FORMATION OF MILK AND BEEF VALUE CHAIN INNOVATION PLATFORMS: EXPERIENCES FROM KILOSA AND GAIRO DISTRICTS, TANZANIA

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ABSTRACT

This paper is based on experience from a field study that was undertaken in 2012 to improve livelihoods of pastoralists through promotion of innovations for enhanced productivity and sustainable beef and milk value chains in Kilosa and Gairo Districts. Guided by value chain framework, the study carried out innovation platform formation starting with baseline survey and two workshops which convened the participatory value chain actors (PVCA) of the pastoral beef and milk value chains as key stakeholders towards increasing market access of beef and milk in Kilosa and Gairo Districts and beyond. The workshops explored stakeholders' analysis, beef and milk value chain description, constraints analysi, empowerment needs assessment, networking, joint action planning and implementation. This culminated in pastoralists organising themselves into four innovation platforms, namely: Beef at Mvumi and Rubeho and; Milk at Parakuyo and Ilakala villages. The platform formation process has revealed that participatory value chain analysis is an efficient and effective tool that brings together value chain actors to analyse the binding constraints and existing opportunities, and highlight value chain upgrading strategies. The pastoral milk and beef value chains have potential for growth and competitiveness, and if developed can help address issues of market access for pastoralists thus alleviating income poverty. Pro-poor development of the pastoral milk and beef value chains would also serve as a stepping stone for modernisation of the pastoral livestock system. Since the Tanzanian livestock sector is predominantly pastoral, therefore, commercial transformations in the pastoral system are necessary for a vibrant pro-poor livestock sector.

***Key Words*:** Pastoral cattle, innovation platform, beef and milk value chain, Kilosa and Gairo Districts

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1.0 INTRODUCTION

In developing countries livestock can be an important pathway out of poverty. Over 1 billion people depend on livestock which provide power and manure for crop production, contribute to food and nutritional security, and are a form of savings for many poor people (McDermott *et al*., 2010b). Livestock also make major contributions to the agricultural gross domestic product (GDP), export earnings and employment (Rich *et al*., 2011). The sector is driven primarily by rising incomes and urbanisation in developing countries like China and India where demand for products such as meat and milk has been soaring (Altenburg *et al*., 2008). However, McDermott *et al*. (2010b) further note that livestock are also responsible for adverse impacts on land, water, biodiversity and climate change. Despite the conflicting paradigms, given appropriate policies to address social and environmental effects, livestock provide opportunities for millions dependent on them. There are, however, challenges to enhancing market success for livestock-dependent people, including weak farm-to-market links.

The literature on value chains and innovation systems show many common and complementary features (Rich *et al*., 2011; Clifton *et al*., 2010; Boschma, 2005). The value chain is understood to include all the actors and activities from production to consumption, and the dynamic relationships between actors involved in a chain. Key to both approaches is the mapping and characterisation of actors and their interactions. An innovation systems approach focuses on knowledge generation and use, often at a particular stage of a value chain, while the value chain approach is more about value creation and market opportunities and linkages across a chain. With few exceptions (McDermott *et al*., 2010b) an integrated innovation system and value chain approach to developing, implementing and evaluating pastoral cattle production system development initiatives has received limited attention among researchers and practitioners, arguably resulting in sub-optimal outcomes.

According to McDermott *et al*. (2010a) sustainable return to improved pastoral cattle production technologies depends on the efficiency of a whole value chain. Rich *et al*. (2011) argue that an integrated approach provides several advantages. First, it provides a better framework to address market failures such as high transaction costs, insufficient market information and the exercise of market power that are inherent in the smallholder livestock system. Second, it allows for the optimisation of gains from innovations in interrelated inputs and services. In relation to the latter, McDermott *et al.* (2010a) cite 300% gains to smallholders due to the combined use of breed and feed improvements (which otherwise would not have been achieved).

The pastoral cattle production system is a high potential economic activity in Tanzania. However, in its current set-up the system is faced with many set-backs related to calves, replacement stock, parent stock, service provision, land issues, markets, governance, value addition and many other determinants (Karimuribo *et al*., 2012). This paper, therefore, presents the experience of formation of milk and beef value chain innovation platforms process as a means of enhancing environment and cattle production systems, linking pastoralists to the market while cooperating with other value chain actors in order to improve profitability and the livelihood of the pastoralists based on the authors' study (Karimuribo *et al*., 2012) titled "Increased market access of milk and beef from pastoral system through innovative value chain approaches in breeding, feeding and health, in Kilosa and Gairo Districts, Tanzania", conducted in 2012. The specific objectives are to: (i) determine indigenous knowledge, disease dynamics, market, husbandry and production needs in the pastoral production system; (ii) strengthen existing and new forms of pastoralists' organisations in order to access information, inputs and markets (i.e. empowerment); (iii) enhance cattle productivity through technological innovations to improve disease management; (iv) enhance cattle productivity through

technological innovations to improve genetic potential; feeding and other husbandry practices; and (v) design and promote milk and beef value chains that match newly developed production systems.

2.0 METHODOLOGY

This study effectively started in January 2012 under Enhancing Pro-Poor Innovation in Natural Resources and Agricultural Value Chains (EPINAV) programme. The study started by carrying out a baseline survey to identify existing knowledge and practices with respect to disease dynamics, husbandry practices and production levels. Based on the baseline survey results milk and beef value chains were mapped in First stakeholders' workshop (Mutabazi and Longo, 2012) which convened the participatory value chain actors (PVCA) of the pastoral milk and beef value chains as key stakeholders towards increasing market access of milk and beef in Kilosa and Gairo districts and beyond (Table 1). Analysis of strengths, weaknesses, opportunities and constraints (SWOC) was done. Each element was tailored to the functional nodes in the value chains– i.e. pre-production (input supply), production, collection, trading, processing, retailing and consumption. The participants were required to ponder on and give the features of each element in relation to functions that characterise each value chain. The PVCA exercise was carried out in two groups with close facilitation of facilitators and researchers. The workshop participants were to divide according to what they do most in terms of business between beef and milk (Figure 1 and 2).

Table 1: Distribution of stakeholders by workshops/meetings participation

Category of participants	Workshops/Meetings and where held					
	1st Kilosa	2nd Kilosa	Mvumi	Parakuyo	Rubeho	Ilakala
Producers	21	29	25	31	33	26
Traders	2	3	-	-	-	-
Transporters	4	-	-	-	-	-
Processors	3	1	-		-	-
Input suppliers	3	1	-	-	-	-
Service providers	10	11	1	1	3	4
Policy makers	1	1	-		2	-
Researchers	12	10	3	3	7	7
NGOs	-	-	-	-	-	-
Total	**56**	**56**	**29**	**35**	**45**	**37**

The innovation platform formation process used empirical data collected from Kilosa and Gairo districts from multiple sources including: baseline survey, results of the first workshop and close observation of actors' interactions and learning in the second workshop. The second workshop convened the PVCA of the pastoral milk and beef value chains who participated in the first workshop as key stakeholders towards increasing market access of beef and milk held in Kilosa Town (Table 1). The workshop explored stakeholders' analysis (Table 2), constraints analysis; empowerment needs assessment, networking, joint action planning and implementation (Bwana, 2012). This culminated in initiation of meetings for organisation of pastoralists communities into innovation platforms in four villages, namely: milk at Parakuyo and Ilakala villages; and beef at Mvumi and Rubeho villages, as shown in Table 1.

Results from the baseline survey and stakeholder analysis were presented to district multi-disciplinary staff to build a common vision. This helped to justify the choice of the action sites, namely: Mvumi, Parakuyo, Rubeho and Ilakala villages. During

these fora, the potential innovation platform members covering: primary, secondary and tertiary stakeholders were identified (Table 2). Consultative/sensitisation meetings with local leaders in Mvumi, Parakuyo, Rubeho and Ilakala villages were held to improve understanding and build consensus on the vision for value chain innovative platform approach, identify persons who could attend the initiation meetings and also bless the programme.

The platforms were formed through a multi-phase participatory action learning approach involving a combination of iterative, participative reflective and field activities. The identified potential actors (innovation platform members) at Mvumi, Parakuyo, Rubeho

Table 2: Assessment of stakeholders' priority interest, capacities and resources in Kilosa and Gairo Districts

Stakeholder	Priority Interest		Capacities/Resources	
	Milk value chain	*Beef value chain*	*Milk value chain*	*Beef value chain*
Primary	Knowledge and skills	Improve breeding bulls	Very low	Indigenous cattle available
	Land	Availability of reliable grazing land	Seasonal grazing	Land available
	Dairy cattle	Water for use by people and livestock	Using Zebu Breed	Not available
Secondary	Training	Organisation of livestock keepers in platforms and networks	Not available	Available
	Dairy cattle improvement	Quality beef product	Not available	*TPDA available
	Dairy cattle improvement	Knowledge and skills related to various aspects	Professionals available	To be improved
Tertiary	-	Sensitisation and supervision of implementation	-	To be improved
	-	Representation in formulation of livestock policies and regulations	-	To be improved

*TPDA-Tanzania Pastoral and Diary Association.

and Ilakala villages were invited for the initiation meeting to discuss the guidelines for establishment and functioning of innovation platforms (IPs). In the meetings, IPs were initiated and the process and operations of IPs were defined. The guidelines developed were used to facilitate the milk and beef innovation platforms formation process. In these meetings, core partners allowed time for the local participants to answer the question "Are you interested in forming a Milk/Beef IP or not? The question was unequivocally answered with a resounding "Yes". The participants were then asked to proceed and develop the challenge and common vision. This served as the first milk/beef IP meeting, led and facilitated by the IP members from the pastoral communities.

3.0 RESULTS AND DISCUSSIONS

3.1 Mapping milk and beef value chains

3.1.1 Milk value chain

The milk value chain mapped was rather complex with multiple products and actors (Figure 1). This signifies the high intensity of value addition and complex interactions among actors and chain service providers. Critical pre-production aspects of the milk value chain were identified to land and sourcing of improved animal breeds though the National Ranching Company (NARCO) and land administered by the village committee. A range of production and marketing functions undertaken in the milk value chain are listed in the far left column (Figure 1). The actors involved are presented as nodes within the space of the value chain map. Production and business service providers are fitted on the far left column of the chain. Arrows of different colors distinguish the flows of value added products. The quantitative overlays indicate the concentration of actors, scale of business, sex of actors, number of cattle and volumes of milk and milk

products exchanged across different nodes of the value chain. The major value chain strands are

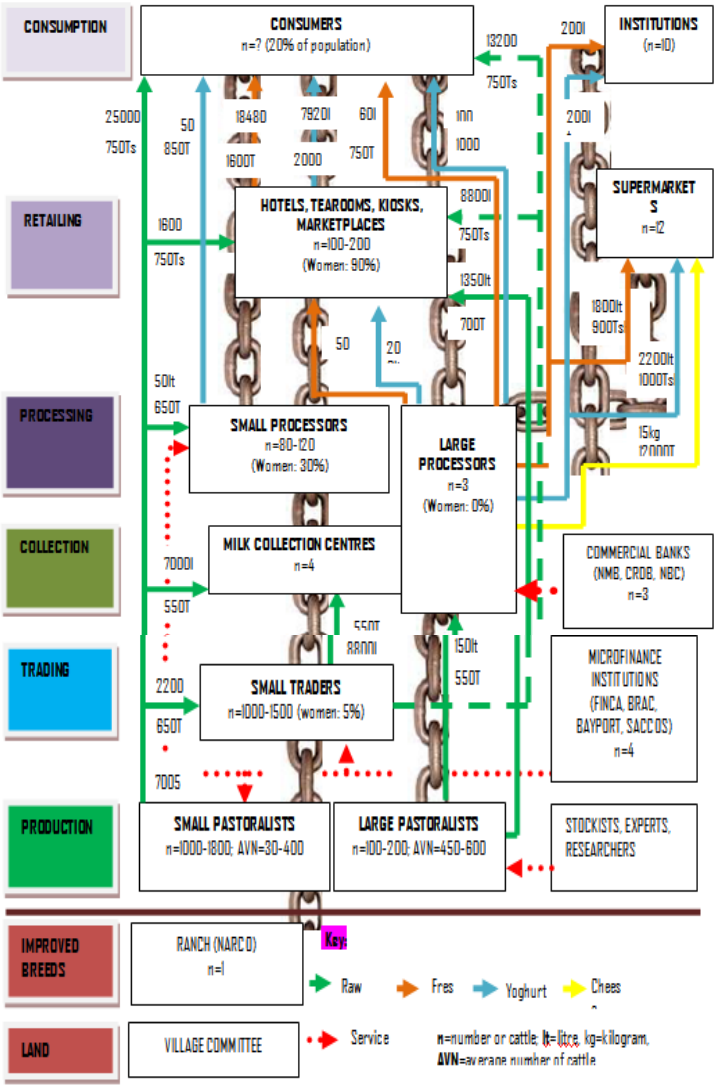

Figure 1: Milk value chain actors map for Kilosa and Gairo Districts

broadly categorised into two according to whether they are in the first place linked with small pastoralists or large-scale pastoralists.

3.1.2 Beef value chain

The beef value chain was found to be relatively underdeveloped compared to the dairy value chain (Figure 2). One of the major breakthroughs in the dairy value chain is the availability of dairy Tanzania Bureau of Standards (TBS) that is tailored to the Tanzanian contexts. The beef value chain is simple involving mainly one major strand: Pastoralist> Trader> Transporter> Slaughter slab owner> Butcher shops> Consumers. The group of stakeholders that developed the beef value chain involved only stakeholders within the district. Beef actors that operate beyond the district were invited but failed to attend. This limited the scope of the beef value chain developed by the stakeholders. The dairy value chain group involved large processors from Morogoro and Dar es Salaam.

3.2 Milk and beef innovation platforms formation

The strategies required to enhance value chain coordination were discussed by the stakeholder workshop participants in the plenary. The major strategy which came up is to form an inclusive network of pastoralists in Kilosa and Gairo Districts. The platforms formed in Mvumi, Parakuyo, Rubeho and Ilakala pilot villages seek to ascertain the extent to which they might improve environment and cattle production systems, link pastoralists to the market while cooperating with other value chain actors in order to improve profitability and the livelihood of the pastoralists in the study area and beyond.

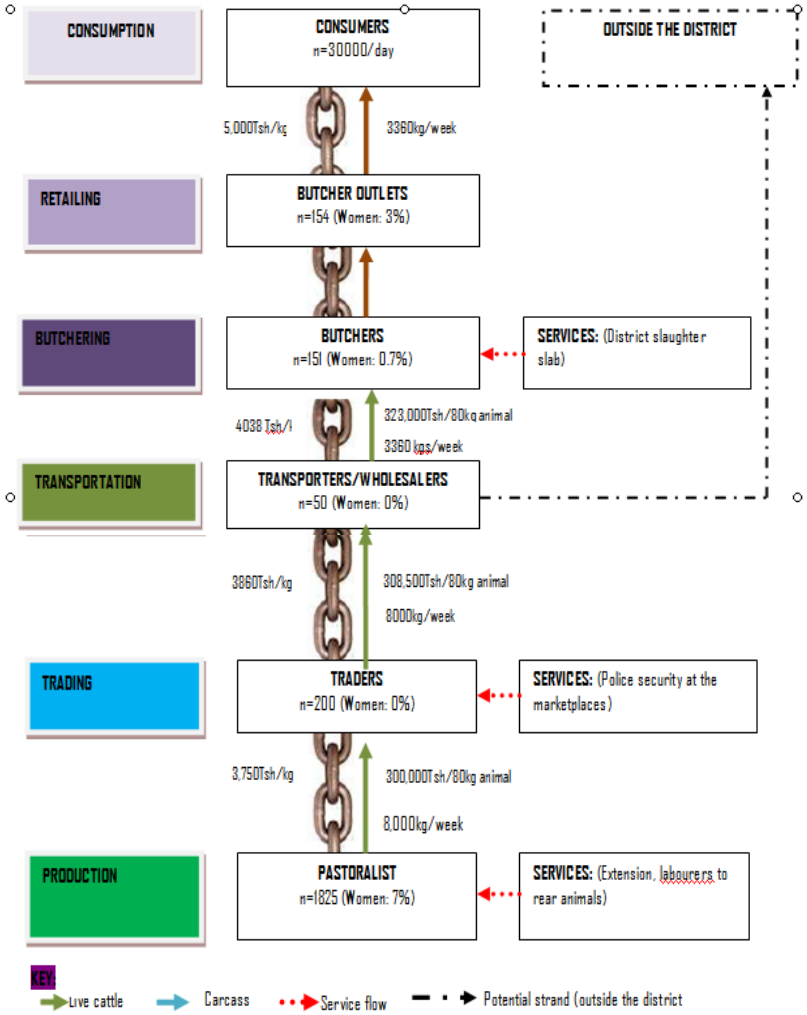

Figure 2: Beef value chain actors map for Kilosa and Gairo Districts

The aim of the platforms is therefore for coordinating various activities and policy lobbying that will contribute to the

development of the milk and beef value chains. This has implications on the importance of policy for innovation in value chains. For example, meat production was expensive for some farmers in the study area. The supply of improved breeds of cows and milk collection points were inadequate. Where such constraints prevail, the government need to support innovations and livestock-based businesses by facilitating the provision of credit, improved breeds etc. Second, due to market manipulation by some cattle traders, some farmers were selling animals for less than the market price. Thus, the government and other stakeholders need to step in and prevent such destructive behaviour. Third, networking is best facilitated by local and dedicated 'intermediary' organisations but this seems a long way off in the Mvumi, Rubeho, Ilakala and Parakuyo villages, hence public investment is required to support local NGOs and public organisations to develop facilitation capacity. Finally, the weak and often missing actor in local networks was the private sector (Table 1). Thus, the government should nurture that sector so that it plays its due roles, particularly in disseminating livestock knowledge and technologies.

5.0 CONCLUSIONS

In conclusion, the study shows that livestock innovations can be successfully triggered and integrated in livestock production by actors interacting and learning in networks, and on farm. However, the success of livestock technologies depends on other inputs, institutions and markets. Thus, the real improvement occurs when broader value chain issues are addressed in a holistic manner. The participatory value chain analysis is an effective tool that brings together value chain actors to analyse the binding constraints and existing opportunities, and highlight value chain upgrading strategies. The pastoral milk and beef value chains have potential for growth and competitiveness, and if developed can help address market access to pastoralists to address income poverty. Pro-poor development of the pastoral milk and beef value

chains would also serve as a stepping stone for modernisation of the pastoral livestock system. The Tanzanian livestock sector is pre-dominantly pastoral, therefore commercial transformations in the pastoral system are necessary for a vibrant pro-poor livestock sector. This paper recommends strengthening of pastoralists and other value chain actors innovation platforms organizations as well as organization of pastoralists field schools from innovation platforms.

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