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24

A monitoring and evaluation
framework to assess the performance
of innovation platforms in the
context of livestock value chains



RESEARCH
PROGRAM ON
Integrated Systems
for the Humid
Tropics



RESEARCH
PROGRAM ON
Livestock and Fish

A monitoring and evaluation framework to assess the performance of innovation platforms in the context of livestock value chains

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Abstract

Growing local and informal markets in Asia and Africa provide both challenges and opportunities for small holders. In developing countries, market failures often lead to suboptimal performance of the value chains and limited and inequitable participation of the poor. In recent years, innovation platforms have been promoted as mechanisms to stimulate and support multistakeholder collaboration in the context of research for development.

They are recognized as having the potential to link value chain actors, and enhance communication and collaboration to overcome market failures. Despite the increased use of innovation platforms in research for development projects and programs, a monitoring and evaluation framework that encompasses the dynamic nature of innovation systems and value chains is not available. In this paper, the authors aim to develop a monitoring and evaluation framework for understanding and assessing the performance of innovation platforms in the context of pro-poor value chains, based on a discussion of various approaches.

Introduction

Growing populations, urbanization, and economic growth in developing countries have led to an increased demand for high-value agricultural commodities, including livestock (Delgado et al. 1999; Hall et al. 2004). The size and nature of demand varies by region and country. In more urbanized areas of Latin America, Asia and some parts of Africa, the demand is driven by an urban consumer-led focus with stringent food quality and safety standards set by retail chains (Boselie et al. 2003; Weatherspoon and Reardon 2003; Regi and Gelhar 2005). In most other parts of Asia and Africa, the increased demand has led to growing local and informal markets, and the development of some formalized markets. These developments are further influenced by increased communication capacities and liberalization, leading to expanding markets.

As result of the increase in demand for livestock and livestock products, and the consequent market changes, supply channels have become increasingly complex confronting poor smallholders with several challenges. In terms of inputs, feeds are scarce, of poor quality and expensive, and there are major challenges with breeding and animal health services delivery. Markets for livestock products are constrained by weak linkages to farms, low investment in infrastructure, and the absence of a supportive policy and regulatory environment (McDermott et al. 2010a). Nevertheless, growing local and informal markets also provide opportunities for value addition by the poor, not just as farmers, but also as input suppliers, livestock producers, labourers and employees, market agents and retailers (Kaitibie et al. 2008). The involvement of women in different segments of the chains can play an especially critical role in creating wider and deeper development impact. Although these markets provide opportunities for some, inequalities and power differences that exist among the value chain actors mean that these opportunities are not always realized by the poor.

Value chains (VCs) provide a framework for assessing opportunities for poor people in livestock markets (McDermott et al. 2010b). A VC refers to the network of different functions or stages from production to consumption of a given commodity or product, including the interrelationships among the main actors along the chain and all of the ancillary support services (Kaplinsky and Morris 2001). VC analysis provides insight on the interdependencies between stages and actors, the individual components of the chain that need to be improved, the benefits arising from different institutional arrangements, the needs for public investment, enabling policies and regulations, and helps to develop a framework for improvement toward enhanced performance and innovation capacity. VCs are ideally governed by market forces, but market failures, especially in developing countries, often lead to suboptimal performance of the chain and limited participation of the poor (Vorley et al. 2012).

The use of ‘innovation platforms’ (IPs) as mechanisms to stimulate and support multistakeholder collaboration has gained ground in Agricultural Research for Development (AR4D) in the last few years (Lynam et al. 2010; Nederlof et al. 2011; Tenywa et al. 2011; Nederlof and Pyburn 2012).¹ 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

1. The terminology for such mechanisms depends on the context, e.g. ‘innovation networks’, ‘stakeholder networks’, or ‘multi-stakeholder platforms’ etc. and these terms have been used for various functions (Nederlof et al. 2011).

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 (FARA 2007; Njuki et al. 2010; Nederlof et al. 2011). Although IPs were initially mainly used in R4D programs to make the development and use of knowledge more effective, their potential to link VC actors and overcome market failures is making use of IPs within the context of VCs popular in development discourse (van Rooyen and Homann 2009; Nederlof et al. 2011; Nederlof and Pyburn 2012).

Over the years, ILRI has changed its approaches to addressing smallholder market development, and the VC approach and IPs are part of that change (Puskur et al. 2011a). ILRI has been using IPs as mechanisms to enhance market performance among smallholders in several projects. These include the Livestock, Livelihoods and Markets (LiLi) in Southern Africa, the Fodder Innovation Project (FIP) in India and Nigeria, the Fodder Adoption Project (FAP) in Ethiopia, Syria and Vietnam, the CORAF-led project on increasing resilience among smallholders (PLM) in Mali, Togo and Niger, the regional program on sustainable management of endemic ruminant livestock in West Africa (PROGEBE), and the imGoats project in India and Mozambique (for an outline of the different projects and programs, see Annex 1).

More generally, ILRI has embraced innovation-systems thinking to support livestock development (Puskur et al. 2011b). Innovation systems thinking provides a holistic and comprehensive framework for understanding innovation as emerging from a broad network of dynamically linked actors (World Bank 2006; Rajalahti et al. 2008). The importance of an innovation-system approach is highlighted by the new ILRI strategy on food security and poverty reduction from 2013–2022, as well as the CGIAR research programs in which ILRI is involved (ILRI 2013).

For example, it is the intention to use IPs to enhance performance of VCs in the ILRI-led CGIAR Research Program on Livestock and Fish, and they will be used as mechanisms to stimulate innovation in multistakeholder processes in the CGIAR Research Programs 'Dryland Systems' and 'Humidtropics' in which ILRI participates (see Box 1 for a short description of these programs).

Box 1. CGIAR Research Programs with ILRI involvement that intend to use IPs to stimulate innovation

CGIAR Research Program on Livestock and Fish (led by ILRI). The program aims to increase the productivity of small-scale livestock and fish systems in sustainable ways, making meat, milk and fish more available and affordable across the developing world. It focuses on nine livestock/aquaculture VCs: dairy in Tanzania and India; small ruminants in Mali and Ethiopia; pigs in Vietnam and Uganda; dual-purpose cattle in Nicaragua; and aquaculture in Uganda and Egypt. Research components cover animal feeds, breeding and genetics, health, VC development, gender and learning, and targeting.

CGIAR Research Program on Dryland Systems (led by ICARDA). Dryland Systems aims to improve the livelihoods of smallholder farmers in dry areas and get useful technologies into the hands of communities on a wide scale. It engages in large-scale action research to identify 'best-bet' intervention packages (i.e. combinations of improved crop varieties, new types of crops, effective land, water, disease and pest management, socio-economic considerations, and policy and institutional options). It will validate their effectiveness in specific agro-ecosystems, and promote scaling up in dry areas of five Target Regions: West Asia and North Africa; Western Africa and the Dry Savannas; Eastern and Southern Africa; Central Asia; and South Asia.

CGIAR Research Program on Humidtropics (led by IITA) Humidtropics seeks to transform the lives of rural poor in the humid lowlands, moist savannas, and tropical highlands in the tropical Americas, Asia, and Africa. The humid and subhumid tropics are critical to global food supplies, central to the maintenance of global biodiversity, and vital to the mitigation of greenhouse gases. Intensification of agricultural systems in these areas offers the best potential for poverty reduction, especially for women and other vulnerable groups, and for meeting world food demand. Humidtropics focuses directly on rainfed smallholder farming systems and their opportunities for sustainable intensification.

Note: While the CGIAR Research Program on Policy, Institutions and Markets (led by IFPRI) also addresses the role of IPs to strengthen VCs, it mainly relies on case studies from the other research programs and projects.

Source: www.ilri.org.

This paper aims to develop an M&E framework for understanding and assessing the performance of IPs for upgrading livestock VCs. The document first outlines the rationale, objectives and research questions to be addressed by the framework. The intervention approaches (i.e. the VCs and IP perspective) are then elaborated, before describing the main characteristics of IPs in the context of VCs. It continues with a description of the proposed M&E approaches and tools, and how changes in VC performance and development impact are related to activities of IPs using the impact pathway model. Before concluding, an indicative list is presented, outlining relevant performance areas and indicators with an indicator selection framework, which can be used in projects employing IP and VC approaches in livestock systems.

Rationale, objectives and research questions

Traditionally, agricultural research and development was conceived of as a linear process where technology was developed in the research centres, transferred by extension workers and adopted by farmers, popularly called the 'pipeline model'. The system is characterized by top-down, centralized, monolithic and isolated structures (Leeuwis 2004). Empirical evidence revealed several missing links between and among the actors in this system (Agbamu 2000; Uzuegbunam 2001). Farmer and private sector involvement were also reported to be weak.

It is increasingly recognized that agricultural innovation is not a linear process, but is rather a very dynamic, iterative and complex process (Leeuwis 2004). The innovation system approach offers a holistic, multidisciplinary and comprehensive framework for analysing the innovation process, the roles of actors and their interactions, emphasizing wider stakeholder participation, linkages and the institutional context of innovation and innovation processes (World Bank 2006). It also helps to explore complex relationships among heterogeneous agents, social and economic institutions, and endogenously determined technological and institutional opportunities. Likewise, the VC approach helps to understand the complex, multilayered and open sociotechnical VC systems (Anandajayasekaram and Gebremedhin 2009), as VCs are not only influenced by a number of diverse actors, but also are continuously shaped and reshaped to adapt to changing conditions.

Traditional R&D approaches employ a linear M&E model grounded in the idea of a single, perfectly knowable reality so that change can be planned and controlled. Such approaches and tools are not suitable for innovation systems and VC projects, due to their complex, nonlinear and participatory nature. What is needed is an M&E framework that takes into consideration the inherent complex characteristics of innovation systems, IPs and VC approaches.

The objective of developing this M&E framework is twofold:

- Firstly, in the context of research for development (R4D) projects, it is meant for joint learning among project teams and the actors by assessing their performance and to get a better insight on the underlying issues in order to adapt a course of action;
- Secondly, it serves as a tool to generate research-based evidence for the effectiveness of IPs in livestock systems across different contexts.

The main research question that will be answered through generating information using the M&E framework is:

- How do we monitor and evaluate the performance of IPs, their contribution to the performance of VCs and the pro-poor outcomes that emerge?

Sub-questions include:

- How do we define and measure the performance of IPs and what factors influence this?
- How do IPs affect the performance of livestock VCs?

-
- In what circumstances do IPs lead to more sustainable and equitable (poor and women) benefits for VC actors?
 - How do the context and livestock systems affect the functioning of IPs and consequently their influence on the VCs?
 - What factors influence the sustainability and repeatability of IPs?
 - What are the implications of the above for project design and implementation

Intervention approaches

To understand better the role and function of IPs in livestock VCs, it helps to examine the characteristics of a VC approach, the potential benefits and risks for the poor, and the added value of an innovation system perspective to overcome market failures.

Value chain approach

An agricultural VC is usually defined by a particular finished product or closely related products, and includes all firms and their activities engaged in input supply, production, transport, processing and marketing (or distribution) of the product or products (Kaplinsky and Morris 2001). A VC exists when all stakeholders in the chain operate to maximize the generation of value as the product progresses from input suppliers to producers to consumers. The performance of a VC depends on how well actors in the VC are organized and coordinated, and on how well the chain is supported by business development services (BDS) and an enabling environment in the form of institutions, policies and regulations (Anandajayasekeram and Gebremedhin 2009).

VC analysis can be a powerful descriptive and analytical tool to gain insights into the organization, operation and performance of processes from production to consumption of a particular commodity (Anandajayasekeram and Gebremedhin 2009). The primary purpose of VC analysis is to understand the reasons for inefficiencies in the chain, and identify potential leverage points for improving the performance of the chain through innovation. In recent years, various development-oriented VC guides have been developed to assist in VC analysis and development at a microlevel; these include the GTZ Value Links Manual (2007), KIT et al. (2006), Riisgaard et al. (2008), van de Berg et al. (2009).

Although VCs can be studied from various dimensions and angles, there are four aspects that are particularly noteworthy in the context of agriculture (van de Berg et al. 2009):

- Mapping of actors participating in the production, distribution, marketing, and sales of a particular product (or products) and those providing services and an enabling environment. This mapping assesses the characteristics of actors, profit and cost structures, flows of goods throughout the chain, employment characteristics, and the destination and volumes of domestic and foreign sales.
- The distribution of benefits amongst VCs actors. Through the analysis of margins and profits within the chain, one can determine who benefits from participation in the chain and which actors could benefit from increased support or organization.
- The role of upgrading within the chain. Upgrading can involve improvements in quality and product design that enable producers to gain higher value or can involve diversification in the product lines served. An analysis of the upgrading process includes an assessment of opportunities and constraints. In addition, the structure of regulations, entry barriers, trade restrictions, and standards can further shape and influence the environment in which upgrading can take place.

- The role of governance in the VC. Governance in a VC refers to the structure of relationships and coordination mechanisms that exist among actors in the VC. Assessing governance is important from a policy perspective because it identifies institutional arrangements that may need to be targeted to improve capabilities in the VC, remedy distributional distortions, and increase value-added in the sector.

By systematically understanding the linkages among actors in the VC through the lens of issues of governance, upgrading, and distributional considerations, with a special focus on the poor and women, one can better develop policy recommendations and understand their implications throughout the chain (van de Berg et al. 2009). Generally, market forces tend to ignore negative social and ecological externalities unless these are linked to economic penalties through some kind of regulatory or incentive mechanism (Vorley et al. 2012). An innovation-system perspective provides a framework to address this, by emphasizing collective action and innovation among a wider variety of mutually dependent actors, including service providers and regulatory bodies and other enabling agencies.

Innovation-system perspective

Innovation is a social process by which knowledge is created, diffused, accessed, adapted, and, most critically, put into use in economically and socially significant ways (Leeuwis 2004). Innovation can be triggered by changes in markets (e.g. consumer preferences, new markets), knowledge (e.g. technological changes), resources (e.g. problems in production and/or supply of new and improved inputs or provision of services), crises (e.g. disease outbreaks, droughts), and policies (e.g. new international rules) (World Bank 2006; Puskur 2010). The extent to which actors are able to respond depends on their individual and organizational capacities (including resources, skills, attitudes etc.), institutional and organizational culture, nature of policies, and availability of support infrastructure (technical and human) (World Bank 2006; Rajalahti et al. 2008). Hence, innovation involves many different actors working together towards technological, organizational, institutional, and policy changes. An innovation system perspective implies the use of an innovation lens in the design, implementation and evaluation of activities of the various actors involved in the innovation process.

A group of organizations and individuals involved in the generation, diffusion, adaptation and use of new knowledge and the context that governs the way these interactions and processes take place is called an innovation system (World Bank 2006; Rajalahti et al. 2008). In its simplest form, it has three elements: the organizations and individuals involved; the interactive learning that occurs when organizations engage in innovation processes and the way this leads to new products and processes; and the institutions (rules, norms, and conventions, both formal and informal) that govern how these interactions and processes take place (Horton 1990). Such a system may include traditional sources of innovation, service providers (including private-sector players and civil-society organizations) and those institutions that affect the process by which innovations are developed and delivered.

The primary purpose of establishing linkages in innovation systems is knowledge sharing through interactions, leading to learning and resulting in development and deployment of new products and processes that ultimately contribute to social and economic change. Important for the innovation system is how patterns of relationships, habits and practices of actors either nurture or hinder knowledge flows and the process of learning (learning by doing or by interacting) amongst them (World Bank 2006). 'Social capital', i.e. the ability to form relationships of cooperation, is a key ingredient of effective innovation systems (see Box 2, for an example of added value of an innovation system perspective within the context of VCs).

Box 2. From transfer of technology to an innovation system approach

The Fodder Innovation Project (FIP), implemented from 2003 to 2009 in India and Nigeria, looked at fodder scarcity and how to address it from the perspectives of capacities, policies and institutions. This emerged from the realization that the availability of technologies was not really the limiting factor, but that policy and institutional factors were the major bottlenecks. Essentially, the aim of the project was to form and facilitate a network of different actors in a chain or continuum of knowledge production and its use, mobilizing all their various resources and capacities to address a problem. At the farm level, farmers changed their livestock feeding and management practices. There was an emerging demand for technologies, inputs and services that, ironically, were earlier promoted without success. Farmers saw the need for knowledge and articulated their demands to service providers, but getting a network of actors working together was not an easy process and took time. Different organizations with different interests and motives had to be brought around the table to contribute and benefit. Traditional project management approaches do not seem to work in such projects: nimble financial management, and very responsive project management was needed.

Source: based on video interview with one of the authors, <http://www.ilri.org/ilrinews/index.php/archives/tag/fodder-innovation-project>

Innovation platforms

Innovations are the result of learning emerging from relevant networks of actors working together based on some mutually agreed institutional arrangements (Leeuwis 2004).² It is hypothesized that innovation can be stimulated when possibilities are created for key actors to interact and work jointly. One way of doing this is through the formation of so called IPs.

IPs in the context of VCs are coalitions of actors along the VC, formed to address constraints and explore opportunities to upgrade the VC through use of knowledge and mutual learning. IPs provide a mechanism to facilitate communication and collaboration among VC actors, to promote joint action and to stimulate innovation. Based on the literature (e.g. FARA 2009; Nederlof et al. 2011; Adekunle and Fatunbi 2012) and our own experiences (Puskur 2010), some key elements of a commodity-focused IP include:

- the identification of shared goals and interests of the VC actors, common problems and opportunity definition;
- definition of the purpose of upgrading and identification of the scope and membership of platforms;
- using an understanding of the VC to identify upgrading options—including technical, organizational, institutional, service delivery and policy innovations;
- define activities, actions, roles and responsibilities of various actors in implementation of agreed options for VC improvement;
- provide opportunities and mechanisms for needs-based capacity building of VC actors
- definition of tools and processes for monitoring actions for VC upgrading; and
- creation of spaces for long-term learning processes from experiences through iterative action-reflection learning cycles that support innovation.

2. Institutions are the formal and informal rules (laws and regulations, norms, values, and morals) that shape human behaviour and the mechanisms (including certain organizations) for their enforcement (Douglas 1986). Institutions matter in determining the speed, magnitude and quality of innovation processes. Given the same set of agents with a particular set of objectives, changes in the institutions themselves and, in particular, in the sets of incentives, result in different decisions and different outcomes of the innovation process.

For IPs to be effective, they need to have a basis in trust, recognize the diversity of actors, their interests, functions, competencies, knowledge etc. and a willingness among the actors to share information and knowledge with each other (Leeuwis 2004). They require time and resource commitments from members, and a facilitator who can convene and stimulate joint action (Leeuwis 2004; Nederlof et al. 2011). Which member plays the role of a facilitator has to be negotiated with and agreed by the members of the platform. Generally, neutral facilitators are preferred, but gradually as members realize the benefits of such a platform, the role of local actors can increase and the facilitation taken up by one of them (or on a rotational basis). This would make platforms more sustainable. In the IP, members are drawn in as-and-when required to address specific challenges as they evolve although there might be some actors (e.g. producers and the facilitator) who continue throughout.

These principles have important implications for the formation, functioning and outcomes of IPs and need to be taken into account when monitoring and evaluating the effectiveness of IPs for livestock VCs.

M&E approaches and tools

Various M&E approaches and tools have been used in the development sphere. They have undergone changes in parallel with dominant development paradigms in the development discourse. The main M&E approaches are currently based on the positivist and the constructivist paradigms. The former are linear, rigid and quantitative approaches, while the latter are more nonlinear and qualitative, allowing room for measuring complex processes (Rogers 2012). Some believe that a combination of these methods can work best, while others insist that fusion of these tools is not possible as they are completely different.³ In this section, two M&E approaches that represent the different paradigms and that hold potential for use in M&E of IPs and VCs will be presented briefly.

The Logframe approach

The Logical Framework Approach (LFA) has its foundations in the 1960s and was first formally adopted by the United States Agency for International Development (USAID) in the early seventies (Roduner et al. 2008). It is one of the most commonly used methods for planning and M&E. It is a conventional tool preferred by donors for project design and M&E of projects. It is very useful to set up a well-structured framework that will satisfy the requirements of donor organizations, especially for accountability, improving decision-making, managing risks and supplying operational information. In this approach, it is hypothesized that all inputs can and must be foreseen, and that every input should and will lead to a measurable outcome (Earle 2002). In the LFA, expected results are aligned with activities in a cause–effect chain (Roduner et al. 2008; Prasad Pant 2010; Rogers 2012). Activities produce outputs that result in outcomes and, finally, impacts. Indicators are used for measuring performance at different levels of results and the success of a project is measured against predetermined targets of these indicators.

The major criticisms of LFAs revolve around their linearity, rigidity and stifling of creative and innovative working systems and conditions. Efforts have been made to modify LFAs through inclusion of more participatory and learning elements.

- Financial advantages to informality (e.g. taxation, formal vs. black market foreign exchange rate)
- Non-financial advantages to informality (e.g. avoided regulation, health standards, bureaucratic delay and hassle)
- Non-economic factors (e.g. clan, linguistic ties, religious preference)..

3. See discussions on www.outcomemapping.ca.

Outcome mapping

Outcome Mapping (OM) is an alternative approach to planning, monitoring and evaluating development impact. It was developed about a decade ago by the Canadian International Development Research Centre (IDRC) in response to fundamental problems with existing approaches (Earl et al. 2001; www.outcomemapping.ca). The complexity and fluidity of development processes mean that achieving impact requires the involvement of a variety of actors over a considerable period time. When impact occurs, it is often as result of a combination of events over which no single agency has control or can claim full credit.

OM focuses on ‘outcomes’, defined as the changes in behaviour, relationships, activities, and action of the people with whom a program works directly (so called ‘boundary partners’). In practical terms, OM consists of a set of tools and guidelines for steering project or program teams through an iterative process to identify their desired change and to work together with boundary partners in order to bring about the anticipated changes. OM allows modification of the interventions over time according to the complexity of the change process. Unlike LFAs, OM balances learning and multiple accountabilities, by identifying the use of M&E data and by employing participatory and use-oriented approaches to M&E.

A mixed approach

There are various factors that affect the most suitable type of M&E approach to use in a given context. Some of these factors include information needs and interests of stakeholders, type of M&E data and intended uses, donor reporting requirements, availability of resources, scope and complexity of the intervention, M&E traditions and experiences, and capacity etc. OM and LFA each have their own strengths and weaknesses and are useful, based on the types of intervention and contexts (Roduner et al. 2008), but it is important to understand what kinds of strength and uses each has, as well as their advantages and disadvantages, and to find ways for using them in combination in a manner that helps to build on the strengths of both.

Some believe that OM and LFA should never share a space, based on their fundamental differences in paradigms and approaches on how development interventions ought to be planned, monitored and evaluated.⁴ Nevertheless, development practitioners are now recognizing the useful aspects of both and have developed ideas on how they can use OM in their LFA-dominated work settings, and to integrate two models that have seemingly unmatchable elements in their design (Roduner et al. 2008; Ambrose and Roduner 2009).

In our case, due to the complex nature of innovation systems and VCs, and the demand from donors for continuous reporting on projects and programs, the use of both OM and LFA approaches is important. OM can be used to track the behavioural-change aspect and contribute to the innovative dimensions, and to social and organizational learning, while the LFA (through which the research projects were designed) can be used to track changes using indicators that were planned at the beginning (see also Box 3 for an example of integrating a LFA with OM).

4. http://www.outcomemapping.ca/forum/files/OM-LFA_DRAFT_165.pdf (last date consulted 6/11/2012).

Box 3. Integrating outcome mapping with a logframe approach

ImGoats (www.imgoats.org) is an acronym for the EC/IFAD-funded project 'Small ruminant VCs as platforms for reducing poverty and increasing food security in dryland areas of India and Mozambique', led by ILRI and implemented by BAIF and CARE. The goal of imGoats was to increase incomes and food security in a sustainable manner by transforming goat production and marketing from an *ad hoc* and risky informal activity to a sound and profitable enterprise and model that taps into a growing market. There are few demonstrated working models of organizational and capacity development to increase sustainably the productivity and livelihoods from small ruminant production among resource-poor livestock producers. The project employed an innovations systems and VC approach using IPs, rather than relying on traditional methods of technology transfer. A main research component of the project was to determine how effective these platforms were.

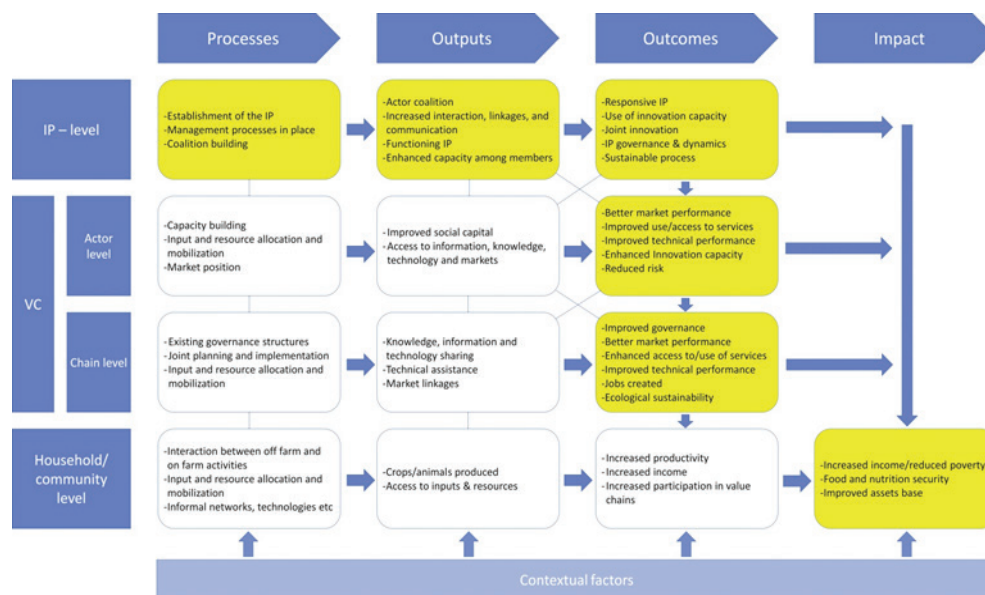
The donor required the use of a LFA as a planning and reporting tool. The LFA and the imGoats proposal focus on the objectives of model development and dissemination as a means to bring about changes in food security and income among resource-poor goat producers. ILRI's approach involved the integration of OM with the log frame as a way to take advantage of OM's strengths. OM is people- and outcome-oriented, and focuses on one type of change: behavioural change within those partners who a project or program aims to influence directly. Without these behavioural changes, other changes that depend on them, such as improvements in animal health, increased household incomes from goat sales are unlikely. An additional rationale for a hybrid M&E approach was that OM could be used to develop a map of what success and progress towards success would look like in terms of changes in behaviour among actors in the VC, aspects that are not easily handled through the LFA.

Source: Braun 2012.

Impact pathway of innovation platforms for value-chain development

Figure 1 shows the anticipated impact pathway for the strengthening of VCs using IPs. It integrates elements of a LFA and OM using a causal-effect chain, while taking into account how behavioural changes contribute to outputs and outcomes. The impact pathway describes the sequence from IP processes to outputs and outcomes, and how these translate into VC outcomes at the actor and chain levels, and their anticipated impact on households and communities. It takes into account the fact that interventions are not taking place in a vacuum, and that several other processes and their outputs play a role in the eventual outcomes at the various levels. Similarly, the wider ecological, physical, social and economic environments affect and interact with the system.

Figure 1. The impact pathway for VC strengthening using IP



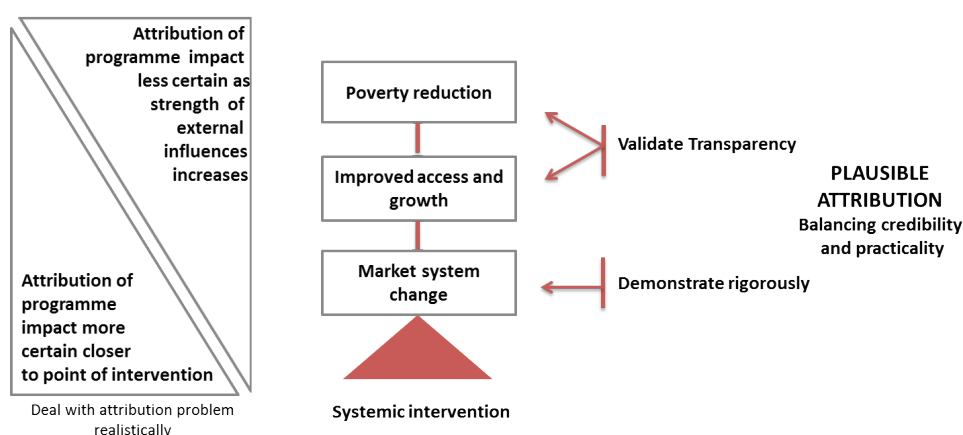
■ main sequence of potential cause and effect linkages through which impact is achieved by using IP;
 └ influence of other factors at the VC, household and community level that may negatively or positively affect impact as result of IPs.

To assess the performance of IPs, we need to monitor and evaluate changes and interrelations along the impact pathway (Douthwaite et al. 2003; Njuki et al. 2010). In this case, changes in and relations among IP outputs (products/deliverables generated by the platform), IP outcomes (knowledge and behavioural changes of IP members and technical and institutional innovations that have been developed as results of the use of products/deliverables), VC outcomes (knowledge and behavioural outcomes among VC actors and the chain as a whole, and changes at the market level due to outcomes at the IP level), and development impact at the household and community levels. Several external factors that complicate the attribution of changes in impact indicators to the IPs alone need to be considered; moreover, the realization of the impact pathway is based on the premise that

projects implement good practice/best fit principles for IPs. M&E should therefore also include the extent to which projects adhere to principles (i.e. by looking at the underlying processes).

While evaluating the performance of IPs, we need to be aware that impact assessments of interventions are in general very difficult. Rural development is a complex and social process, with high degrees of nonlinearity. It is almost impossible to link outcomes directly to highly aggregated benefits like poverty eradication or food security (Douthwaite et al. 2003). M&E therefore should balance credibility with practicality to achieve plausible attribution of impact. On the one hand, it needs to rigorously assess the direct impact of interventions on market systems, the level at which it engages most directly. On the other hand, reasonable estimates, rather than claims of definite proof, should be made of the contribution of changes in the VC and markets to overall changes in access, growth and poverty reduction (van de Berg et al. 2009) (Figure 2).

Figure 2. Relation between intervention and M&E for plausible attribution of impact



Source: van de Berg et al. (2009).

The impact pathway evaluation has been developed to make plausible attributions of impact to inventions. It consists of two stages. During the first stage, the project develops a strategic framework or impact pathway of how it sees itself achieving impact; this is used for monitoring and self-evaluation to guide project management. The second stage is an *ex post* impact assessment in which the project's wider benefits are independently assessed and whereby the evaluator seeks to establish plausible links between the project's outputs and developmental changes (Douthwaite et al. 2003).

Performance indicators and key parameters

In the following subsections, indicative lists of indicators for assessing progress at IP and VC levels are suggested. A performance indicator is an observable or measurable characteristic that depicts the level of achievement of an intended result. A good indicator is Clear (precise and unambiguous); Relevant (appropriate and timely); Economic (available at reasonable costs); Adequate (sufficient to assess performance); and Monitorable (can be independently verified)—better known as the CREAM criteria (Kusek and Rist 2004).

The lists of indicators are not exhaustive. We are also not suggesting using all the indicators. In principle, identifying indicators is a participatory exercise where all stakeholders should agree. Hence, it is believed that every project will undertake such a process and select the most appropriate indicators using CREAM or similar criteria. What we provide is a menu from which to select, based on the specific context of each project or program. We are well aware that M&E can be very time consuming.

Indicative performance areas and key parameters will be described by first looking at the process, outputs and outcomes at the IP level, and subsequently for outcomes and impact at the VC, household and community levels. In the last section, we will discuss the external conditions that need to be taken into account when attributing impact at the VC, household and community levels to activities of the IP.

Box 4: definition of processes, outputs, outcomes and impact

IP processes:	Mechanisms for the establishment, functioning and maintenance of the IP
IP outputs:	Products/deliverables generated by the platform
IP outcomes:	Knowledge and behavioural changes of IP members, and technical and institutional innovations that have been developed as results from the use of products and deliverables generated by the platform
VC outcomes:	Knowledge and behavioural outcomes among the VC actors and the chain as a whole (beyond the IP members only), and changes at the market level due to outcomes at the IP level
VC impact	Development impact at the household and community levels in terms of wellbeing, improved livelihoods, ecosystem services, opportunities, choices, and reduced risk

M&E at the innovation platform level

Within the context of a VC, an IP is a mechanism to stimulate and enhance interactions, coordination, coherence, mutual learning and collective action among actors along the chain. As outcomes at the VC level are directly related to the outputs and outcomes of the IP, a rigorous assessment of how processes, outputs and outcomes at the IP and VC levels interrelate is needed. This is discussed in detail below.

Processes at the IP level

Drawing on the literature (FARA 2009; Njuki et al. 2010; Nederlof et al. 2011; Adekunle and Fatunbi 2012), key principles that underlie well-functioning and effective IPs are:

- they are inclusive and follow participatory processes;
- there is a common vision and an agreed set of operating modalities; members are committed and have adequate incentives to participate;
- diversity of members capabilities, capacities, resources, skills, knowledge, interests and needs are acknowledged;
- there is efficient and effective communication; knowledge and information sharing; joint identification of challenges/opportunities and, options to address them through joint action; and
- there is an appreciation for learning-by-doing and M&E.

These principles of best practice can be translated into various processes related to the establishment, functioning and management of IPs, and to building relations for an environment conducive to sustain them. These processes, key parameters and respective indicators are outlined in Table 1. All these indicators would be gender disaggregated as appropriate.

Table 1. IP processes, key parameters of change, and indicators

IP-processes	Key parameters	Indicators*
Establishment of the IP	Member identification	Mechanism/tool used for member identification, including focus on women and poor
	Member inclusion	Mechanism/tool used for inviting and including potential members in the IP Mechanism/tool used for ensuring poor and women are included/participate in IP
	Articulation of objectives, issues being addressed and roles	Whether and how articulated and defined?
	IP Monitoring Evaluation and Learning strategy	Whether developed and how?
	Members capacity need identification and strategy development to address it	Whether capacity needs assessed? If yes, methods used?
Process management	Members participation at critical times and events of IP	Mechanisms/tools used to ensure participation of key actors, including women, at each event
	VC constraints, opportunities and intervention prioritization	Criteria and methods used to identify constraints and opportunities in the VC and possible solutions/interventions Method used to prioritize
	Members' knowledge and skills identification and utilization	Type of mechanisms/tools used to integrate IP actors' knowledge and skills in innovation process Diversity of knowledge sources accessed and used by actors
	IP facilitation and management	Who is the facilitator and process of facilitator selection/identification IP members satisfaction on facilitator's: competence (knowledge, skill and attitudes) mechanisms/tools used to facilitate knowledge sharing and communication mechanisms/tools used to ensure transparency of process and decisions Mechanisms/tools used to create mutual respect, openness, and constructive interaction Mechanisms to fund the functioning of the IP
Coalition building	Resource mobilization	Strategies used to mobilize resources, endorsement and support from IP members and beyond Resources/time allocated by different actors to IP related actions and activities

* Note: these are process indicators, which are qualitative in nature and descriptive; they monitor IP processes, i.e. whether they took place or not and the quality of the process, not the output or result of the processes as such (see table 2 for indicators on outputs).

Outputs at the IP level

Outputs at the IP level refer to products or deliverables from activities at the platform level. Based on key processes and mechanisms presented in the preceding subsection, IPs are expected to lead to an actor coalition with increased interaction, linkages and communication among its members, a well-functioning platform, and enhanced human and institutional capacity (see Table 2).

Table 2. IP outputs, key parameters of change, and indicators

IP outputs	Key parameters	Indicators
Actor coalition	Platform composition and diversity	Composition of IP including the actors experience, expertise, capacity and, competence
	Representation of marginalized groups	Number and percentage of VC actors representing the poor and/or marginalized (e.g. women)
	Extent to which IP actors participate and articulate needs and feedback to IP	Number of needs expressed by members for VC and capacity development and, channels used
Increased interaction, linkages and communication amongst actors	Patterns of interaction, linkages and social capital among actors and/or their organizations	Changes in frequency of interaction Changes in actor networks and linkages for men and women
	Exchange of information on critical issues related to VCs	Number of instances when information (related to VCs—technology, market, policy etc.) is exchanged, what kind of information was shared and, channels used
Functioning IP	Identification of priority constraints and opportunities in VC	Representation of concerns and priorities of individual actors in action plan Satisfaction level of members in terms of integration of their concerns and priorities in planning
		Identified and tested technical and institutional options to address the priority constraints in VCs
	Systematic planning and action-reflection	Joint action plan for VC development Joint activities initiated by IP members
		Activities and events organized for reflection and joint learning
Enhanced capacity	Capacity building methods, process and tools	Identified capacity needs among the IPs members Number and types of capacity building strategies implemented based on the assessment

Outcomes at the IP level

When outputs at the IP level are being used to achieve objectives set by the actors of the VC, they will result in outcomes at the IP level. These give an indication as to what activities the platform has led and to what extent they are related to the core principles or characteristics of the IPs. Key outcomes at the IP level can be differentiated into: the responsiveness of the IP to the needs of VC actors; the way human and institutional capacity are used to improve performance of the platform; joint innovation (interventions and strategies) to improve performance of the VC; the overall governance and dynamics of the platform; and the sustainability of the process. The outcomes, key parameters and indicators are described in Table 3.

Table 3. IP outcomes, key parameters of change, and indicators

IP outcomes	Key parameters	Indicators
Responsiveness of IP to the needs of VC actors	Addressing VC issues	Number of issues addressed in congruence with identified priorities and constraints in the VC Satisfaction level of members with regard to relevance, timeliness, affordability, accessibility of the solution to address their constraints
Use of human and institutional innovation capacity	Changes in level of knowledge, attitudes and practices related to VC functioning (markets, production etc.)	Number and type of actors applying new knowledge generated and shared through the IPs Number and type of actors changing practices
Joint innovation to improve performance of the VC	Interventions and strategies developed	Type of interventions and strategies developed Joint implementation of interventions and strategies
IP governance and dynamics	IP governance	Ownership over process by VC actors Voluntary involvement and engagement of actors in meetings Extent to which IPs manage themselves (in terms of resources and capacity)
	IP dynamics	Adaptive responses in the management and governance of the IPs through time when changes occurs (e.g. in markets, technical issue, disease, technological advances etc.)
Sustainability of the process	Human and institutional changes	Changes in actor behaviours related to interaction, communication and joint action

M&E at the value chain, household and community levels

As indicated earlier, the attribution of outcomes and impact at the VC level becomes less certain as the strength of external influence increases. It is, therefore, important that we develop plausible 'causal' links among the outputs and outcomes at the IP and VC levels, and their impact on households and communities. In the following subsections, we present the VC outcomes at actor and chain levels, and their key parameters and indicators, as well as those for the wider impact on households and communities.

Outcomes at the actor level

When we look at outcomes at the actor level, we can make a distinction between market performance, the use/access to services, technical performance, innovation capacity, risk reduction and improved social capital. These are presented in detail with the key parameters and indicators in Table 4.

Table 4.VC outcomes at the actor level, key parameters of change, and indicators

VC-outcomes (actor-level)	Key parameters	Indicators
Market performance	VC actors' marketable output and value addition	Changes in off-take of livestock and livestock products per VC actor
		Number of new market channels/outlets being accessed
	Market participation, share and profit	Increased value/value added of livestock and livestock products per VC actor
		% of poor and women participating in VC
		% of market share of VC actors
Use/access to services	Access and use of inputs or 'material' services (financial, transport, in-kind inputs)	Gross margins of VC actors
		% of VC actors aware of market conditions (consumer preferences and demand)
		Satisfaction level among clients of products measured in terms of the quality and quantity of supply of the targeted product
	Access to and use of knowledge and information services	% of producers and VC actors seeking and accessing services
		% of VC actors expressing satisfaction with the quality, timeliness and affordability of input and service provision
Technical performance (at the level of enterprises in all parts of the chain)	Productivity and production	Changes in costs of services
	Product quality	New knowledge and information sources being accessed
	Cost of production	% of targeted producer households pro-actively seeking and using information and extension services
Innovation capacity	Awareness/knowledge and use of improved technologies and knowledge	% of VC actors expressing satisfaction with the knowledge and information services
	Changes in number, quality, reliability of information sources	Changes in production and productivity ⁵
	Interaction with other VC actors	Changes in product quality and attributes
Reduced risk	Risk allocation	Reduction in cost of production
		Diversity of knowledge sources
		% of target groups having access to and using the knowledge sources and technologies
		(New) information sources being accessed by the VC actors
		% of VC actors using new information
		Frequency of interaction for learning and/or business by each VC actor
		Perceived and/or actual change in risk (production, marketing, financial etc.) among VC actors in the chain

Outcomes at the chain level

Besides looking at the outcomes at the actor level, we can also focus on the whole VC chain. As indicated earlier, VC analysis helps to gain a better insight into the interdependencies among stages along the chain and actors, the individual components of the chain that need to be improved, the benefits of different institutional arrangements, and the needs for public investment, enabling policies and regulations. Some key aspects of specific importance are the governance of the chain and the composition of actors and the relations among them, and the role of upgrading and distribution of benefits. These aspects are also reflected in the VC outcomes at the chain level (see Table 5).

5. For specific production and productivity indicators for different livestock species, see annex 2

Table 5.VC outcomes at the chain level, key parameters of change, and indicators

VC outcomes (chain-level)	Key parameters	Indicators
Governance of the VC	Horizontal and vertical cooperation and coordination in the chain	% of VC actors at each of the stages engaged in vertical and horizontal cooperation and coordination % of VC actors sharing information and knowledge along the chain and working jointly
	Enabling institutional and policy environment	Changes in number and type of enabling policies and institutional arrangements
Market performance of the VC	Value addition	Increased value addition along the chain Changes in distribution of value and gross margins across the VC actors—share and level
	Effective supply of output to satisfy demand	Congruence between demand and supply through the year
	Chain competitiveness	Increased efficiency in the chain and at all stages
	Equitable distribution of benefits along the chain	Proportion of benefits that goes to the target groups (poor and women)
Access to and use of services	Access to service delivery	Changes in number and type of services provided
	Viability of service delivery	Costs of and returns from service provision
Technical performance	Chain product efficiency	Reduction in costs of production and operations at all stages of the chain
	Technological upgrading	Number and types of technological upgrades within the VCs
	Product innovation	Number and types of product innovation
	Product standard	Changes in product standards being achieved in the chain
Jobs created	Job opportunities created	Number and types of new jobs created
		Type of beneficiaries of the jobs
Ecological sustainability	Sustainable production system	Enhanced production in a sustainable manner (sustainability indicators to be identified based on local and participatory assessment for each targeted commodity)

Impact on households and communities

The ultimate aim of VC promotion using IPs is to reduce poverty among households and communities in the areas of operation. Usually, impact is assessed using the ‘five capitals’ of the livelihoods framework, i.e. human capital, financial capital, social capital, physical capital and natural capital. The impact areas and parameters that have been selected are derived from these capitals, i.e. income, food and nutrition security, and physical and natural assets (see Table 6).

Table 6. Impact of improved performance of VCs at household and community level, key parameters of change, and indicators

VC impact	Key parameters	Indicators
Income and Poverty	Household income improvements	Changes in income of households (male and female) between project and non-project participants and/or before and after project
	Poverty status (household and community)	Changes in poverty levels of households (M/F)
Food and nutrition security	Food consumption scores	Difference in food and nutrition security of households (M/F) between project and non-project areas or before and after project
	Household dietary diversity	
Assets	Natural assets	Difference in number and value of household livestock assets
	Physical assets	Difference in number and value of household physical assets (items based on local and participatory assessment of relative importance)

External conditions

Throughout the duration of the project or program there may be various external factors that may affect outcomes and impacts of IPs on VCs, households and communities. These may not constrain the environment in which IPs and VCs have to operate—and hence their potential for change—but sudden changes in conditions may also affect their effectiveness (for better or worse). They need to be taken into account when attributing outcome and impact to the performance of IPs (Njuki et al. 2010). Key external conditions are infrastructure, institutions and policies, technologies and information, agroclimatic conditions and external market conditions (see Table 7).

Table 7. External conditions affecting outcomes and impact, key parameters of change, and indicators

External conditions	Key parameters	Indicators
Infrastructure (public and privately supplied)	Roads, water, electricity, waste management, phone and internet	Types and size of infrastructure related to VC under target
	Research facilities	Percentage of VC actors expressing satisfaction with the infrastructure
	Markets (product and inputs)	
Institutions and policies	Institutional set up (governance and market structures)	Enabling environments related to VC under target
	Policies (macro-economic, sectorial, pricing, social)	Percentage of VC actors expressing satisfaction with the enabling environment
Technologies and information	Research and development	Types and size of R&D investment and outputs related to VC under target
Agroclimatic conditions	Major agroclimatic shocks	Major agroclimatic shocks observed affecting the targeted commodity positively and negatively
External market conditions (world prices and access to foreign markets)	Changes in the external market	Major external market changes observed affecting the targeted commodity positively and negatively

Conclusions

This document provides an overview of a logical model to assess IP's contributions to outcomes at the VC level and to assess subsequent impact on households and communities. To test and refine the framework in a practical but robust fashion, we have proposed empirical measurement of the performance of IPs by: (a) assessing the outcomes and impacts at different levels: the platform itself, the wider VC (both individual actors and the whole chain), and ultimately the household and community; and (b) monitor processes to see whether they are enabling achievement of stated objectives and outcomes.

Application of the framework should allow comparison of the IP performance across contexts, commodities and livestock species (e.g. by making use of the framework in various projects and programs in which ILRI is involved). It should further allow lessons for designing and implementing future projects involving IPs around livestock VCs.

We are aware that the impact pathways and contexts in which IPs and VCs operate are different across different countries and livestock species. In addition, the resources that are available for M&E also vary by project. We present this M&E model to support project teams in ILRI projects and programs, and others, in developing a workable M&E strategy around IP's and VC's. The ideas can of course be adapted as necessary according to context, and we hope that this paper will be treated as a living document with others contributing to its development based on their experiences putting it into practice.

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Annex I Selection of ILRI projects to enhance market performance through IPs

Fodder Innovation Project (FIP) (2003–2009). This DFID funded project focused on livestock-dependent small-scale farmers and the associated challenge of fodder scarcity in Nigeria and India. During the first phase from 2003 to 2006 the project tended to focus more strongly on technology-based innovations, but making farmers find relevant information and networks appeared to be as or more effective for innovation. Hence, the second phase from 2006 onwards focused on improving farmer's access to knowledge, services and markets through innovation networks. (www.fodderinnovation.org)

The Fodder Adoption Project (FAP) (2008–2010). FAP was a research project implemented by ILRI, CIAT and ICARDA and funded by IFAD. The project engaged with a wide range of rural stakeholders to strengthen the capacity of poor livestock keepers in Ethiopia, Syria and Vietnam, to select and adopt fodder options, and access market opportunities to enable them to improve their livelihoods. IPs were used to strengthen and/or establishing consortia of players in the livestock and fodder arena to allow innovations for small-scale farmers to spread. (<http://fodder-adoption-project.wikispaces.com>)

LILI Markets (2007–2010). The project 'Livestock, Livelihoods and Markets' was implemented by ICRISAT, ILRI and various other partners to improve market participation by small goat and cattle growers in semi-arid regions of Mozambique, Namibia and Zimbabwe. It aimed at evaluating constraints and opportunities for commercializing smallholders' production of goats and cattle, testing and evaluating alternative product marketing and input delivery systems, and assessing impact of market led technology change on income and poverty. IPs were used for effective communication among stakeholders. (www.icrisat.org/locations/esa/esa-publications/Innovation-platform.pdf)

PROGEBE (2003–2013) The GEF/AfDB funded program 'Sustainable management of globally significant endemic ruminant livestock of west Africa' (PROGEBE) was implemented at twelve project pilot sites in four countries (Guinea, Mali, Senegal and The Gambia) in collaboration with national partners. The objective was to develop, test and implement models for community-based conservation, management approaches and strategies for preserving unique genetic trait-habitat complexes that are of global and regional significance in the four countries. IPs were established for enhancing communication, coordination and knowledge sharing. (www.progebe.net)

PLM (2010–2013) The project 'Building livelihoods resilience to alleviate poverty in semi-arid areas of West Africa' had the objective to build livelihood resilience of smallholder farmers through the promotion of integrated, sustainable and profitable farm systems of milk and vegetable production using IPs. The project was led by WECARD/CORAF in collaboration with national partners in Mali, Niger and Togo and technical support from ILRI. (www.coraf.org/database/projet/bailleurdetail.php?detail=LFA/01/CP/IRDC/2009-13)

ImGoats (2011–2013) The EC/IFAD funded project on goat VCs as platforms for reducing poverty and increasing food security in dryland areas in India and Mozambique was led by ILRI with BAIF and CARE as implementing partners. It aimed to transform smallholder goat production and marketing to a sound and profitable enterprise and model that taps into a growing market by building on an innovation system and VC approach using IPs. (www.imgoats.org)

Annex 2 Production and productivity indicators for livestock species⁶

() = indicates optional secondary indicators

Dairy cattle

- Average daily weight gain (males) (kilograms/day)
- Age at first calving (days)
- Calving interval (days)
- Daily milk production per cow (kilogram/day)
- Annual and lactation milk production (kilograms)
- Annual female calf mortality (rate)
- Annual adult animal mortality (rate)
- (Weight at first calving) (kilograms)
- (Weaning weight (males and females)) (kilograms)
- (days open) (number)

Beef cattle

- Weaning weight (kilograms)
- Average daily weight gain (kilograms/day)
- Calving (rate)
- Offtake (rate) (no of animals and kilograms per year)
- (Time to selling weight or slaughter)
- Annual calf mortality (rate)
- Annual adult mortality (rate)
- Age at first calving (kilograms)
- Proportion of high quarter dressed weight to total (conformation)

6. Adapted from Enahoro et al. (undated draft MS).

Sheep and goats

- Same as beef
- Number born per female/year (profligacy)

Pigs

- Farrowing rate (litters per year)
- Piglets weaned/born per litter (number)
- Average daily weight gain—Time to slaughter or selling weight
- Age at first farrow (days)

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