

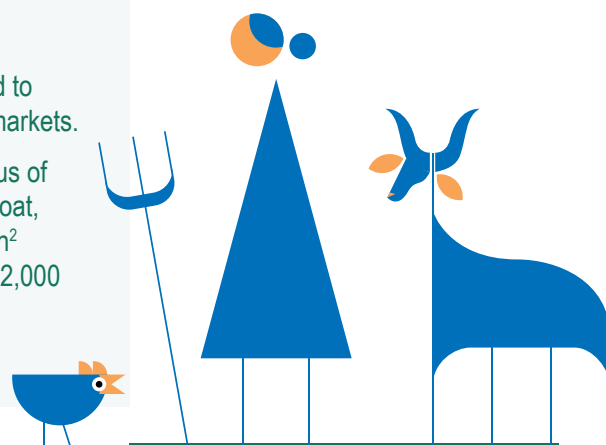
BUILDING LAST MILE LIVESTOCK SERVICES FOR RURAL COMMUNITIES IN JHARKHAND, INDIA

Key achievements

1,020 'Pashu sakhis' (or livestock friends) trained, accredited and equipped to deliver services to improve livestock productivity and help farmers access markets.

70 percent of targeted households (i.e. 39,900) increased marketable surplus of select meat and eggs and are expected to achieve targeted net profits for goat, layers and dual purpose poultry (Kuroiler) mother units of at least INR 1 lakh² annually; and pig, broilers and small scale Kuroiler delivering INR 65,000, 42,000 and 14,000, respectively.

100 percent female beneficiaries and service providers (Pashu sakhis).



Context

Livestock is one of fastest growing sectors and is a promising high-value option for landless and marginal households. Market prices in India for meat and eggs have increased by 70–100 percent in the past decade in local markets and have also pushed up farm gate prices. Diversification to high-value options such as livestock could more than double household primary income.

Livestock productivity has been low in Jharkhand however; less than 12 percent of that in leading states³. Livestock farmers have traditionally suffered very high levels of mortality (over 30 percent loss of goats, and up to 80 percent of pigs and poultry) and low levels of productivity (egg production <30 percent of potential, and meat animals requiring vastly long times (4–6 times) to reach ideal market weights). Smallholders lack access to key services like advisory, training and access to quality inputs supporting nutrition, health, breeding and management. The ratio of veterinarians/paravets to livestock in the state is amongst the lowest in India, with limited resources

and services that mostly focus on cattle and buffalo.

Jharkhand's livestock production is in the hands of marginal and landless farmers with women accounting for over 70 percent of the production. The JOHAR⁴ project aims to enhance and diversify household income through the livestock component to target nearly 57,000 beneficiaries for enhancing productivity and accessing markets in selected value chains (broilers, layers, pigs, goats and dual purpose backyard poultry). Given the major role of women, especially from marginal and landless households, JOHAR livestock activities target over 90 percent female beneficiaries.

While local service providers are an important feature in all livestock related investments the Bank finances, the JOHAR model is believed to be the most comprehensive and successful of all.

This note highlights JOHAR's livestock activities, the JOHAR Pashu sakhis model, lessons learned and what makes the JOHAR model different.

Role of JOHAR in Livestock Interventions

Matching grants to support procurement of improved stock and establishment of pig and goat breeding villages and poultry units

Housing demos for goats, pigs and poultry

Revolving loans to support working capital for beneficiaries to purchase inputs and services like feed and vaccination

Organizing beneficiaries into producer groups and forming producer organizations to enable services and inputs delivery and market access

Maintaining livestock service centers to support access to inputs, services and aggregation hubs, and to operate on cost recovery basis

Training and equipping cluster level managers/paravets

Providing beneficiary training through farmer field schools

1. Pashu sakhis or livestock friends are community service providers offering inputs, advisory supporting productivity (breeding, feeding, animal health), farmer training, market linkage and risk mitigation.

2. INR 1 lakh is highly significant given that baseline household incomes are INR 45,000.

3. Chand R and Parappurathu S. Historical and Spatial Trends in Agriculture: Growth Analysis at National and State Level in India. IGIDR Proceedings Series, National Centre for Agricultural Economics and Policy Research, New Delhi. 2011.

4. Jharkhand Opportunities for Harnessing Rural Growth (JOHAR).



Image Credit : Rohit Jain

Building the capacity of local women to be 'Pashu sakhi' seems to offer a solution to improve livestock productivity and help farmers access markets. Pashu sakhis earn income as entrepreneurs selling services and inputs (very important in India which has amongst the world's lowest women

labor force participation in the world⁵). Initiated in the early 2000s, there are now about 15,000 Pashu sakhis across India, over 6,300 in Jharkhand⁶, and 1,020 under JOHAR.

Pashu sakhis are adopted in many states, agencies and projects across India, but

Interventions

Each Pashu sakhi delivers services and inputs to about 50-100 farmers, and upwards of 1,000 livestock supporting productivity, market access, farmer training and risk mitigation. Because many Pashu sakhis work part-time, they can effectively cover a maximum of 100 farmers and 1,000 livestock while receiving good remuneration. Services and inputs provided by Pashu sakhi comprise:

Market access support through supporting organization of farmers into producer groups; maintaining records to identify animals that have reached ideal market requirements; providing a link between farmers, producer groups and traders; advising farmers on preparing animals for market/production cycle management; advising farmers on market prices; supporting grading and weighing of animals so that farmers are in a better position for negotiation; and supporting filling buyer/trader orders for animals of specific breed, sex, age, weight, color, etc.

Comprehensive productivity enhancing services and inputs

such as:

- I. vaccination, deworming, ectoparasite

control, castration, first aid and referral to vets for challenging cases — for health;

- II. feed and water advisory and supply of mineral mix and other supplements, climate tolerant fodder saplings and seed, and climate mitigating fodder storage approaches — for climate smart feed storage;
- III. advise and collection of records in breeding villages to support performance recording and selection of outstanding breeding animals — for breeding;
- IV. advisory and assistance in demo housing construction, farm hygiene and waste management — for housing.

Establishment of breeder villages

through performance recording and selection of top males for breeding based on defined techno-economic parameters. The Pashu sakhi trains and increases awareness among farmers in breeder villages about the importance and economic benefits of rearing breeding stock for use and sale. Castration of low performing animals is practiced, with the Pashu sakhi

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there are major differences in the approach, orientation and purview of work of these health workers. Three models exist in India for delivering livestock services to farmers:

- I. traditional model (mostly government veterinary services),
- II. standard model, and
- III. JOHAR model.

The major differences in these models are described on page 3.































offering this service. This has led to a change in attitude of farmers to undertake timely castration of animals, and the ability to identify key production traits in the new-born.

Farmer training and advisory in JOHAR is central to project success and adopts the farmer field school approach whereby the Pashu sakhi organizes regular get-togethers at different farms, and farmers meet to learn skills ('learn to do by doing') covering the above areas, which the Pashu sakhi then supports with services and inputs. Because the Pashu sakhi is a part of the farming community, she can readily follow-up with farmers to remind them of the new skills and lessons learned. Farmer training to develop and help them practice new skills is a long-term activity. The farmer field school approach supported by Pashu sakhi has led to high adoption rates of new productivity and marketing practices.

While the three main risks related to disease, climate and markets are dramatically reduced by services and inputs (see box on page 5), the Pashu sakhis also support adoption of livestock insurance and claims.

5. National Rural Livelihoods Mission.2019. Feature story: Working for Women in India. www.worldbank.org Less than a third of women – 15 years or older – are working or actively looking for a job.

6. Nearly all recruited and trained through the Jharkhand State Livelihoods Promotion Society.

Comparison criteria	Traditional system before JOHAR	Standard Pashu sakhi program	JOHAR Pashu sakhi model
Service location	 Service centralized at dispensary or hospital	 Service at farmer's doorstep	 Service at farmer's doorstep
Livestock focus	 Focus on large ruminants: cows and buffalos	 Focus on small ruminants (goats, sheep): pigs and poultry	 Focus on small ruminants: pigs and poultry
Treatment focus	 Focus on treatment	 Focus on prevention, improved practices and management	 Focus on prevention, improved practices and management
Service focus	 Services focused on vaccination for foot-and-mouth disease and artificial insemination	 Services include vaccination, deworming, sale of feed supplements, weighing of animals to inform market prices (some programs also support farmer training as in Jharkhand)	 Full range of services include comprehensive support for productivity enhancement; improving access to markets; training farmers; risk reduction through insurance
Service records	 No animal tagging precluding accurate records of treatment, vaccination, conception	 No animal tagging precluding accurate records of treatment, vaccination, etc.	 All animals tagged. An App based system to record all treatments, services rendered (still in development stage)
Training duration	 Limited training duration 1-3 days common, sometimes up to 7 days	 3-7 days 3-7 days training	 30 days 30 days training
Trainer specifications	 No requirement that the trainer be a training professional	 Trainer Animal Husbandry staff or NGO	 Master Trainer specially trained as trainer, selected on skills and experience
Credentials of the trainer	 No requirement to assess ability of trainers involved in training farmers. No assessment of effectiveness of training based on farmer adoption of practices/ knowledge; no assessment of increased productivity or profitability from training	 No certification of Master Trainer	 Master Trainer certified through Agriculture Skill Council of India (ASCI)
Credentials of Pashu sakhi (or traditional Community Animal Health Worker)	 No certification requirement for the service provider / or trainer	 No certification requirement	 Certification through ASCI
Gender focus	 No focus on women to deliver services	 Over 95 percent female	 Over 95 percent female

JOHAR targets over 1,020 Pashu sakhis (99 percent women), and 29 Master Trainer Pashu sakhis (90 percent women). The key steps and considerations required for successful implementation of the Pashu sakhi model are described and summarized in the box.

JOHAR Pashu sakhi model

The Pashu sakhi model in JOHAR is believed to offer the first accredited and potentially most comprehensive and sustainable model in the country.

Pashu sakhis, meaning 'livestock friends', are critical to providing door-step services and inputs to farmers to support productivity, market access, farmer training and risk mitigation. Pashu sakhis are enabled through Technical Service Support contracts⁷. The Jharkhand Women's Self Supporting Poultry Cooperative Federation Limited supports commercial poultry implemented as a turnkey operation; and Asset & W/Heifer International supports Master Trainer Pashu sakhi, Pashu sakhi and farmer training, capacity building and technical advisory support for goats, pigs and backyard poultry. MoUs with private sector suppliers provide quality inputs, such as Kuroiler chicks by Kegg Farms, vaccine by Hester and other productivity enhancing inputs like mineral mix and feed supplement.

Technical service provider offers training-of-trainers (ToT) and coaching. Heifer International's India subsidiary Asset & W were contracted to select and train Master Trainer Pashu sakhis (Heifer has over 10 years of experience in training Pashu sakhis in India). They also provide coaching and handholding support in: the selection and training of Pashu sakhis, Pashu sakhi supported services and inputs delivery, demos conducted by the Pashu sakhi and farmer training. A total of 29 Master Trainers were selected according to the following criteria: (i) Pashu sakhi with proven training skills based on earlier experience with farmer training, (ii) hands-on experience with livestock, (iii) female 30-45 years of age, (iv) education: 10th pass and above, and (v) ability to travel to different parts of the state.

Selection criteria. Pashu sakhis are selected from the farming community to enable timely services and follow-up; and also because they most often have experience raising livestock themselves. Nearly all are women (>95 percent), preferred for reasons of sustainability and skills, and found to offer higher quality of service.

Pashu sakhi training and certification. They are trained in batches of 15-20 by Master Trainer Pashu sakhis. Each receives 30 days of training over 18 months in 5 sessions of 4-7 days each. Training content is similar to Master Trainer Pashu sakhi training and covers all roles and responsibilities. After the completion of the third training session and 6 months of experience, the Pashu sakhi is eligible to take the ASCI certification examination. Further preparation for the certification is provided by ASCI over a period of 7 days. The cost for training a Pashu sakhi including the costs for training the Master Trainer Pashu sakhi in ToT mode, is INR 75,000 per Pashu sakhi. This includes accommodation, travel costs for the Pashu sakhi and all associated training costs such as services of Asset & W in preparation of materials, training Master Trainers and coaching support for Pashu sakhi.

ASCI certification offers several benefits. Firstly it professionalizes the Pashu sakhi, and offers a way to standardize the quality of Pashu sakhis across the country. Certification of Master Trainers offers the added benefit that they are recognized as highest quality professional trainers and can work anywhere in India.

Equipment supplied to the Pashu sakhi. Fundamental to providing support is the provision of equipment which includes a smartphone and a kit containing a blue sari, apron, hat, cool box for carrying medicines, weighing scales, castrator and a basic initial stock of supplies to support first aid. Ayurvedic treatments are provided when available.

The cost to equip each Pashu sakhi is INR 5,000 for the kit and another INR 5,000-7,000 for a smartphone accruing to a total of about INR 12,000. After the first inventory of supplies is provided, the Pashu sakhi earns income to maintain her stock of supplies which she purchases from the Livestock Service Center.

Institutional support, monitoring and evaluation. Emergency back up support (such as for a broken leg or complicated birth) is provided by the project and local veterinarians. This referral service that operates through smartphones and WhatsApp also enables vets to focus their time on cases they are best trained to handle.

A Pashu sakhi's delivery of services and inputs is monitored by the farmer producer group through broad criteria such as number of farmers trained by them; number of animals marketed; and number of animals vaccinated. An App can support service delivery as well as monitoring and evaluation.

Connection to input supply to access quality timely cost effective inputs. Producer groups operate a Livestock Service Center, which serves about 1,000 farmers and enables the capture of data on economies of scale due to bulk purchase. Each Livestock Service Center supports about 8-10 Pashu sakhis who restock from these Centers where feed inputs like mineral mix and supplements are stocked, and cold chain is provided for vaccines. The Livestock Service Center also provides an aggregation point for meetings, training and marketing support. However, if a Livestock Service Center has not yet been established, the Pashu sakhi is oriented to be able to identify quality cost-effective inputs from agro-vet shops.

7. These are contracts awarded to the partner organization that undertook capacity building efforts; in this case Heifer International – the very best organization involved in the training of Pashu sakhi.

A detailed breakdown of the services offered by the Pashu sakhi for the four broad

service areas – marketing, productivity enhancement, farmer training and risk

mitigation are presented below.

Service Area	Service/Role
 <p>Marketing</p>	<ul style="list-style-type: none"> • organization of farmers into producer groups • animal identification and record keeping • inventory of animals for market • facilitating trader contact point and link between farmers, producer groups, so traders can access animals according to number and specifications (such as weight, age, breed, sex, color, vaccination and health status) • advising farmers on preparing animals for market/production cycle management • advising farmers on market prices • weighing animals • facilitating castration to enable higher prices
 <p>Productivity enhancement</p>	<ul style="list-style-type: none"> • facilitating vaccination • deworming and ectoparasite control • facilitating castration • providing first aid and referral to vets for challenging cases • ensuring climate smart feed sampling • providing feed and water advisory • supplying mineral mix • supplying other feed supplements • supplying climate tolerant fodder saplings and seed • demonstrating fodder storage approaches • giving breeding advice on selection of high quality breeding animals • collecting records in breeder villages to support performance recording and selection of outstanding breeding animals • giving housing demos and advisory • advising on farm hygiene and waste management
 <p>Farmer training through farmer field schools</p>	<ul style="list-style-type: none"> • organizing monthly training sessions to train farmers in batches of 20-25 • ensuring farmer participation for 4-8 training sessions to learn skills necessary for improved feeding, animal health, breed improvement, housing and water availability, farm hygiene; producing animals for market demand • providing ongoing coaching to farmers • organizing exposure visits to aid peer-to-peer learning
 <p>Risk mitigation</p>	<ul style="list-style-type: none"> • helping producer groups to access livestock insurance • assisting farmers with insurance claims

The key outputs tracked are number of: producer groups formed; service centers established; Pashu sakhis trained and equipped; breeding bucks and boars supplied; farmers trained; farmers with improved shelters; animals vaccinated; and goats, pigs, eggs and birds marketed

through producer groups. Value addition is through providing quality eggs and healthy market animals of consistent size and numbers according to market demand. The key outcome was that 70 percent of targeted households increased marketable surplus of select meat and eggs and are

expected to achieve targeted net profits for goat, layers and Kuroiler mother units of at least INR 1 lakh annually; and pig, broilers and small scale Kuroiler delivering INR 65,000, 42,000 and 14,000, respectively.

Key Learnings

Master Trainer Pashu sakhis effectively train Pashu sakhis.

Master Trainers travel within the state and stay overnight for several nights at village training sites. Master Trainers are certified by Agriculture Skill Council of India (ASCI) with the same test that is used to certify vets or paravets. The most effective Master Trainers are: Pashu sakhis with 2-3 years of experience, and ideally women as they also have experience in livestock rearing. Master Trainers also enable sustainable expansion of the Pashu sakhi program after the project ends. Government Animal Husbandry Department staff often do not have the required skills and knowledge in diverse areas for supporting productivity enhancement, marketing, farmer skills development and risk management to be Master Trainers. Vets/paravets are not officially certified by ASCI as Master Trainers.

Empowerment and entrepreneur training are critical to revenue generation and sustainability.

Sustainability of Pashu sakhi relies on a viable revenue model based on charging fees for services. Two years into the JOHAR Pashu sakhi program and after about 6 months of field practice, each Pashu sakhi initially covers about 50 animals monthly owned by 50 farmers in 1-2 villages, with the aim to double this. There is considerable variability in earnings from over INR 6,000 to INR 12,000 per month based on availability and experience of the Pashu sakhi; they receive a subsidy of INR 1,200 per month during the initial 2 years until they can establish their business. Earning success is enhanced by empowerment and entrepreneur training, which builds confidence, provides charge rates for suggested services, as well as builds capacity in managing inventory and finances. Ongoing coaching of Pashu

sakhi through biweekly meetings builds confidence and support and offers a peer mechanism for problem-solving.

Access to quality, cost-effective and timely inputs in adequate quantity through Livestock Service Center according to a viable business model.

It is critical to connect Pashu sakhis to the input supply chain that assures sufficient quality, quantity and timely availability of feed and nutrition inputs, as well as vaccine and animal health inputs (like dewormer). Bulk purchase of inputs by the producer group and making it available through the Livestock Service Center where the Pashu sakhi can access, is not only cost-effective, but also enables suitable storage, including refrigeration for vaccines. The Livestock Service Center is managed by the farmer producer organization. The Livestock Service Center is a new innovation that supports market



Image Credit : Rohit Jain

aggregation, access to inputs and also serves as a demo and training hub.

Impact on productivity dramatically higher than anticipated. Project data showed that mortality among livestock before JOHAR, which was upwards of 35-85 percent, got reduced because of services offered by Pashu sakhi.

Certification rate is nearly 100 percent and higher than expected. This is because of the careful selection of Pashu sakhis by producer groups and the excellent training by the Technical Service Provider, which resulted in 100 percent of them being certified by ASCI.

Pashu sakhis are ready for certification by ASCI after the third training session and 6 months of experience. Pashu sakhis are effectively trained over 3 sessions of 7 days each, and each of these sessions covers new skills related to productivity (feeding, animal health, housing and management, farmer training and market support).

Currently 300 Pashu sakhis have reached the necessary training requirement for ASCI certification, and have been certified based on both an online test and oral examination by veterinarians contracted by the ASCI.

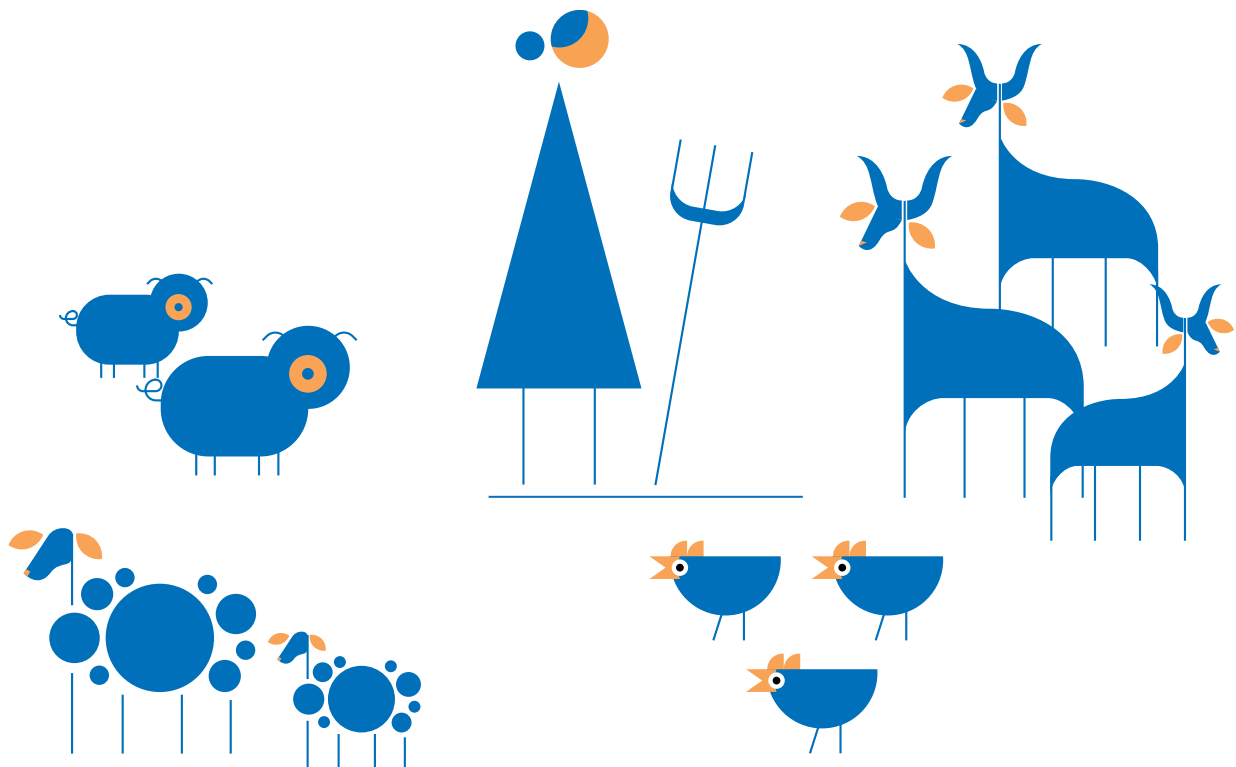
Use of social media application “WhatsApp” has proven extremely successful for peer and emergency support. WhatsApp is used to share good practices among Pashu sakhis; both video clips and photos are taken to share experiences. WhatsApp has been vital for providing timely emergency backup support to Pashu sakhis to receive advise on actions to take or resolve challenges.

“ **The Pashu sakhi model in JOHAR is believed to offer the first accredited and potentially most comprehensive and sustainable model in the country.** ”

One of the major challenges is the lack of timely diagnostic services and emergency support services from the Animal Husbandry Department. Options for an effective and sustainable approach to diagnostics are being explored.



Image Credit : Helen Leitch



Way Forward



Image Credit : Rohit Jain

The JOHAR Pashu sakhi model is being expanded to other states through new project financing to firstly hire an experienced technical service support organization to build capacity of a Master

Trainer Pashu sakhi cadre, facilitate training and equip Pashu sakhi to support productivity, market access, farmer training and risk management. Lessons learned are being shared broadly.

An alternative strategy to support disease diagnostics is under development that will make maximal use of cheap, accessible diagnostic kits and low cost technology like famacha cards to assess parasitic infection to inform deworming regimen. Private diagnostics labs may also prove to be a viable option. An App-based decision support system for supporting disease diagnosis would also be useful.

Emergency veterinary services alternatives are being explored (to support cases such as difficult kidding problems or undiagnosed diseases), via Corporate Social Responsibility (CSR) initiatives that support emergency animal health services.

Opportunities for better integration with Animal Husbandary Department are being explored to support animal health services more broadly in the state, and monitor animal health coverage.

ABOUT THE DISCUSSION NOTE SERIES

This note is part of the South Asia Agriculture and Rural Growth Discussion Note Series, that seeks to disseminate operational learnings and implementation experiences from World Bank financed rural, agriculture and food systems programs in South Asia. JOHAR livestock activity was designed supervised and implemented with technical support through the joint program with UN Food and Agriculture Organization (FAO).

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