

STRENGTHENING RURAL LIVELIHOODS IN BUNDELKHAND

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ABSTRACT

The Bundelkhand region, one of the poorest parts of central India, attracted keen attention of development observers because of grinding poverty, oppressive social-political system and a hostile agro-climatic setting. Against this backdrop, an attempt is made to examine the impact of a few development initiatives of State and non-government organisations on the livelihood security of the poor. The initiatives taken up by some of the NGOs yielded positive results. The paper throws light on some of these. An attempt is also made to suggest a model for transferring technology to the rural poor in the Bundelkhand region.

Introduction

The Bundelkhand region, comprising six districts-Chhattarpur, Damoh, Panna, Tikamgarh, Sagar and Datia in Madhya Pradesh (MP) and seven districts-Jhansi, Jalaun, Lalitpur, Banda, Chitrakoot, Hamirpur and Mahoba-in Uttar Pradesh (UP), has been considered as the poorest and most backward region with reference to all the development indicators. Based on vulnerability criteria - illiteracy, proportion of scheduled castes (SC) and

scheduled tribes (ST) population, unemployment, proportion of marginal workers, the proportion of rain-fed land and inverse ratio of forest area - the expert group constituted by the Planning Commission placed the Bundelkhand on the top of the list of most underdeveloped and backward districts in the country. Bundelkhand has been experiencing recurring drought for nine years in the last decade. These droughts further dissipated the already fragile livelihood base of the major proportion of the rural population.

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The alarming distress levels are manifest in the depletion of natural resources, stagnation of economic capital formation and weakened human capital.

The Government of India responded to this crisis and declared the region as a "Drought-affected Special Area". A special package of ₹ 10,000 crore was provided for drought relief. The creation of sustainable livelihoods has been the core strategy of this package. In regions of high poverty, building skills and managerial and entrepreneurial capacity for livelihood has been found to be the most effective strategy for alleviating poverty among the most disadvantaged groups. Similar observations have also been made while reviewing the livelihood promotion and poverty alleviation programmes in other developing countries (Hulme and Mosley, 1996).

Against this background, this study was undertaken during 2011 with an objective of understanding the initiatives towards strengthening the livelihoods of the poor in Bundelkhand region. Another objective of the study has been to suggest an appropriate model for technology transfer. In order to capture the changes in the livelihood potential and the effects of technology disseminated among the poor in the region, the study area was revisited and salient observations were noted. The study region was revisited in 2013 to record qualitative observations with regard to the changes in the level of the popularisation of a few technologies among farmers.

Methodology

The districts of Chhattarpur and Tikamgarh in Madhya Pradesh, and the districts of Banda and Mahoba in Uttar Pradesh were selected for the study. Within Chhattarpur district, three blocks, namely Nowgaon, Esanagar, and Rajnagar and within these blocks, seven villages were identified at random for detailed study. In Tikamgarh district, four blocks, namely Parela, Atari, Prudvipur and Tikamgarh, 11 villages from these blocks, were randomly selected. In the Mahoba district of UP, three blocks, namely Kabrai, Charkhari and Panwari were identified and within these blocks, 10 villages were selected on a random basis for detailed study. In Banda district, three blocks, namely, Mahu, Naraini and Badhokar were selected and from these blocks seven villages were selected for the study. In all, 35 villages were selected for the study. The choice of these villages is purely random and therefore, they are expected to provide a fair opportunity to the conditions prevailing in the region.

Essentially, the qualitative method of investigation was employed for collecting the data. Focused group discussions were held in all the selected villages.

Focused Group Discussion : In recent times, the focused group discussion (FGD) method turned out to be a preferred choice among social science researchers for collection of primary data. This method is employed to : i) obtain views and opinions of the target respondents on the listed research issues, ii) evaluate, analyse, and prioritise respondents' needs, iii) formulate development interventions, and iv) to test the respondents'

level of acceptance/rejection of new ideas or proposals. In the present study, too, the researchers have chosen this method to ascertain the experience, opinions, views, and preferences of the villagers in the study region. The rationale for employing FGD was: the respondent population was quite homogenous in terms of social class, age, level of knowledge, and cultural character. It was also found to be easy to create an environment where participants could be comfortable with each other and feel free to express their opinions. Further, in a short span of time, a large quantity of information could be collected. The researchers were aware of the limitations of the FGD which include: less control over the flow of discussion, difficulty in analysing the results as compared to the individual interviews, ascertaining the distribution of beliefs/opinions in a population.

Each FGD was organised with about six participants. Normally, the FDGs lasted one to two hours and provided an opportunity for the respondents to give their opinions. Care was taken to ensure that the conversations were not dominated by a few. Specific, predetermined criteria were used for engaging the FG participants. The topics/issues to be discussed were decided before hand.

Important issues listed for FGD were:

- i) The level of access to agricultural extension services
- ii) Incentives, institutional support for adoption of improved technologies
- iii) Past experience of the local people in adopting a new technology, exploring a new market, etc.

- iv) Villagers' perception about the credibility of development institutions
- v) Perception about their experience with NGOs
- vi) Access to common property resources
- vii) Access to the local self-government agencies for development intervention
- viii) Non-farm rural activity potential
- ix) Opportunities for acquiring modern skills

The moderators cum observers – the researchers with the assistance of local field investigators - used predetermined list of open-ended questions arranged in a natural and logical sequence. The researchers have taken care not to :i) show their biases/answers, ii) ask questions in a mechanical way, iii) jump to conclusions, iv) give advice to the participants, and v) change the subject too quickly and not giving participants enough time to express themselves before moving on to the next issue.

Content Analysis

The content of the FGD was examined and interpreted to arrive at meaningful observations. Of several approaches available for this purpose, the one developed by Janis (1965) was followed. This approach is being widely recommended by reputed scholars (such as Krippendorf, 2004) for its simplicity. Using this method, the content was analysed to see if it fell in any of the following patterns:

1. *Pragmatical* – if it could be classified according to their probable causes and effects.

2. *Semantical* :
- a). *Designation* - to determine the frequency with which certain objects (or persons, institutions, or concepts) are mentioned. This type of analysis can be a rather simple counting exercise.
- b). *Attribution* -to examine the frequency with which certain characterisations or descriptors are used.
- c). *Assertions* - to count the frequency with which certain objects (persons, institutions, etc.) are characterised in a particular way.
3. *Sign-vehicle* – to classify the content according to the psychophysical properties of signs (counting the number of times specific words or types of words are used).
- Secondary data were also collected from published reports and documents. Interviews with line department officials and the functionaries responsible for the implementation of Swarnjayanti Gram Swarojgar Yojana (SGSY), self-help group (SHG) members, panchayati raj institutions (PRI), non-government organisations (NGOs), traders/ market participants involved in resources/ commodity markets, officers of technology institutions, and banks were conducted.

Major Findings

The villages and their main sources of livelihoods are presented in Table 1.

Table1 : Selected Villages and Sources of Livelihood

District	Block	Village	Major source of livelihood
Chhattarpur	Nowgaon	Dauria	Agriculture
		Jagatsagar	Fisheries, rain-fed agriculture
		Mausania	Fisheries, rain-fed agriculture
	Eshanagar	Bilhari	Hosiery knitting, RMG manufacturing
		Amaa	Rain-fed agriculture
		Maheeba	Rain-fed agriculture
	Rajnagar	Hatna	NTPF

(Contd...)

Table1 (Contd...)

District	Block	Village	Major source of livelihood
Tikamgarh	Parela	Bela	Amla collection, dairy
		Jatara	Micro-poultry
	Jarua	Karmorha	Rain-fed agriculture
		Minora	Rain-fed agriculture
		Pahadikhurd	Dairy, rain-fed agriculture
		Bamhori	Rain-fed agriculture, dairy
	Prudvipur	Simariya	Dairy, rain-fed agriculture
		Sehore	Irrigated agriculture
		Nadangaon	Dairy, rain-fed agriculture
		Ghar ka Kadak	Rain-fed agriculture
Tikamgarh	Karvi	Rain-fed agriculture	
Mahoba	Kabrai	Chando	Rain-fed agriculture, goat keeping
		Bhilbai	Rain-fed agriculture
		Revai	Dairy, rain-fed agriculture
		Sunecha	Dairy, rain-fed agriculture
	Charkhari	Purnia	Irrigated agriculture
		Dhawari	Dairy, rain-fed agriculture
		Gaurihari	Stone carving, pulverizing
	Panwari	Pahan	Rain-fed agriculture, dairy
		Nekpura	Irrigated agriculture
		Masoodpura	Rain-fed agriculture, dairy
Banda	Mahu	Pegambarpur	Rain-fed agriculture, goat-keeping
		Malherniwada	Rain-fed agriculture, goat keeping, dairy
		Kovalraipur	Rain-fed agriculture, dairy
		Devrar	Rain-fed agriculture,
	Naraini	Gangapurwa	Irrigated agriculture, dairy
		Badawsa	Rain-fed agriculture, dairy
	Badhokar	Badhokar	Rain-fed agriculture, dairy

Loaded Against Poor : In all the villages studied, the socio-economic setting was found to be loaded against the poor. The poor were found to be losing in their fight against the powerful social groups in gaining access to their livelihood base. These struggles were noticed in a wide range of natural resources such as water ponds (for fish rearing), forest fringes (a variety of NTFP), grasses (fodder, housing, etc.), sand and clay (house construction), stone for quarry, and grazing lands for livestock. While some of them were found to be lacking in the courage to approach the development administration for developmental support, those who did try to access the system, did not get an encouraging response.

One of the striking manifestations of persistent and deep-rooted poverty in these districts is high indebtedness. In the backdrop of little access to institutional credit, a large proportion of the population turned to moneylenders who are often the only source of even consumption credit. Dependence on the moneylenders means usurious rates of interest and perpetual debt, often resulting in the mortgage of standing crops, livestock, land and, at times, even houses.

Within the poor households, women members are the worst sufferers. When the crushing poverty becomes unmanageable for the adult members, some of the burden is passed on to the children, resulting in increased child labour at the cost of their education. These phenomena triggered large-scale out-migration of adult workforce and led to a high incidence of unemployment, child labour, and even farmers' suicides.

State of Affairs : Lack of awareness about and access to the improved technologies is responsible for low levels of productivity. The government extension system in agriculture, animal husbandry, horticulture, livestock, fisheries, poultry, forest and rural non-farm sectors weakened significantly. The delivery system of technologies is not only too inadequate to carry out the functions of technology transfer and popularisation, but is also facing acute shortage of trained and well-motivated staff. In this backdrop, the poor relied on the 'all-in-one' input dealers for technology and extension apart from market information and credit.

Where 'all-in-one' input dealer system is not available, the farmers either leased out their holdings to the resourceful elite and have been working under them for wage employment or seasonally migrated to urban areas in search of employment. Consequently, the farmers lost touch with the farming and other similar livelihoods that are based on local resources and markets. For want of education and training, the younger generation is not able to acquire new skills and technologies to respond to opportunities, albeit few, in the emerging sectors. Thus, the poor are experiencing livelihood insecurity. This can be seen in declining productivity, loss of productive assets and increasing levels of poverty. Their poverty levels increased so much so that they are not able to participate in short-duration technology demos or exposure visits as that would mean loss of daily wage income.

In the absence of pro-poor extension system, several national-level initiatives such as the National Mission on Sustainable

Agriculture by the Rastriya Krishi Vikas Yojana, promotion of cottage industry by Khadi & Village Industries Commission, etc., have not reached the rural poor. In fact, the respondents in the study villages expressed ignorance about these schemes. While this is the ground reality, one cannot expect the participation of the poor in planning and implementation of these schemes.

These ill-informed and untrained poor believe that the successful and highly productive agriculture means application of higher doses of market-based inputs such as chemical fertilisers, chemical insecticide and pesticides, and branded seed varieties. This perception acted as a strong discouraging factor in exploring/experimenting with the improved agricultural practices.

In the case of non-farm sector avenues, it is often lack of awareness about the technologies, tools, equipment and other threshold-level knowledge inputs that prevented them from responding to the economic opportunities. Further, lack of knowledge has also prevented them from accessing other farm inputs such as institutional credit, the market and public-financed infrastructure.

The present development departments are under-staffed and ill-motivated to understand the technology needs of the poor. The weak social and institutional infrastructure in these backward districts further compounded this challenge. In this background, it is necessary to explore and build an alternate model for technology transfer and popularisation.

The major drawback of the present development model in the creation / promotion of livelihoods for rural poor is the lack of a comprehensive institutional support system. The other shortcomings include lack of access to common property resources, dormancy / ineffectiveness of local self-government bodies in providing the poor adequate political space in the decision-making process concerning the ownership and management of local resources. Very low levels of physical and social infrastructure leading to unfavourable environment for entrepreneurship and lack of threshold-level enterprise skills among the poor are the other challenges.

Initiatives by Non-State Actors

In spite of these severe odds, some poor households did emerge successful in creating livelihoods based on access to technologies, local resources as well as common property resources (CPRs). This has been achieved with the help of agencies involved in technology transfer, institutions, community-based organisations (CBOs), non-governmental organisations (NGOs) and informal leadership.

A). Post-harvest Tips and Collective Marketing: Srijan, an NGO, has been working with the rural poor in a few villages in Tikamgarh district of Madhya Pradesh to promote sustainable livelihoods business clusters. Horticulture is one of the important themes it has chosen for livelihood promotion. Rural households affected by dwindling natural resources, unpredictable rainfall, low agricultural productivity, chronic indebtedness, inaccessibility to modern agricultural technology and low or no value addition to

agricultural produce have been selected for intervention.

In the first year, Srijan worked with 11 farmers from two villages - Pathari village of Palera block and Fateh Ka Kherak village of Jatara block, Tikamgarh district, MP. However, only six farmers of Pathari village were successful in retaining the horticulture crops

in spite of three years' recurring drought. This created an enabling environment as well as motivation for NGO and other farmers to replicate the horticulture in other villages. In 2010, Srijan moved into Simariya village which is 16 km away from Jatara block headquarters and assisted 15 farmers who belonged to SC and OBC social groups (Table 2).

Table 2 : Farmers' Profile with Their Plot Size: Village Simariya, Tikamgarh District, MP

Farmer's Name	Village	Area prior to extension (m ²)	Area after extension (m ²)
Dhaniram Kushwaha	Kchihar	720	1,1710
Jalam Kushwaha	Kachihar	1,056	1,056
Bihari Kushwaha	Kachihar	896	1,540
Puran Kushwaha	Kachihar	432	1,680
Baiju Kushwaha	Kachihar	816	912
Karoi Kushwaha	Kachihar	864	1,872
Jugal Pal	Simariya	768	1,536
Vrindavan Prajapati	Simariya	520	1,638
Asharam Prajapati	Simariya	624	1,742
Premdas Prajapati	Simariya	648	1,701
Nandram Pal	Simariya	256	1,650
Chintaman Pal	Simariya	384	1,384
Hariram Pal	Simariya	896	2,196
Munna Pal	Simariya	672	1,890
Balaram Yadav	Simariya	880	1,700

A group of 15 chilli farmers of Simariya village were guided on the timing and method of harvesting, use of plastic crates and collective transport to the wholesale markets in Jhansi and Tikamgarh. To encourage the farmers, the NGO bore a one-way transport cost in the maiden trip and the farmers met the return fare. From the second trip onwards, the farmers met the entire transport expenditure. A manager from Srijan accompanied the farmers to the market initially to train them in issues such as transacting with the market officials, recording expenses and quality maintenance during the transport. Within three trips, the farmers understood the procedures and subsequently started operating on their own. As against the local price of ₹ 6 per kg, the farmers realised an average price of ₹ 9.75 per kg. Thus, each farmer earned a net profit of ₹ 3.75 per kg and within the first two months could earn an incremental income of ₹ 268. With this intervention, the farmer community began trusting Srijan. Thereafter, it has become easy for the NGO to intensify its interaction with the farmer community.

Some of the selected farmers belonging to Pal community (traditionally associated with the livestock rearing) were persuaded to take up agriculture even in small holdings. The main crops cultivated by these households are wheat, blackgram (*urad*) and greengram (*mung*). Farmers were also trained to grow vegetables such as chillies intercropped with papaya and pomegranate. The households were organised into informal production groups and linked to wholesale markets. Srijan played a facilitating role in the entire initiative. Its support to the farmers included identification of right crop choices, better

agronomic practices, pest control, line sowing, inter-cropping, mulching, vermi-composting, soil moisture conservation, drip irrigation, etc. The assistance in the adoption of packing methods (plastic crates) and networking with the wholesale buyers helped the farmers get much higher prices than otherwise they would have got. The use of the crates enabled the farmers to minimise the damage in transit and extend the shelf life of fruits and vegetables by about 60 per cent which ensured freshness of the commodity at the terminal markets. Further, the transport costs have also been reduced by about 20 per cent. Thus, the method helped the farmers to reduce the unit cost of transport as they could pool the individual lots into economic /market lots resulting in optimal use of logistics.

Tie-up with Truck Drivers to Cater to Distant Markets: Govardhan Srivas (68) is a highly spirited and enterprising farmer who belongs to Bhilbai village, Kabrai block, Mahoba district. He cultivated off-seasonal vegetables on his four bigha holding and sold the produce in terminal markets through a network with the truck drivers commuting to Banda which is 60 km away. Gradually, the farmer explored distant markets such as Hamirpur, Kanpur and Lucknow. This approach helped the farmer to penetrate deep into lucrative markets and earn a larger share of retailer price. The entrepreneurial initiative of Govardhan Srivas has attracted the horticulture department officials who helped him raise a 4 acre orchard of 70 mosambi (sweet lime) and 200 lemon trees. Due to three years of recurring drought, he lost all but one of the sweet lime trees, while all the lemon trees survived and gave good yields. In 2010, he earned an income of

₹ 15,000 from these trees over and above his regular income from off-seasonal vegetables.

Nowadays, Govardhan Srivas supplies the produce directly to the wholesalers. He has also learnt to diversify into different crops and adopted inter-cropping. This practice has enabled him to earn more stable incomes from different crops such as colocassia, cucumber, lemon and wheat. In the year 2010, he earned a net income of ₹ 1,70,000 from these crops. Besides, he has also solved the irrigation problem by installing a bore well and availing the government subsidy of ₹ 15,000 for the same. Thus, he has emerged as a role model for the entire village. His success is traced to the exposure to farm practices such as crop rotation, inter-cropping, crop timings, line-sowing, etc.

Marginal Farmers Pick Up the Best Farming

Practice: In Simariya village, a few small/marginal farmers who were being exposed to improved farming methods and techniques by Srijan helped them understand the level of productivity potential that could be achieved with very little effort. The NGO designed and is testing multiple extension strategies such as on-farm demonstration, exposure visits to best-practices farms, Krishi Vignan Kendra (KVK) farms, audiovisuals, market exposure, etc. It also arranged to impart them knowledge relating to input and output markets under its guidance. The farmers switched over from the traditional soybean to high-yielding pomegranate, taken two inter-crops - chillies and papaya - and adopted simple but more productive farming methods such as seed treatment, line sowing, etc. The initiative, now three years old, turned out to be very

promising. It has begun to change the attitudes of the small and marginal farmers in the village towards scientific farming methods and techniques. However, so far, the project reached only a dozen farmers in a few villages. There is a strong need to scale up its operations.

Learning On-the-Job Skills for Micro-poultry:

More than 80 per cent of the households in Jarua village of Jatara block, Tikamgarh district, Madhya Pradesh, live in acute poverty, face unemployment, and lack employable skills and productive assets. The prevailing wage rate for women workers in the year 2010 was ₹ 65 in spite of the launching of Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS). Even at such a low wage rate, the availability of work was seasonal and limited. Amidst these odds, Pradan, an NGO, explored the feasibility and viability of poultry managed by small farmers on a cluster mode covering 30 women. Each farmer was assessed for aptitude for hard work and ability to learn poultry practices. These members were trained in poultry care and enterprise management skills and were exposed to best poultry practices in nearby districts.

A small producer/farmer cooperative company model was formulated by the NGO. This model comprises a) cluster approach, b) linking of trained para vets for each cluster, c) centralised and staggered production scheduling, d) sanitary and quality approval from the vet team for the shed, and e) delivery of day-old chicks with initial vaccination. The system of paid para veterinary services worked well. The feed is delivered at the most economical and convenient lots and the birds are picked up from the farmers' sheds and

linked to the network of centralised market. This ensured zero storage losses of the chicken. The model also helped the promoter NGO to insulate the micro-poultry enterprises from input and output price fluctuations.

The model kept very low entry barriers and does not require any significant threshold contribution from the women farmers. Further, it also does not require any working capital. The model enabled the women to stay at home and earn regular seasonal income from the poultry. Each micro-poultry unit produces five batches of poultry in a year, each with a capacity of 300 broiler birds. The total capital outlay per unit is ₹ 30,000 of which the working capital is ₹ 20,000. The effective production cycle is 40 days followed by 20-day layoff. The charges for para vet care services are paid by producers @ ₹ 0.50 per bird. Multi-layer disinfection and bio-security measures are ensured under the guidance of professionals. This strict quality support has given very high efficiency standards comparable to the industry.

The programme could reach out to the women and the poorest in the selected villages. In the year 2009-10, about 54.6 tonnes of chicken worth ₹ 9.11 lakh were sold in the market. Market channels for inputs like feed, day-old chicks, medicine, etc., have been sufficiently explored and the cooperative has been able to get competitive rates from the market. Around 53,000 chicks were procured and 105 tonnes of feed were purchased. The average feed conversion rate (FCR), which is a standard parameter of poultry production efficiency, has been of the order of 1.7 at 1.3 kg body weight which is comparable to industry norms. The average return per kg bird was ₹ 4

which was slightly higher than the local industry standards. Every poultry producer member is well networked into the poultry community of the village. The members earned an average income of ₹ 10,000 each in a production schedule of 200 working days.

Discussions with the members of micro-poultry unit in this village made it clear that the women poultry producers as well as the project staff understood well the enterprise model. They have become familiar with the feed conversion ratio, veterinary alerts and dynamics of supply chain. Being well-informed, the members participate actively in the project management.

Revisit to the Study Region

In the second visit to the study area in 2013, the authors discovered an NGO called Asha actively organising farmers into producer groups. Its methodology of identifying the farmers for their aptitude, community networking and willingness to abide by the group norms for pooling their individual efforts towards a common initiative is worthy of encouragement. Its efforts to bring the farmers into informal producer groups for popularisation of technology and collective marketing of their produce, too, are generating new hope among the farmer community. Notable initiative among these is to encourage the farmers cultivating khatni variety of wheat to market their produce as organic grain in quality conscious consumers in Delhi. Under its mentorship, the vegetable farmers in Simariya and nearby villages switched over to crates (plastic) and pooled individual produce into common lots which enabled them to cut down the cost of transport, enhance the shelf life of

vegetables, minimise the damage to the produce. This crate adoption has become a popular movement in the region.

In all the study villages, the small and marginal farmers had a potential to enhance their earnings on an average by about 35 per cent. The success stories reveal that the poor are willing to take advantage of improved practices, be it in crop husbandry, animal husbandry, or poultry once they are convinced of the benefits. The way out for improving the livelihood productivity of the rural poor cutting across all occupational categories -- including agriculture, dairy, livestock, fisheries, collection of non-timber minor forest produce (NTFP), and non-farm activities -- lies in building their capacity to adopt improved technologies. There is, thus, a strong need for scaling up of these development initiatives. They provide a hope for the poor to come out of their subsistence levels of living.

In this regard, it is worth referring to a highly successful model of technology popularisation evolved and operationalised in Andhra Pradesh. The model is appreciated for actively involving the stakeholders, particularly women members of small and marginal farm households. This model is briefly discussed below.

Experience of AP in Transferring Technology Through Community-based Organisations

The experience of Andhra Pradesh's Society for Elimination of Rural Poverty (SERP) through its Indira Kranti Patham (IKP) in organising the poor into SHGs, imparting them skills to manage their own institutions, and building their capacity to access the

technology delivery system, and practise community-managed sustainable agriculture (CMSA), seems to be an appropriate alternative model. The institutional structure that has been evolved for this purpose consists of individual small farmers organised into SHGs which are federated at village as village organisation (VO), at mandal (sub-block) as Mandal Samakhya and Zilla Samakhya at district level.

In this model, creating awareness about appropriate technologies is the core element. A group of 20 to 25 farmers form a farmer SHG (Sasya Mitra Sangha). A village may have as many as 4 to 5 farmer SHGs depending upon the size of farming community. The farmer SHG federation at the village level VO is entrusted with overall programme management at the village level and is the centre of all CMSA activities in the village. These village-level initiatives are scaled up through networking with the federations of SHGs at mandal (sub-block) level and ultimately at the district-level. To begin with, the leadership capacity of SHGs and their federations is built. Gradually, they are tied up with the farmer-field schools sponsored by Agriculture Department and exposed to a wide-range of technologies. The members of SHGs and their federations are trained by the best practising farmers as community resource persons (CRPs) who serve as community extension workers to upscale the activities.

At the district level, the DRDA plays a proactive role in introducing the SHG networks to the technology developing and disseminating agencies/departments such as agriculture, animal husbandry and horticulture. Under the mentor role of DRDA, the CMSA

initiatives are also converged with the other development programmes/schemes such as MGNREGS so that the farm-related works such as excavation of compost pits and village tanks are carried out as part of the public work programme. The SHG leaders participate in the planning and operationalisation of CMSA initiatives and make regular visits to FFSs and farmer fields to monitor the progress.

The SERP at the State level provides the strategic leadership in formulating policies, programmes and encourages the district and sub-district-level teams to experiment and innovate in popularising sustainable agriculture among the members of SHGs. It has leveraged the FFSs set up by the State government as the main channel for delivery of extension services. Village activists involved in SHG movement bring together all the farmers to attend weekly workshops in their own fields, and training programmes to discuss issues related to sustainable agriculture practices. The training is provided to units of farmer-SHG. To start with, the SHG farmers and their leaders are trained in procedures related to the application of non-chemical pesticides. Once the farmers appreciate the merits of these techniques, they are motivated to learn other domains of farm practices.

As one could learn from the SERP experience, this model enabled the illiterate, resource-poor, small/marginal farming community - through the women members of the farm households - in a few districts in Andhra Pradesh, to learn and successfully adopt CMSA. Over 3,18,000 small farmers covering 1.38 million acres of farmland adopted CMSA in AP since 2004 (Vijayakumar et al., 2009).

The Proposed Technologies Delivery Model

The State Rural Livelihood Mission (SRLM) units in Bundelkhand should draw heavily from the experience of Andhra Pradesh and develop the strategy for technology transfer. Some of the core elements of this strategy should include the following:

- i) The poor have to be organised into SHGs and taught the management skills, integrated into networks at the village, sub-block, block and district levels and should be guided to evolve into common institutional platforms. These institutions should approach various service delivery agencies such as government departments and NGOs for accessing development support including technologies for livelihood. This is, however, a slow process and requires capacity building and hand-holding from development institutions. Given the socio-economic environment in rural habitats in the study region, there does not appear to be any shortcuts to the process of building human capital.
- ii) Availing the services of the rural poor, who have successfully come out of poverty with the assistance of development agencies, to train the other poor in their neighbourhoods. They can very effectively disseminate their experiential learning to the

illiterate/hardly literate rural people, particularly women. This method of human capital development, which was first evolved in AP and later employed in States such as Bihar, Jharkhand and Chhattisgarh, already yielded encouraging results.

- iii) SRLM should encourage experiential learning. The natural leaders among the poor should be identified and deputed to the regions/States where they could study and learn from the best practices. For instance, the illiterate/hardly literate rural poor women who picked up the techniques of system of rice intensification (SRI) in central Bihar under *Jeevika* programme turned out to be a very effective source of SRI skills for illiterate/hardly literate rural poor from other districts. This informal, person-to-person method of transfer of technology has been found to be very effective. Such experience sharing should be seen as an investment in human resource development.
- iv) Innovations and experiments in livelihood promotion involving poor should be encouraged. The experience of the Ministry of Agriculture's Agricultural Technology Management Agency (ATMA), involving SHGs

in a few districts of AP, namely Chittoor and Kurnool, suggests that reaching out to the poor with technology inputs could be very effective. The ATMA involved the poor in identification of locale-specific needs of the small/marginal farming community, setting up priorities for sustainable agriculture, farm-level extension and technology transfer.

Conclusion and Suggestions

In all the villages in the study area, the socio-economic setting was found to be loaded against the poor. The poor were losing in their fight against powerful social groups in gaining access to their livelihood base. The extension system in agriculture, animal husbandry, horticulture, livestock, fisheries, poultry, forest and rural non-farm sectors is found to be dormant. There is no institutional mechanism for transfer and popularisation of even the limited range of readily available technologies. The initiatives taken by a few NGOs, though laudable, have limited impact. The study team noticed that there is significant scope for enhancing productivity in a few livelihoods with application of a set of improved technological inputs. The State Rural Livelihood Mission (SRLM) currently being implemented in the region of Bundelkhand has not sufficiently focused on the technology transfer. In this context, the successful model of community managed sustainable agriculture (CMSA) of AP seems to be relevant and therefore, has to be studied in detail and suitably adapted to the needs of the rural poor

in Bundelkhand. Similarly, the initiatives taken by a few NGOs such as Srijan, Asha, and Pradhan in the region are worth scaling up. The Asha methodology of identifying the farmers for their aptitude, community networking and willingness to abide by the group norms for pooling their individual efforts towards a common initiative is worthy of encouragement. Asha's effort to bring the farmers into informal producer groups for

popularisation of technology and collective marketing of their produce, too, is generating new hope among the farmer community. There is thus an immediate need to share the successful experience widely among the farmers. Notable initiatives among these is to encourage the farmers cultivating khatni variety of wheat to market their produce as organic grain in quality conscious consumers in Delhi.

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