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Actor Linkages in Dairy Innovation Platforms: A Case Study in Kerala

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Authors' contributions

This work was carried out in collaboration among all authors. Authors DMD and JG designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors AC and FF managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Aim: The current study analyses the level and type of linkages among the actors in the innovation platform using actor linkage matrix (ALM). The Samagra scheme which includes dairy based projects namely Nature Fresh (NF) and Ksheerasagaram, was the innovation platform (IP) under the study. The beneficiaries of these projects were women SHG (Kudumbasree) members.
Study Design: Survey design was used for the current descriptive study.
Place and Duration of Study: The study was conducted in Kerala as a part of M.Sc research work in the year 2017-18, affiliated to National Dairy Research Institute.
Methods: Stakeholder identification was done using the information from secondary sources, the members of the selected SHGs and other stakeholders in the public and private sectors using checklist, open ended interviews and focus group discussions. The strength of the linkages and their reciprocity were depicted in the actor linkage matrix.
Results: The study found out that only very few strong reciprocal linkages were there in the IP value chain which was between the SHG members and the Community Development Society (CDS) chairperson, Veterinary Surgeon (VS) and consumers. Medium linkage was observed between the SHG members and private sector actors like input dealers and marketing agents. The public sector

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actors like the State and District level Kudumbasree officials, State Veterinary Universities (SVUs), Dairy Development Department (DDD), Animal Husbandry Department (AHD) had the weakest of the linkages with the other stakeholders. Although there is a scope for establishing and strengthening dynamic linkages between actors, it is not exploited and promoted.
The actor linkages and dynamics are crucial in fostering the innovativeness in organizing the dairy value chain and for the institutionalization of the IP. Thus the IP framework should focus on linkages that need to be developed and make the required changes in policy and practice for this to happen.

Keywords: ALM; innovation platform; Samagra; stakeholder; value chain; self-help groups; Kerala.

1. INTRODUCTION

The current trend and changes in agricultural research and development process tends towards multi-stakeholder engagement denoted by participatory research approach, policy engagement, demand driven research, engagement of non-traditional stakeholders etc. This represents a paradigm shift from the linear agricultural research and development system and is based on the innovation system approach. An innovation platform is the real world application of innovation system approach [1]. It is a network of organizations, enterprises and individuals aiming to bring new products, new processes, and new forms of organization into economic use, together with the institutions and policies that affect their behaviour and performance [2] by exploring the possibility of interaction among various heterogeneous stakeholders and institutions. The interaction among these institutions and stakeholders leads to knowledge generation, application and sharing such that innovation is generated. Innovation Systems emphasized that innovation emerges from highly coordinated and facilitated partnerships of multiple stakeholders, i.e., researchers, extension agents, farmers, policy makers, private sector actors, non-government organizations etc. Strengthening the linkages and interaction between the actors has been considered as key to improved efficiency and effectiveness of agricultural research and development efforts aimed at raising the level of economic performance of rural economy through increased productivity [3]. The concept of dynamic membership and participation has been widely accepted and adopted at the local level to empower beneficiaries to manage their own development, make it more effective, efficient and sustainable. Multi-stakeholder platforms take participation to a higher level by bringing governments, private sector, other development actors and civil society together in a process of interaction, dialogue and social learning. Moving beyond the usual triad of farmers, extension and research institutes long involved in agricultural development programmes, innovation platforms reach out to a wider group of stakeholders. Innovation platforms are a systematic attempt to facilitate change through joint action. While they are structured, they are also flexible, changing in response to the current situation [4]. By joining forces in innovation platforms, stakeholders can generate innovation by combining their indigenous knowledge, business interests and organizational skills. The interaction of the actors linked through the innovation platform takes place either physically or virtually [5]. Various studies have been conducted on different aspects of innovation platforms like the institutional change facilitated [6,7], improved market relationships [8,9], enhanaced behavioral changes like collective action and technology adoption [8,10]. The current study concentrates on the linkages between the stakeholders.

A typical Innovation Platform should have a mix of stakeholders drawn from both public and private sector such as scientists, extension workers. Thus the Samagra dairy projects, taken for the current study can be considered as an innovation platform as it envisages integrated approach covering the entire value chain, bringing in technical support of professional agencies and experts, and convergence of the three-tier PRIs. The Samagra projects are implemented all throughout Kerala state. The aim of innovation platforms is to enable collaboration and interaction among stakeholders, in order to activate new ways of doing things or achieving a common goal in a more innovative and effective way. The main aim of Samagra project is the development of agriculture and allied sectors in Kerala and thus the upliftment of lower sections of society. Thus Samagra as an innovation platform gives more emphasis on institutional innovation. The result of engaging in institutional innovation is that we can begin to unlock the unlimited potential of ourselves and our organizations [11]. Innovation platforms may

tackle challenges and opportunities at various levels: in a village or community, in a district or nationwide, or throughout a value chain or economic sector. The project as an innovation platform look forward to tackle the challenges in agriculture and allied sectors in Kerala along with the socio economic development of the rural poor. The project is implemented through the state poverty eradication mission known as Kudumbasree mission, the ultimate beneficiaries of which are women in the backward class of the society. The women are seen as an agent of change rather than an object of change by the Kudumbasree mission. Thus the Samagra innovation platform brings together the women in the lower section of the society who are the kudumbasree members, the local government officials, other private and public stakeholders in the Samagra value chain. According to the Innovation System framework, improved interactions help to establish linkages between stakeholders resulting in enhanced communication and information sharing, and ways to address common constraints in innovative ways [12]. Samagra as an innovation platform aims at facilitating institutional and human capacity building of the actors to effectively participate in the innovation process. The capacity gap needs are identified by the actors and the training is provided by the appropriate partners. Samagra as an Innovation Platform thus for brings together multiple stakeholders for visioning, planning and implementing or application of new ideas, practices, services which arise through interaction, creativity, insight, and empowerment aiming to improve the existing situation/conditions around a common interest/challenge faced by Kerala in agriculture and allied sector and thereby bring about desired change. Thus, the objective of the paper is to throw light on the various linkages existing in the Samagra IP and their strengths using actor linkage matrix. This would contribute in identifying and strengthening the weak linkages along with establishing more linkages to improve the success and sustainability of the innovation platform.

2. RESEARCH METHODOLOGY

Actor linkage matrix is the methodology used to study the linkage among different actors and the direction and strength of information flow between them. To understand patterns of interaction it is important to map linkages, and to understand the nature and purpose of those linkages. It is a tool used to find out significant links, assess their strength and consequently document a given situation or the outcomes of an event [13,14,15,16,17,18,19].

An in-depth study of secondary sources was conducted to understand the linkage of sectors in the innovation platform. The various actors in the system was asked to indicate other actors from whom they receive information and about their reciprocal links with all other actors in the system. For this a simple checklist was made, but interview was open. The discussions were kept open ended. The answers received from actors about their linkages with other actors in the innovation platform was crosschecked with the latter and scores for the strength of the linkages were given in a 4 point continuum from negligible to strong. Information on the strength of the linkages and reciprocal linkages in the Samagra innovation platform was summarized in the form of a matrix.

3. RESULTS AND DISCUSSION

Interaction among the Samagra IP actors is presented using linkage matrix where major actors are listed both the row and column of the matrix and their relation and interaction is described in the intersection cells (Table 1). Each box/cell in the matrix then represents the linkage between the two actors and the type of linkage. It has a cell for every possible linkage, and so encourages one to explore all possibilities, to think creatively and innovate. It helps to keep a holistic perspective on which key actors really do determine what happens in a specific innovation system.

Accordingly, the SHG members had strong reciprocal linkages with Community Development Society (CDS) chairperson, veterinary surgeon, and consumers. The monthly meetings held by CDS chairperson were conducive for strengthening the linkages, which was also reported by Sreeram [20]. Veterinary Surgeon (VS) was mainly depended for information regarding dairying and health care services by the respondents, paving way for strong linkage. Similar trend was observed by Mohammed [15]. The reciprocal linkages with the consumers were also strong as the respondents marketed milk to either the individual households in person or through collective marketing using tagging of bottles, which paved way for instant feedback-response mechanism between the farmers and consumers.

Table 1. Actor linkage matrix of Samagra project (4- Strong, 3- Medium, 2- Weak, 1- Negligible, 0- No linkage)

	SHG members	**CDS Chairperson**	**Kudumbasree Block coordinator**	**MEC**	**Jeeva team**	**DMC& SMC**	**Cooperatives**	**VS**	**Marketing agent**	**Input dealers**	**Consumers**	**LSG officials**	**DDD**	**KVASU**	**AHD**	**DEO**	**Bank**
SHG Members	×	**4**	2	2	3	2	3	**4**	2	3	**4**	3	2	2	2	2	2
CDS chairperson	**4**	×	**4**	3	3	3	2	3	3	0	1	**4**	1	2	2	1	3
Kudumbasree Block coordinator	2	**4**	×	3	3	3	1	2	2	0	0	3	3	2	2	1	3
MEC	2	3	3	×	2	2	1	1	3	0	0	1	0	0	0	1	2
Jeeva team	3	3	3	2	×	0	0	0	3	0	0	2	0	0	0	1	0
DMC &SMC	2	3	3	2	0	×	1	1	0	0	0	2	3	2	3	1	1
Cooperatives	3	2	1	1	0	1	×	0	0	0	0	0	2	1	1	1	2
VS	**4**	3	2	1	0	1	0	×	1	2	0	2	3	3	2	1	0
Marketing agent	2	3	2	3	3	0	0	1	×	0	**4**	1	0	0	0	0	0
Input dealers	3	0	0	0	0	0	0	2	0	×	0	0	0	0	0	0	0
Consumers	**4**	1	0	0	0	0	0	0	**4**	0	×	0	0	0	0	0	0
LSG officials	3	**4**	2	1	2	2	0	2	1	0	0	×	1	1	1	2	1
KLDB	1	1	3	0	0	3	2	3	0	0	0	1	×	2	1	1	0
KVASU	2	2	2	0	0	2	1	3	0	0	0	1	2	×	1	1	0
AHD	0	2	2	0	0	3	1	2	0	0	0	1	1	1	×	1	0
DEO	0	1	1	0	0	1	1	1	0	0	0	1	1	1	1	×	0
Bank	2	2	3	2	0	1	1	0	0	0		1	0	0	0	0	×

Medium linkage was observed between the respondents and private sector actors like input dealers and marketing agent which has to be strengthened as the role of the private sector is vital for innovation to occur in a dairy innovation system Asres [21]. Medium to weak linkages existed between the public sector actors which included Kerala Veterinary and Animal Sciences University (KVASU), Dairy Development Department (DDD), Animal Husbandry Department (AHD), Dairy Extension Officer (DEO), LSG officials and the main actors like the SHG members, CDS chairperson and VS. Also the links between the private actors and public sector actors were weak to negligible which needs to be strengthened. Similar trend was observed by Asres [21] and he reported that the gap between the public sector and private sector should be filled for the coordination and efficient functioning of a multi stakeholder platform.

The state level and district level Kudumbasree officials had weak linkages with the other actors as they are mainly engaged in planning and administration activities. The CDS chairperson and the Jeeva team of the Kudumbasree was active at the field level. The Jeeva team was engaged in the monitoring of the activities of the SHG members. They made sure that the SHG members used the allotted fund for dairying activities as per Samagra guidelines. But the respondents reported that monitoring by the Jeeva team is not done on a regular basis which leads to the medium linkages between the Jeeva team and respondents. The main reason for this is the inability of the Jeeva team to meet the expense of field visiting for monitoring with the remuneration given by Kudumbasree. Cooperatives had medium linkages with the SHG members and weak linkages with the other actors of Samagra value chain. Majority of the respondents sold some quantity of milk to the cooperatives and calf feed was supplied by the cooperatives to those who were its members. Although trainings are conducted by the cooperatives and fodder slips are given, majority of the farmers don't access these facilities, due to time and land constraint respectively, which leads to only medium linkage with the cooperatives. Strong, effective and sustainable innovation platform is one where there are changing institutions that facilitate flows of information and good partnership coalitions between key actors over time, powerful support for this view can be found in analysis reports Douthwaite [22]. The effectiveness of linkages and coalitions will often be a key determinant of long-term impacts of institutional innovations. These findings are supported in a review of innovation systems by Blumenthal and Jannink, (2000) who observed that collaboration among multiple stakeholders can be crucial to the success of natural resources management [23-24].

4. CONCLUSION

It can be concluded from the matrix that the strong linkages between the different Samagra dairy value chain actors were very few. The actor diversity and strengthened linkages can lead to enhanced sustainability of the project. Although there is a scope for establishing and strengthening dynamic linkages between actors it is not exploited and promoted. The actor linkages and dynamics are crucial in fostering the innovativeness in organizing the dairy value chain and for the institutionalization of the project. The innovation platform acts as a framework to focus on linkages that need to be developed and the changes required in policy and practice to allow this to happen. The study recommends that Samagra development agencies should employ and integrate professional staff with actor-oriented social science skills into their mainstream activities for more effective linkages between various actors in the value chain, which will pave way for institutionalization of the innovation platform.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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