding of farmers’ organizations’ (FO) problems and conditions required for their success. This project had its base in many years of research work carried out by the Imperial College London and the Agricultural Policy Research Unit (APRU) team of University of Malawi under an ESCOR funded research project on Pro-Poor Agricultural Growth. The ESCOR project had concluded that poor access to financial and input and output marketing services was a major constraint to pro-poor agricultural growth. It further suggested that the development of these services in poor rural areas needed non-market coordination mechanism. Based on these, FOs were considered as the potential providers of such coordination.

In the current initiative, the knowledge that was generated from all these previous efforts is being applied to promote a multi-pronged approach. To facilitate this initiative a Coalition to Diversify Income through Underused Crops (CODI) was promoted.

Table 2 Timeline of significant events in the development of the approach in India

Period	Significant event
1980s	<ul style="list-style-type: none"> ● BAIF collaborated with Oxford Forestry Institute – to implement research on hardwood species – FRP of DFID supported these initiatives <ul style="list-style-type: none"> - Phase I – collecting seeds from around the world - Phase II – Evaluating species for better qualities - Phase III – Promoting the most prospective ones – establishing seed production stands and introduction in farmers’ fields
1982	<ul style="list-style-type: none"> ● The <i>Wadi</i> programme was started by BAIF in Valsad district of the South Gujarath. It is basically an agro-forestry initiative in farmers’ fields
1990s	<ul style="list-style-type: none"> ● BAIF collaborated with ICUC by sharing local knowledge about underused crops ● Jointly implemented the “Fruits for the Future” programme (1998-2001) – production aspects of 3 UCs (Tamarind, Ber and Amla) in three languages (Gujarathi, Marathi and Kannada) – trainings were organized for farmers and NGO staff about production technologies of these UCs ● In the next stage, posters and manuals on processing of 3 UCs (Tamarind, Amla and

	Jackfruit) in different languages (Kannada, Marathi, Hindi and English)
2002 – 2003	<ul style="list-style-type: none"> “Processing and Marketing of Underutilized Crops In India” – A survey implemented by BAIF
2004 – 2006	<ul style="list-style-type: none"> Project on “Improved livelihoods through the development of small-scale fruit processing enterprises in Asia” – Implemented by ICUC
2004 – 2005	<ul style="list-style-type: none"> Project on “Community Participatory Processing of Underutilized Fruits” was implemented in India, Sri Lanka, Bangladesh and Nepal In this project Identification of fruits and potential processed products; training of trainers on processing of selected products; production and distribution of manuals and posters as extension material; establishment of processing resource centers; identification and training of beneficiaries; processing activity taken up by beneficiaries as a small-scale enterprise; creation of marketing linkages and conducting marketing survey; capacity building of beneficiaries with additional orientation towards entrepreneurship development
2003 July	<ul style="list-style-type: none"> BAIF staff were trained at IHR on processing technologies
2005 Sep	<ul style="list-style-type: none"> National workshop on “Underutilized Fruit Species for Food-Nutrition Security and Enhanced Rural Livelihoods” was organized by BAIF with participants from India, Nepal, Bangladesh and Vietnam
2006	<ul style="list-style-type: none"> Value chain analysis by BAIF for Amla (<i>Emblca officinalis</i>), Tamarind (<i>Tamarindus Indica</i>) and Kokum (<i>Garcinia Indica</i>)

Case 3 Linking vegetable growers with markets in Nepal

The International Development Enterprises (IDE) Nepal is putting into use the Participatory Market Chain Approach (PCMA) for linking vegetable growers with wider markets. This approach was originally developed in a different location for a different commodity.

IDE Nepal’s activities leading to application of the PMCA

Since early 1990s, IDE Nepal’s key activities have been about participatory research to develop and provide appropriate micro irrigation technologies such as drip systems, micro sprinklers, treadle pumps (manual foot pumps), and water storage / distribution technologies. Through these activities they developed trusting relationships with farmers and rural communities. As time went by, based on demand and realizing the opportunity, they also developed and provided appropriate agricultural equipment for coffee processing, essential oil distillation, and for a variety of high value sub-sectors such as spices/herbs, non-timber forest products (NTFPs), livestock, and fisheries. While engaged in these activities, they realized that there are tremendous opportunities for poor farmers in Nepal to rapidly increase their incomes by supplying some of these high-value agriculture produce, especially vegetables, for the national and international markets. However there were some constrains for that, such as – unorganized nature of small farmers and inefficiency in the existing value chain for vegetables, characterized by missing actors and insufficient connections between actors.

In order to address these constrains and support these small farmers to play an effective role in the vegetable markets, they promoted community managed collection centres (CMCC) for vegetables, which serve as a point of aggregation of vegetables to attract local traders. IDE has developed and refined a methodology to promote these CMCC. They successfully developed about 100 CMCC to benefit about 100,000 families. The Marketing and Planning Committees (MPCs), that run these

collection centers, provide a range of services to member farmers and represent them while negotiating price with traders.

Successful implementation of these initiative encouraged both IDE and MPCs to expand the scope to farther their interventions in the value chain and access national and international markets. However MPCs lacked necessary capacities and skills to do so. While exploring opportunities to address this constraint, IDE came across the Participatory Market Chain Approach (PMCA) as a useful methodology to move to the next level of market operations. It was expected that through this methodology, management capacities of MPCs would be built to respond to different types of market opportunities and facilitate MPCs to do more advanced market linkages to capture more remunerative markets – including domestic agro-business and specialty markets that require quality and to eventually lead to exports to India.

Development of Participatory Market Chain Approach

Active participation of smallholder producers in the markets is the most desirable happening in the efforts to address poverty among farming households. To realize this many research and development efforts have proposed different approaches/ methodologies. The PCMA is a relatively recently developed one amongst them. This methodology was developed by the Papa Andina programme, anchored by the International Potato Centre (CIP) in the Andes highlands of Latin America.

The Papa Andina is a regional programme initiative by the CIP with activities spread in Bolivia, Ecuador and Peru. It started its operations in 1998 with the main aim of promoting betterment of low-income potato farmers. Their initial activities focused on improving production and productivity through technological solutions. This approach did not succeed as marketing problems plagued any improvements in production. In order to address this situation, they began exploring ways to improve participation of small-holder farmers in the market chains. (Douglas Horton et. al., 2009) They joined hands with another initiative of CIP in Peru called Project for Potato Innovation and Competitiveness in Peru (INCOPA Project) with similar objectives and started using Rapid Appraisal of Agriculture Knowledge Systems (RAAKS) methodology developed by Engel and Salomon (2003) in the context of market chains. During this process they used RAAKS in conjunction with other participatory approaches such as rapid market assessment and focus groups. This gradually evolved into a new approach called PMCA (Douglas Horton et. al., 2009; Bernet, Thiele and Zschocke, 2006) and was successful in meeting the objective. Through application of this approach, relationships among market chain actors and R&D professionals were improved and triggered the development of new products. In 2003, when the INCOPA market chain work was reviewed in an Andean regional workshop, participants from Bolivia became interested in the approach and decided to begin experimenting with it at home. Over the next few years, the PMCA was further developed and documented based on the work in Bolivia and Peru (Devaux et al., 2009).

In 2005, Papa Andina, through another DFID financed project on 'Promotion and development of PMCA in Uganda', collaborated with ASARECA and local partners to introduce PMCA to Uganda in commodity chains for potato, sweetpotato, tomato and hot pepper. Since 2007 new applications of PMCA have started in Bolivia, Peru and Colombia through the Andean Change programme (Allianza

Cambio Andino)¹. Papa Andina is also coordinating application of the approach in potatoes in Indonesia.

Nature of potential lessons synthesized – current stage

It is expected that the nature of lessons generated by studying these three value chain oriented initiatives are sufficiently generic to be applicable for wide range of initiatives but sufficiently specific to provide some useful guidance for future projects. However, the lessons would be focusing on the characteristics of the process involved in putting value chain oriented knowledge into use and the approaches adopted.

An innovation system framework is being applied to investigate the type of actors involved, their configurations and different ways of building those configurations, nature of linkages among different actors, and institutions and policies that support / challenge these initiatives. These investigations would provide useful ideas for promoting opportunity led innovations involving large number of resource poor people.

Initial contacts have been established with respective project implementing teams. Information regarding historical evolution of current stage events and strands of research that underpinned development of these approaches have been collected and confirmed with them. Further it is planned to continuously analyze the activities in the field, and compare them to draw generic lessons.

There are preliminary indications that these three projects have important similarities and differences, and thus provide opportunities for some useful lessons. The following are some of the observations at this stage:

- Different research outputs get appropriately mixed with process components before being successfully applied in the field situation. It could only happen through a multi-actor involvement and after many iterations and feedback loops.
- Even the proven approaches in other areas needs further adaptations by different actors to fit to their specific context. Many actors need to engage themselves, act according to their priorities and cooperate for the successful scaling-up/out of these proven approaches. Some agencies need to play the coordination/ facilitation/ mediation role to enable this. Generic features of such agencies could be identified.
- If there is a clear market opportunity and a fairly developed value chain, different stakeholders adopt newer knowledge, innovate and contribute for wider application of the knowledge.
- The DSP approach was developed in the same region for the same commodity. The current efforts are focusing on scaling it up and out to spread impacts in a wider area; while the PMC approach was developed in a different geographical region for a different commodity. The project implementers are trying to customize the PMCA to suit to the local situation and different commodities. The other initiative on UC is applying an approach with different components of it validated in different geographic regions for different

¹ The Andean Change programme also known as “National Agricultural Innovation Systems that Work for the Poor: Building on the Bolivian Experience” OR *Allianza Cambio andino* is a four year programme (2006 to 2010), implemented by the International Center for Tropical Agriculture (CIAT) in collaboration with CIP.

commodities. The project implementers are continuously developing the approach to fit to the local situations.

- The DSP is simple and could be easily adopted by primary stakeholders with minimum adjustments to their existing situations. The PMC requires greater external facilitation and role to be played by different actors, to be successful. The approach for UCs needs creation and establishment of significant new infrastructures and skills. However primary stakeholder level interventions are simple and easily practiced.
- The DSP directly addresses the existing serious problem faced by the fishery industry/ system. There is direct economic benefit to many stakeholders of the system. Promotion of UC is a felt need, mostly by the secondary stakeholders. UC producers need to be promoted and so are their backward and forward linkages. Even the market for UC products needs to be built. As a result there could be longer period before realizing the success. The PMC provides an opportunity for primary stakeholders to get better incomes from accessing higher-level markets. Certain new skills are required to be built. This also requires significant amount of external facilitation/ mediation with value chain actors.

Further information

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