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Testing the effectiveness of Pasu Sakhi: An innovation for resource poor farm women in Rajasthan

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ABSTRACT

The present investigation was conducted to assess the effectiveness of Pasu Sakhi, a woman empowerment model in animal husbandry which is being carried out through Mahila Kisan Sashaktikaran Pariyojana (MKSP), a sub-component of National Rural Livelihood Mission (NRLM). The study was conducted in four districts of Rajasthan namely Alwar, Dholpur, Tonk and Dausa where the livestock component is being implemented through Pasu Sakhi (PS) model. The data were collected in the month of April 2016 by focused group discussions, observation and a semi-structured interview schedule to elicit the response from PS and woman farmer clients. The results revealed that the Project Implementing Agency (PIA) in Rajasthan, namely Centre for micro Finance (CmF), Jaipur effectively harnessed the social capital which was built up over a decade in earlier projects and greatly helped to achieve the targets set aside at grass root level through partner organisations in each selected district. The beneficiaries, although belonged to poor households could able to adopt few selected technologies such as deworming, mineral mixture feeding and milk products preparation. This paper discusses the various parameters of effectiveness of Pasu Sakhi model and suggests measures to further strengthen the same as a future demand driven gender sensitive decentralised extension model in the animal husbandry sector.

Key words: Effectiveness, Innovation, Pasu Sakhi, Social capital, Women empowerment

Livestock sector contributes 4.11% to national GDP during 2012-2013 (NAS 2014) and 25.6% to agricultural GDP in India. The present growth rate is not sufficient to meet the ever growing demand of livestock sector. India is home to 18% of livestock (Livestock census 2012). Dairying is a female dominated enterprise. In order to accelerate the growth rate, building up of effective technology delivery system is a prerequisite (Ponnusamy 2004). The number of livestock extension functionaries who are deployed at field level is grossly inadequate to reach the 70 million livestock households in the country (GOI 2014). Even ICT which is being talked for mass delivery of information within a shortest possible time will never equal to individualized delivery of animal specific information. Davis (2015) advocates that New Extensionists would deliver technical and functional competencies. This warrants the alternative approach in the delivery of information to a large number of clients in a cost effective demand driven manner. Hence, a study was undertaken to capture the effectiveness of Pasu Shaki (PS) extension model which is spearheaded under the Mahila Kisan Sashaktikaran Pariyojana (MKSP) in the Rajasthan state. The study also aimed at what has gone into community in terms of awareness, knowledge, understanding, adoption, empowerment and enlightenment with special focus on the kind of social capital which was built over a period of time.

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MATERIALS AND METHODS

Mahila Kisan Sashaktikaran Pariyojana (MKSP) is a sub-component of National Rural Livelihood Mission (NRLM) and Centre for micro Finance (CmF) is the lead Project Implementing Agency (PIA) in Rajasthan. CmF with six implementing partners is executing MKSP in seven districts of Rajasthan while the livestock activity is being implemented by 5 partners in five districts only. The program is largely implemented through Sakhi Model. For Agriculture activity, 900 Krishi Sakhi and for Livestock activity, 150 Pasu Sakhi have been developed. These Sakhis are supported by field coordinators, Subject Matter Specialists and Livestock Assistants. An innovative extension model has been developed where villagers can access the livestock related information and inputs in a decentralised technology transfer system called Pasu Sakhi model. It had facilitated training of women who are involved as Pasu Sakhi as well as project staff such as Livestock Assistants and Field Coordinators Livestock (FCL) of partner organisations in NDRI with different time periods during 2014 and 2015.

Pasu sakhi model: Pasu Sakhi (PS) is a farm woman

practising livestock as a livelihood enterprise, providing extension and input delivery to 25 to 30 families in the same village. She is under the supervision of Field Coordinator Livestock (FCL) who supervises 5 to 6 PS. At district level, one Livestock Assistant (LSA) coordinates 5 to 6 FCLs. They get guided by team leaders and consultants in every partner organisation. Animal rearing groups were formed by Pasu Sakhies. Number of technologies were demonstrated in their own plot/house in order to see their results by fellow group members. Pasu Sakhi is also engaged in deworming, vaccination, organising animal health camps, wheat straw urea treatment, *azolla* pit installation, mineral brick preparation, input sale to animal rearers so that they can buy and feed their animals.

Criteria for selection of Pasu Sakhi: Pasu Sakhi, should own dairy animals and other resources for proper Livestock intervention and demonstration. She should be interested and ready to adopt her own dairy as demonstration site and should possess leadership quality. She should be from the same or adjacent village where services will be provided. She should be a member of Self Help Group (SHG) or after her selection as PS, she needs to become the member of SHG. She should be able to read and write and should possess positive attitude to listen others. Her family members support her to do the work of Pasu Sakhi. She should be ready to provide 10 days' time in a month to the community. Age should be preferably between 25-40 years.

Role of NDRI: NDRI has given technical training to LSA and FCL in the month of March 2014 and later PS and women farmers were provided an exposure visit followed by two days training on preparation of value added dairy products in the months of July to September, 2015.

Period of study: The study was conducted in the month of first week of April 2016 in the districts of Alwar, Dholpur, Tonk and Dausa in Rajasthan where the livestock component is being implemented through Pasu Sakhi model. Focused group discussion and a semi-structured interview schedule were employed to elicit the response from PS and woman farmer clients. The number of respondents included 30 each from Alwar, Dholpur, Tonk and Dausa districts, constituting the sample size of 120. The collected information was then validated with partner organizations and nodal agency, CmF. Tabular analysis was used to meet the different objectives of the study. Further, frequency and percentage were used to interpret the findings of the study and presentation of results.

Work background in selected four districts of Rajasthan: In all the four selected districts for study, MKSP is being implemented by four NGOs (Partner organisations of CmF). A NGO named IBTADA (Urdu word meaning 'beginning') is working with primary focus on girls education and livelihood promotion in agriculture and livestock and is also implementing the MKSP in the Alwar district. PRADAN (Professional Assistance for Development Action) is implementing MKSP in Dholpur district of Rajasthan since May 2013. MKSP is focussed in Dholpur, Bari and Baseri Blocks covering 47 villages and 3,800 households. The program is being operated with a cadre of 47 Pasu sakhi, nine Field Coordinator Livestock (FCL) and one Livestock Assistant (LSA). SRIJAN, a NGO is implementing MKSP in Tonk and Bundi districts of Rajasthan. It executes the project activities in Duni and Uniara blocks in Tonk district. Saheli Samiti is implementing the MKSP in Dausa block of Dausa district.

RESULTS AND DISCUSSION

Targets and achievements covered under MKSP: The overall target and achievement in terms of number of families in the livestock component as covered by different organizations under Mahila Kisan Sashaktikaran Pariyojana (MKSP) is given in table 1.

It depicts that there is an exemplary performance in terms of coverage of farm families as per the planned targets, even exceeding the targets by organizations like SRIJAN and IBTADA.

The total indicates the coverage of farm families at the end of three years of the project period. However, every one of the group can read and write due to their continuous involvement in creation of social capital and social collateral under the influence of partner organisations.

Land holding pattern: Vast majority of the respondents in all the four districts of Rajasthan belonged to marginal category of farmers owning less than one ha of land indicating the marginal land holdings and subsistence living (Table 2). Poor land holding status of respondents did not provide adequate opportunities for undertaking a commercial farming enterprise. Further interaction revealed that they invariably cultivated pearl millet, sorghum, napier

Table 1. Overall target and achievement in coverage of number of farm families in the livestock component under MKSP

Partner organisation	2014-2015		2015-2016		Total (Families)	
	Planned	Covered	Planned	Covered	Planned	Covered
PRADAN	1,000	1,971	322	322	2,293	2,293
SRIJAN	1,000	1,495	503	505	1,998	2,000
IBTADA	400	777	265	371	1,042	1,148
SAHELI SAMITI	430	952	228	208	1,180	1,160
PEDO	100	393	118	118	511	511
Total	2,930	5,588	1,436	1,524	7,024	7,112

Source: CmF, Jaipur

Table 2. Land holding pattern (in %)

Land size	Alwar district	Dholpur district	Tonk district	Dausa district
Upto 1 ha	70.00	66.67	63.33	70.00
More than 1ha	13.33	13.33	23.33	23.33
No land	16.67	20.00	13.33	6.67

grass, maize, sesame, groundnut, mustard and wheat depending upon the resource availability. No women had land in their name in most of the villages except two Pasu Sakhies in Tonk district. They raise maize in *kharif* and mustard and wheat in winter season.

The animal holding pattern in all the four districts revealed that the majority of the respondents owned less than three animals which seemed to be an optimum number considering their resource endowment capacity (Table 3).

Table 3. Animal holding pattern (in %)

Herd size	Alwar district	Dholpur district	Tonk district	Dausa district
More than 5 animals	6.67	6.67	20.00	23.33
3 to 5 animals	33.33	23.33	53.33	46.67
Less than 3 animals	60.00	70.00	26.67	30.00

Since the group so organized was mostly belonging to poor communities, the majority of the respondent families possessed less number of dairy animals which could be easily manageable. Tripathi and Kunzru (1994) observed that the employment status of rural women varies widely within the Indian rural situation as various socio-personal, socio-psychological and communication characteristics which affect their employment in terms of whether they are employed in livestock related activities at home or outside or at both the places, level of their involvement in livestock activities and duration of employment.

Depending upon the number of animals and resource endowments, the majority of the respondents produced 5-10 litres milk/day. Only meagre proportion of respondents produced more than 10 litres milk/day (Table 4). They usually kept one-fourth of milk for family consumption and rest was marketed.

With respect to understanding the concept of Pasu Sakhi and MKSP, more than three-fourth of the respondents clearly understood the purpose behind the implementation of the project and had a fair idea and direction of the mode

Table 4. Milk production and consumption (in %)

Milk production per day	Alwar district	Dholpur district	Tonk district	Dausa district
More than 10 litres	10.00	13.33	13.33	26.67
5-10 litres	46.67	40.00	50.00	46.67
Less than 5 litres	43.33	46.67	36.67	26.67

Table 5. Understanding the concept of PS and MKSP

Indicator (%)	Alwar district	Dholpur district	Tonk district	Dausa district
Fully understood	80.00	66.67	76.67	73.33
Partially understood	20.00	33.33	23.33	26.67
No idea	0.00	0.00	0.00	0.00

of operation in the future also. This includes the expected roles and responsibilities of Pasu Sakhi, coordinating with the officials of the State Department of Animal Husbandry, KVK and ATMA and outsourcing of mineral mixture and deworming. Pasu sakhies expressed their role such as conducting village level training, organising meetings two times in a month and dissemination of livestock related information to client farmers. Eight Pasu sakhies did livestock insurance. They spent approximately 21 hours per week @ 3 hours/day (Table 5).

The project activities were being implemented as per the plan of work. Several individual visits and on and off campus training programmes created good awareness about important dairy farming technologies, although variation in the level of awareness was observed across districts (Table 6). Maximum awareness could be observed on deworming of animals, especially the periodicity. An exposure visit of the respondents to NDRI, Karnal created a good impact on creating awareness about milk products preparation. They have started to prepare some milk products like paneer, gulab jamun, kalakand, burfi on festivals and using at their home and selling the products in social functions like marriage. In coming days, they are planning to make Matka Kulfi and Ice Cream and sell at village level. The respondents were also aware of clean milk production practices and timing of artificial insemination.

Table 6. Awareness about IAP (in %)

Improved practices (%)	Alwar district	Dholpur district	Tonk district	Dausa district
Artificial insemination	83.33	76.67	70.00	70.00
Balanced feeding	80.00	73.33	73.33	73.33
Clean milk production	86.67	80.00	83.33	80.00
Deworming	100.00	100.00	100.00	100.00
Milk product preparation	100.00	76.67	76.67	70.00
Fodder cultivation	80.00	70.00	73.33	76.67
Shelter management	76.67	66.67	70.00	76.67

Few selected practices have been intensively discussed with respondents that more than 50% of them modified their existing manger for efficient feeding of dairy animals which drastically reduced the feed wastage. Although mineral mixture feeding was being adopted by a considerable number of respondents, balanced feeding was still perceived to be a problem, especially composition of green, dry and concentrate mixtures due to difficulty in availability and affordability (Table 7). Considerable number of respondents

Table 7. Adoption of important technologies (in %)

Improved practice (%)	Alwar district	Dholpur district	Tonk district	Dausa district
Modification of feeding manger	76.67	50.00	66.67	56.67
Mineral mixture feeding	86.67	76.67	80.00	76.67
Balanced feeding of green, dry fodder and concentrate	50.00	43.33	46.67	43.33
Azolla cultivation	16.67	6.67	20.00	16.67
Silage preparation	10.00	6.67	10.00	10.00
Deworming	100.00	100.00	100.00	100.00

were found to use natural service for breeding and artificial insemination is yet to reach the desired level. Doctors who visit for door step service invariably collected ₹ 200-250/ dose of AI. Few of them used feeding of 1 kg of germinated wheat seeds for 4 to 5 days to induce heat in the animals. Women normally feed locally available pearl millet, cotton seed, mustard, green fodder (Berseem and maize) and *azolla*. Although the *azolla* cultivation was tried by one-third of respondents, they could not fully adopt the same due to some technical problems such as water leakage through holes in the polythene sheet. However, when the temperature goes beyond 40°C and below 8°C, *azolla* is not able to survive. Poor adoption could be observed in silage preparation. Higher adoption of dairy farm technologies and utilization of different non-institutional, institutional and mass-media sources of information resulted in decreasing the outside employment of rural women. This was probably because of the demands of the higher adoption on the time of the women at home in implementing them on their dairy animals in order to increase the productivity of their dairy animals in terms of milk (Tripathi and Kunzru 1994).

The social capital accompanied by a number of technological interventions among the client farm families resulted in substantial empowerment. McClelland (1973) argued that being knowledgeable and/or intelligent only does not indicate that a person is an effective and efficient worker. A worker's performance is a function of his/her knowledge plus skills and attitudes. The observation and interaction during field visit could reveal that the farm women could able to publically express their opinions, views and perceptions in the meetings and trainings. Self-confidence has tremendously improved (Table 8). All the women unanimously expressed that calf mortality had drastically reduced. Earlier, they used to sell the milk usually to milk vendors @ ₹ 25/litre both during summer and winter. Sakhi Mahila Doodh Utpadan Company has been started recently in 2016. Farm women now started supplying milk to Saheli Producer Company Ltd and receive price of ₹ 30 to 31/litre. IBTADA also promoted Sirohi Bakri Palak Producer Company with 1,600 members. It was observed that Pasu Sakhies could earn about ₹ 1,000/month which has the chance to get increased once they diversify their operations. Women in Alwar district prepared 15 kg paneer/ month and supplied to neighbours @ ₹ 180/kg. They also prepared Rasogolla, gulab jamun and burfi in their respective households. Rajasthan being a drought prone state, scope of cultivating vegetables is very limited. Since paneer is very easy to prepare and have good demand in market, they consider it as a vegetable and have shown a lot of interest in home-made preparation of the same. In this process, it supplements the protein requirement of the family members. They could properly identify the heat symptoms in dairy animals. This will go a long way in facilitating their path towards a knowledge driven technologically empowered farming communities. Some of the pasu sakhis were wed while they were under the age of 18 years. These types of marriages have a strong physical, intellectual, psychological and emotional impact, cutting off educational opportunities and chances of personal growth. Pasu sakhies vowed to marry their daughters only after the completion of their college education. Women expressed that after becoming the members of SHGs, they reduced veil, able to move outside, get information and felt that they are identified by their names as compared to earlier identity by their husband names.

Table 8. Empowerment of Pasu Sakhies (in %)

Parameter (%)	Alwar district	Dholpur district	Tonk district	Dausa district
Ability to speak in public	70.00	66.67	70.00	66.67
Additional income generation (Rupees)				
>200/month	10.00	10.00	10.00	10.00
1000-2000/month	23.33	10.00	16.67	16.67
<1000/month	66.67	90.00	73.33	73.33
Self confidence	80.00	70.00	76.67	80.00
Ability to identify heat and disease in animals	60.00	50.00	56.67	56.67

Drop out of Pasu Sakhies and Krishi Sakhies: The interaction in different places with field functionaries revealed that there was a 10% drop out among Pasu Sakhies and Krishi Sakhies**.**

The probable reasons could be hardships in mobility from place of residence to client houses and block or district level offices. Difficulty in getting whole-hearted support of family members. The remuneration is not so attractive to create enthusiasm and inability to look after own farm and family with required attention.

Lessons and indications of study: The technologies such as manger modifications, deworming and paneer preparations showed the major share of visible benefits to the beneficiaries served by the present model, indicating the scope of major uptake of similar interventions in the larger scale. The biggest and the critical mass that has shaped the success of this institutional arrangement is the social capital which has taken the model forward. This clearly indicates the need to build up the synergy among the various players in the field of technology transfer. Women clients seemed to have a better understanding of dairy farming technologies. However, the reasoning part of scientific

technologies would play an enabling role in adopting the new technologies. Although the beneficiaries expressed the additional income generation of ₹ 750 to 1500/month, efforts should be undertaken to further augment their income so that entrepreneurial spirit among the farm women can be promoted. Interaction revealed that the time spent by pasu sakhies in the village is almost 2-3 h/day. However, in the long run, pasu sakhies may think in terms of economic benefit in place every day time commitments. This is an important factor for future sustainability of the model.

Women are the biggest asset for balancing rural, social, capital and livestock farming provides a platform for strengthening this. The Pasu Sakhi Model is worth emulating approach in bringing revolution through livestock farming targeting the families at the bottom level of the social pyramid.

Pasu Sakhi is an institutional innovation at grass root level for an extension and input delivery to the livestock communities who are often ignored and poorly recognized in the conventional extension system. This model demonstrates that effective delivery can be made possible in a cost effective manner. Field visits confirmed that calf mortality is drastically reduced. Farm women were found to adopt improved dairying practices. The study showed that women started practising preparation of dairy product in the household level, thus ensuring protein security apart from product distribution in marriages and other similar functions. Pasu Sakhi maintains good linkage with development departments. This model needs to be upscaled throughout the country for fulfilling the skill requirement in the animal husbandry sector and sustaining the livestock enterprises in long term perspective for uplifting the socio-economic status of resource poor rural women.

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