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# NewsReach







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# Promoting the Small Ruminant Sub-sector: A Way of Enhancing Livelihoods

SHOUVIK MITRA

*Despite becoming more and more a preferred livelihood option, goat-rearing comes with its own challenges such as the high mortality rates and the lack of government interest in promoting it as a primary occupation. Can these be addressed comprehensively?*

## BACKGROUND

The recently initiated National Rural Livelihood Mission (NRLM) has brought along a paradigm change in the understanding of the government's way of looking at and implementing the poverty eradication programme in the country. The focus has shifted towards a demand-driven, bottoms-up approach with little or no provision for subsidy for private goods. The Mission has also made it mandatory to develop strong institutions of poor rural women, with a probable window for the development of sub-sector-specific producer groups and producer collectives. In such a progressive scenario, it will be interesting to understand where the livestock-based livelihoods promotion, especially the goat-rearing activity, stands and how this activity can be promoted for livelihoods augmentation of rural member-partners of NRLM.

That goat-rearing is a pro-poor activity has been largely accepted; this means a large section of the disadvantaged people—the economically poor, socially backward and non-mainstream community, disabled and elderly as well as communities living on the fringes of forest—are dependent on goat-rearing. Goat-rearing for these households is usually a secondary or tertiary source of income; very rarely is it a primary source. Apart from this, a large section of the rural community that NRLM plans to work with also keeps goats mostly as a buffer asset, which can be sold in times of distress or emergency. However, interestingly, whatever be the intensity of the activity at the household level—as a secondary, tertiary or a buffer stock—the herd size of the animals does not increase significantly across different household sections. It varies from 2–15, with the exception of communities that have been traditional goat/sheep rearers or living on the fringes of the forest and have access to abundant free source of green fodder.

The crucial question then is whether it will be possible to enhance the livelihood of the community we work with substantially by intervening in the goat-rearing sub-sector? Or the other way round, would it be valuable for a development professional to focus on the goat-rearing activity as a point of livelihood intervention? And what should be the intensity of the activity?

### THE BROAD PICTURE

The states that NRLM focuses on are Assam, West Bengal and Odisha in the east, through Bihar, Jharkhand, Madhya Pradesh, Chhattisgarh and Uttar Pradesh, to Rajasthan and Maharashtra in the west. These states account for nearly 80 per cent of the below the poverty line (BPL), 70 per cent of the scheduled tribe (ST) and 66 per cent of the scheduled caste (SC) population of India. This area holds 70 per cent of the total goat population and roughly around 48 per cent of the total forest cover of the country. Thus, a combination of a large mass of the poor and marginalized community (considering the social category of the people as a proxy to poverty) and huge tracts of forest cover (including degraded forest) and fodder land are the main reasons for a thriving goat population. Yet, within this area, there is rarely a household that has reared goats successfully without external support (mostly from NGOs). A few households comprise traditional rearers, who have considerable experience in goat-rearing. However, these are more an exception than the norm.

Now what is happening to the sub-sector at a broader level? Goat population-wise, India

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is second in the world, with the state of Rajasthan itself housing 15 per cent of the total goats in India. The goat meat consumption trend is also quite encouraging at a compounding annual growth rate of 1.28 per cent. This implies that the market demand for goat meat is steady and increasing; in future, the demand for this form of crude protein will also be there, helping rearers to carry on the activity for a longer time.

### CONSTRAINING FACTORS

What are the constraints in taking this sub-sectoral activity to a different plane altogether?

There are many; let us take one each separately.

If one asks anyone keeping goats whether s/he is interested in increasing the herd size, the answer will be a definitive no. The first reason cited is mortality, and rightly so, because the high mortality of goats is a major risk in the activity. The foremost cause is the lack of access to vet care services. The animal husbandry department's centres are few in number, and are inadequately staffed, with no proper infrastructure in place. Moreover, in most of the states, thanks to the vet education system, the bias is skewed toward large ruminants, namely, cows and buffaloes; small ruminants like goat and sheep do not come under the radar of most government vets. Technical apathy and lack of access are coupled with inadequate understanding of proper herd and kid management practices, no timely vaccinations against some of the recurring diseases in the region, low quality of goat shelters, etc. These ultimately result in many animals and kids dying.



There is no official estimate of the goat mortality in India; however, the data is very high. A study by Amit Kumar Dahore of IVRI Izzatnagar on the mortality pattern of goats in the Chambal division of Madhya Pradesh shows that goat mortality is a factor of the age of the goat. For a goat kid, the chances of survival are only 61 per cent whereas it increases to 70 per cent at 9 months of age. The study also shows that the season is a major factor in the mortality of goats, with the chances of mortality being the highest during winter, closely followed by the rainy season and the lowest in the summers. Households complaining of entire herds being wiped out in one major disease outbreak is common, a story that is oft heard. This is especially hard on members who have lost the goat(s) they had purchased with a loan from the SHG or bank.

The high mortality of goats and the high administrative costs of providing an insurance cover are disincentives for insurance companies to extend their services to small ruminants. Rural households rarely go for risk mitigation of animals through insurance cover unless the animals are financed by formal credit institutions wherein taking an insurance cover is mandatory. Moreover, the lack of offer of goat insurance by established insurance companies blocks any scope of insurance even if there is a willingness on the part of the household.

The second constraint is the high cost of labour in rearing these animals. This is significantly high mainly because of the small herd size. In addition, because the concentrate feed cost for the animals in a stall feeding method is too high for a poor household and because forest lands (including degraded forests) provide ample source of free fodder (almost through the year), the household purposely decides on free grazing for these animals. This is a major

reason for the high cost of labour because the entire day is spent grazing the animals, in the full graze rearing mode. Households hand over this grazing responsibility to the old and infirm or to the children, whose economic time value is nil or negligible.

The third constraint is the psychological view of the activity as well as the market mechanism. The activity is looked down as a poor man's activity even by the poor on themselves, and everybody wants to graduate beyond goat-rearing and aspire for cow/buffalo-rearing. This is particularly true for the nontribal population. On the other hand, the market is informal and unsystematic, and is skewed towards the buyer. Many of the animal sales are distress sales; it is not very uncommon, therefore, to observe animals being bought at throwaway prices. Interestingly, the prices of goats in regulated *mandis* across the country fall in the months just before the onset of monsoon. This is mainly because of the low demand for goat meat during that period (because of the Hindu month of *saawan*) and high influx of saleable goats in the market (because the rearers are not sure whether the animals will survive the monsoon period—a risky period, as mentioned earlier, for disease outbreaks in goats).

Last, but not the least, is the negative attitude of many of the state bureaucrats, regarding the activity. Their primary concern is the environmental impact of large-scale goat-rearing. They fail to acknowledge two facts, however. First, different studies have thrown up opposing conclusions of goat-rearing having a negative environmental impact and of it having no or negligible impact on environment. There is nothing conclusive arrived at in these studies; and bureaucrats usually depend on their gut feeling, either to disapprove or to promote the activity. Second, goat-rearing may have some 'externality'; and for the sake of argument, let us consider

that goat-rearing has an externality, mainly negative, on the environment. There are various methods to counter that externality such as fodder-land development and semi stall-rearing interventions, to counter the negative externality. However, in most of the states, the tendency is to 'throw the baby out with the bath water' without seriously evaluating options as well as concerns.

### WHAT WE NEED TO DO

The usage pattern of the loan (both internal and external) taken by SHG members indicate that they do invest money on buying goats, and the number of such buys varies from a couple to six or seven. It is also true that this investment has actually not helped the family much because many (and in some cases, all) of the goats have died, resulting in high indebtedness at the household level.

Yet, despite this, like it or not, a poor household does continue to invest in this activity. Thus, regardless of the bureaucrat's or anyone else's personal preferences, intervention in the activity is a necessity so that the activity does not put the lives and livelihoods of the family at risk, at the very least.

What then do we need to do? There are numerous experts and consultants across the country, who can give us direction and technical knowhow. Some will advocate intervening in the entire value chain; this is because the sub-sector is so unorganized it is extremely necessary to work along the entire value chain to have successful and sustainable intervention. Some technical experts will focus on breed improvement, through buck-rearing and also artificial insemination. Their rationale is that unless the quality of the breed is improved, the productivity of the activity cannot be increased substantially. A few of these experts may also go to the

extent of embryo transplantation, as has been carried out in some parts of the country. Some will advocate developing the market for goat, working on the organized *mandis* and developing systems whereas a few of them may stress on promoting export-oriented goat meat products (interestingly, the goat meat preference of East Asia is very different from that in the Middle East, where the former prefer lean meat and the latter fatty meat). Some of the consultants and organizations have also worked on goat kid fattening for the niche EiD market, where the product has been fetching high prices.

Other interventions could be strengthening the animal health-care support service either by strengthening the existing animal husbandry department network or by creating a network of trained para vets, selected from the local area and nesting them in some community organization or developing them as service entrepreneurs. A very important intervention can also be to streamline the goat insurance system, either by working with the existing public or private insurance provider or by initiating micro-insurance products such as *Mutuals*. There are numerous examples of such interventions in our country.

Although there are a number of required interventions, it is better to take on only as many things as one can handle. The dilemma will always be to intervene on a few key variables or to orchestrate an entire value chain. As professionals, it may be challenging to develop an intricate and grand intervention package. Would this work? Not often. When working on the goat-rearing project in Rajasthan, I decided to work on the feeding and management practices of goats and goat kids. I did in-depth research, visited the goat research station, spoke to scientists as well as designers, and developed goat feeders



and waterers. That became a composite unit of the goat sub-project we submitted to the government. However, after a couple of years, we found that the community had picked up the idea of providing supplementary nutrition to goats and the kids but had really not accepted the 'innovative' feeder

and waterers that we had developed. The feeders were, instead, being commonly used to stack utensils! Our learning from this was to adopt what Prof Malcolm Harper advocated: the KISS (Keep It Short and Simple) approach.

In the goat-rearing activity, the core issue needs to be identified and worked on accordingly. There can never be a standard monolithic prescription because the ground reality varies from one region to the other. However, some issues may cut across regions. Any intervention must be:

- Replicable easily across regions with minor modifications
- Scalable, reaching out to large number of households across regions
- Transferrable easily to the community after the techniques are simplified and codified
- Cost effective, both in terms of optimal investment and substantial return against investment

With the above framework in mind, the focus needs to be broadly on three interventions. First is the issue of reducing mortality of animals. Unless mortality is reduced drastically, the community will not have the confidence to take up this activity wholeheartedly. Working with the existing departmental workforce may sound lucrative from the convergence point of view; however, sensitizing and reviving

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a network that is already overstretched, understaffed and in total lack of resources may be a herculean task. This is not to negate the support of the department. What is necessary is to develop a mutually beneficial, symbiotic relationship with the animal husbandry department.

The easier option may be to train local youths as para-vets, who can take care of the animal health-care support. These para-vets may either be groomed to become independent entrepreneurs or may be nested within a tertiary level community organization. Convergence with public and private players will be required in the latter case, to maintain a seamless and timely flow of the required medicines and vaccines.

The second intervention point is knowledge and technology transfer to the community. A majority of the goat rearers (except the traditional rearers) have little idea of how to manage a herd well. In this intervention, therefore, there are three important dimensions.

- a. Knowledge of different diseases, their symptoms, prevention methods and basic curative details need to be given to rearers, both women SHG members as well as other household members—people who graze the animals and take care of them at home.
- b. Basic concepts of herd management such as giving supplementary feed to the animals; administering calcium and mineral mixture to pregnant goats; goat kid management by enclosing them during grazing and post grazing, and limiting intake of milk by the kids (otherwise it may lead to diarrhoea); adequate ration to pregnant and lactating goats; regular cleaning of the goat shelter and protecting

the goats from extreme weather (hot, cold and the monsoon); and, finally most important, regular and timely deworming and vaccination of all animals.

- c. Transfer of simple and cheap technology to the community such as the usage of Trocar Cannula to save animals from dying of bloating; and introducing the Burdizzo Castrator so that castration of male goats can be safe and hygienic.

The third intervention will be to remove the market information asymmetry. Traders dealing with goats always make a bargain because they are more aware of the market and as the sellers are always at the receiving end. The simple method of calculating the minimum rate of an animal by weighing the live body can be very useful; this has been tried out quite extensively in the country.

The fourth intervention needs to be risk mitigation by insuring the goats. There are organizations that have tried out animal-based mutual schemes. However, running such an operation requires highly qualified and motivated staff. Moreover, it has never been tried out at a scale expected in NRLM. Partnering with insurance companies, either public or private, and designing products that are pro-poor are safe bets. Many insurance companies will welcome a tie-up because of the scale of operations and also if systems are put in place—systems such as regular vaccination and deworming, and to check cases of fraud. The initial interest for insurance wanes when the herd size become

*Last, but not the least, the activity can only be possible when the community itself takes up the charge. Thus some level of collectivization as Producer Groups and higher order producer collectives may need to be worked out depending on the need of the intervention and the activity*

sizeable. This is mainly because of the high rates of premium and because reinsurance becomes extremely difficult. Best would be to insure the basic herd size so that in case an epidemic breaks out (the chances of such epidemics are extremely low if the regular vaccination system is in place), the household is left with a basic herd size to start once again.

Last, but not the least, the activity can only be possible when the community itself takes up the charge. Thus some level of collectivization as Producer Groups and higher order producer collectives may need to be worked out depending on the need of the intervention and the activity. Only such an organization can support and monitor rearers in the long run, and take forward the initiative in a sustainable manner after the promoter has moved away.

These five interventions will show phenomenal results, in the sense that it will give the rearers enough confidence to take the initiative forward in a much more focused manner. Once success is achieved, the community can build on the existing work, paving the way for other intervention packages. This will be much easier for the rearers to accept.

### OPERATIONALIZING INTERVENTIONS

In the context of NRLM, the moot question remains, who can actually do all these at a scale? State Rural Livelihood Missions (SRLMs) or NGOs? There are very few



NGOs in the country that have experience and technical understanding of the activity. And the activity outreach of the few that do is extremely limited. In NRLM, one needs to think about the scale of operations.

In Odisha alone, with the goat-rearing, sub-sectoral intervention strategy, the SRLM can reach out to 8 lakh households and impact their livelihoods. Does its staff at the grass roots have the requisite capacity and understanding? At present, no; however, the skills and capacity of the grass-roots staff can be developed. Moreover, SRLM can easily harness the existing animal husbandry network and bring some experts and consultants on board. However, this will not solve the problem because the rigour of the activity will never be reached and maintained, in the current scenario.

NGOs can make the crucial difference. They can play two different roles. First, they can develop context-specific prototypes, which can be taken up and replicated easily. And they can provide thematic support to SRLMs on goat-rearing. In such cases, NGOs need to go beyond their comfort zone of actual implementation, to develop the capacity and enhance the skill sets of the SRLM staff. Many NGOs are required, to play such a support role for SRLMs.

*The challenge that some donor agencies interested in working on small ruminants will face is how to develop some more organizations with expertise and knowledge in the goat-rearing sub-sector and the capacity to extend support to SRLMs*

Once core models are developed in a couple of states, it will be easier for other states to emulate. The challenge that some donor agencies interested in working on small ruminants will face is how to develop some more organizations with expertise and knowledge in the goat-rearing sub-sector and the capacity to extend support to SRLMs.

All SRLMs are not on an equal footing. Some are ahead of others in terms of mobilization, institution building and, in some states, the initiation of livelihood activities. These states can be called 'senior' states (only in terms of their status vis-à-vis NRLM implementation progress). These senior states need to take up the initiative and start developing prototypes for replication and up-scaling. Simultaneously, the capacity of a few NGOs interested in working in this sub-sector may be strengthened so that, over a period of time, these organizations, together with the community resource persons (CRPs) from the senior states are available, to provide support to the rest of the country. Within a time span of 3–5 years, the activity, with some level of crystallization, can be rolled across the focused states.

NRLM is already in its third year. The time is now ripe to strengthen the goat-rearing activity so that it can help alleviate poverty in some of the households.

# Exploring Goat-rearing as a Livelihood Activity in Abu Road

ANIF KHAN

*Ensuring timely vaccinations for goats against deadly diseases and encouraging the use of better practices in rearing them has had a noticeable impact on the health and longevity of the animals thereby increasing the willingness of the villagers to consider goat-rearing as a viable, primary, income-generating activity*

PRADAN started its operations in Abu Road in 2009. Abu Road lies in the foothills of Mt. Abu, the famous tourist destination in Rajasthan. Abu Road block in Sirohi district is situated at the southernmost tip of Rajasthan. It is surrounded by Gujarat in the south and west. To its east lies Udaipur. Abu Road is well connected to Udaipur and Palanpur through the national highway (NH 14) and is a major railway station on the Delhi-Ahmedabad route.

Abu Road is divided into two geographical regions—*bhakhar* (the hilly area) and *bitror* (the plains). Table 1 shows the distribution of the land, according to different categories. The demographic profile of the block shows that there is a huge concentration of below the poverty line (BPL) and schedule tribe (ST) families in the area. Table 2 shows the caste-wise and the poverty-line wise distribution of households in the 25 *gram panchayats* of Abu Road, according to the 2001 Census.

**Table 1: Categorization of Land in Abu Road**

Land Category	Area in Hectares
Cultivable land	19,713
Uncultivable land	6,573
Grazing land	1,523
Forest land	58,382
Hilly land	4,423
<b>Total Land</b>	<b>10,493</b>



**Table 2: Demographic Profile of Households in Abu Road**

Category	Number of Households
ST	16,858
SC	1,607
OBC	3,629
Others	2,644
BPL	9,152

In 2010, PRADAN conducted a study of Abu Road, to map the livelihood activities practised by the community in the area. The study was conducted with 500 families, as part of a baseline survey. Based on the study, the livelihood activities of the area were mapped under five criteria:

- Acceptance of the community
- Risk (how much and what type of risk is involved in that livelihood activity)
- Return on investment
- Local resource utilization

- Market scope

After mapping the potential livelihoods in Abu Road, and keeping in mind community suitability and market attractiveness, three sectoral livelihood activities emerged with an initial focus on goat-rearing.

1. Agriculture
  - .. Cash crop—irrigated
  - .. Food crop—irrigated and rain-fed
2. Livestock
  - .. Goat-rearing
3. Youth skill building

**Table 3: Categorization of Families, Based on Land Holdings**

	Landless	Small-holder	Medium-holder
Land Holding	0–1 <i>bigha</i>	1–3 <i>bigha</i>	> 3 <i>bigha</i>
% with irrigation	11%	18%	45%
% with livestock			
- Cows	15%	22%	41%
- Buffaloes	22%	50%	46%
- Goats	39%	59%	49%
- Average goats per family	2–3	3–4	4–5
Food security (own land)	4–5 months	6–8 months	12 months+
Income (Rs)	25,000	27,000	40,000

Source: Livelihood Study, PRADAN, Abu Road

The team conducted a focused, in-depth study next in each of these activities, to understand its scope, market availability and acceptability in the community, the availability of resources, the gaps in the activity and a suitable model for the area. The team interviewed various internal and external experts, research institutions, other agencies (such as the Goat Trust), the Animal Husbandry Department, the Forest Department, traders and rearers for the study. Also, extensive field visits were made to various agencies, communities, the goat *mandi*, commercial farms, etc. Goat-rearing emerged as an activity with high potential for the poor small-holders in the region.

### SCOPE OF GOAT-REARING

As per the International Food Policy and Research Institute (IFPRI) estimates, the calorie supply from animal products will increase by 89 per cent between 2000 and 2025. Currently, the goat represents 12 per cent of the livestock market in India and is expected to grow at five per cent per annum due to rising incomes, urbanization and population growth. Poultry, goats and sheep are likely to represent the majority of this growth, given the cultural and social restrictions on the consumption of cattle and pork. Globally, India is the second-largest producer of goat meat (5,44,000 tonnes), second only to China, but due to trade restrictions and a high local demand, 99 per cent of the produce is consumed internally. Although there is a huge demand for the goat, the production of goat has remained flat, increasing at the rate of only one per cent since 2002, as compared to China with a growth rate of four per cent. India has

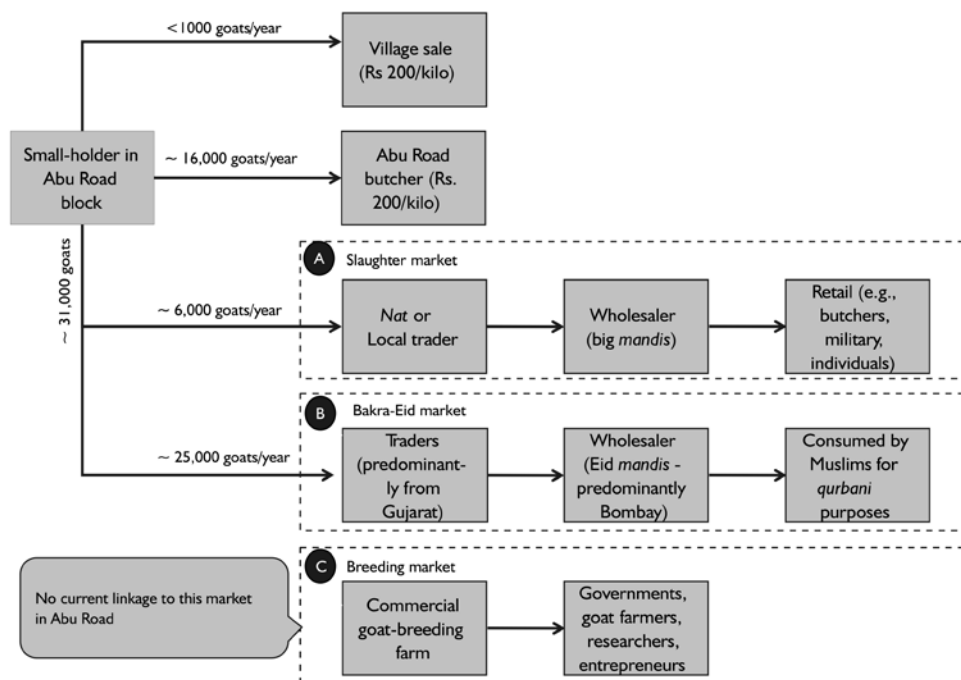
the lowest yield of 10 kg per animal in the world. The biggest reason for the production to remain flat is that the goats are reared mostly by small-holders, who lack not only knowledge about goat-rearing but also the capital to invest in the business. They are stuck in a cycle of low productivity and the inability to invest, preventing them from tapping the full potential of goat-rearing.

### MARKET AVAILABILITY IN ABU ROAD

The distinct market for goat is for its meat. Goats are bought mainly by slaughterhouses and the highest demand is at the time of *Bakra-Eid* in national as well as global markets. Goat by-products such as goat milk and goat skin also have their own specific market. Abu Road has two local slaughter markets, which have external links to both *Bakra-Eid* and the regional slaughter markets, with a total demand for around 31,000 goats per year. Currently, there is not much demand from the Breeding Market, but it could be considered as a potential market because of the availability of the high-quality *Sirohi* breed.

The local market, however, is small with less than 0.1 per cent share of the domestic slaughter market. The demand for goats in the local market is usually catered to by nearby villages and there is almost 50 per cent more supply than demand in the market. Although the local market is constrained, Abu Road has access to major *mandis* such as Ajmer, Ahmedabad, Surat, Delhi and Mumbai. The community prefers not to sell their goats to the butchers because he exploits them, especially during a cash crunch.

**Figure 1: Supply of Goats from Small-Holders to Local Slaughterhouses and Major Goat *Mandis***



Source: Livelihood Study, PRADAN, Abu Road

## RESOURCE AVAILABILITY

In Abu Road, goat-rearing is a major livelihood activity, after agriculture and labour. As more than 80 per cent of the families are either landless or small-holder farmers, goat-rearing is seen as the major activity for these families. Abu Road is home to the popular *Sirohi* breed of Rajasthan. (*Sirohi* goats are medium-sized, and are reared for both milk and meat. *Sirohi* is popular for weight it gains and better lactation, even under poor quality rearing conditions. *Sirohi* is also resistant to major

diseases and is easily adaptable to different climatic conditions.)

To encourage goat-rearing as a significant livelihood activity, the resources of the area and the target population were mapped—based on the current availability of water, land, grazing-land, the existing human capital, the willingness of the community to opt for goat-rearing as a livelihood activity, the aspirations of the community and whether there is enough capital available to invest in and initiate the activity.



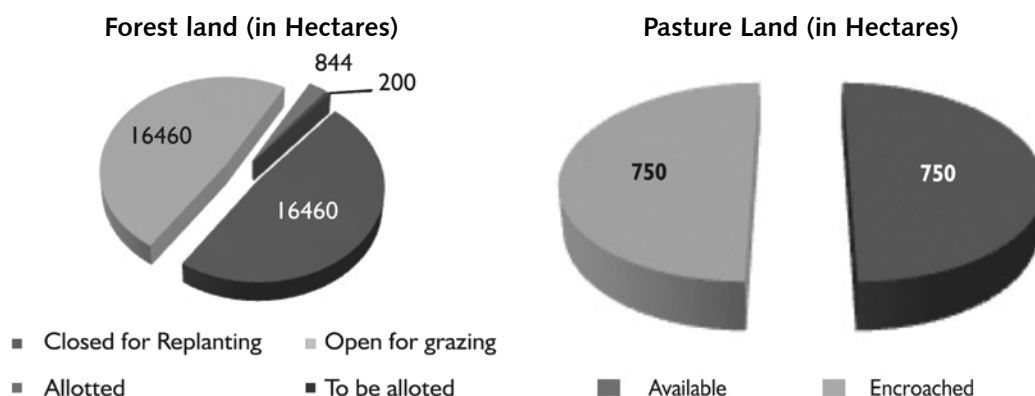
**Table 4: Factors for Goat-Rearing as a Livelihood Activity**

	Key Elements	Minimum Need
Natural Resources	<ol style="list-style-type: none"> <li>Land               <ol style="list-style-type: none"> <li>Grazing</li> <li>Forest land</li> <li>Farmers' personal land</li> </ol> </li> <li>Water</li> </ol>	<ul style="list-style-type: none"> <li>- 0.2 bigha, or 0.05 ha, of medium quality grazing or forest land per goat</li> <li>- 4–5 litres per goat per day</li> </ul>
Human Resources	<ol style="list-style-type: none"> <li>Labour</li> <li>Profit expectation               <ol style="list-style-type: none"> <li>Major income source</li> <li>Supplemental income source</li> </ol> </li> <li>Excitement about goat-rearing</li> <li>Knowledge</li> </ol>	<ul style="list-style-type: none"> <li>- 25–100% of one adult's time</li> <li>- Rs &gt; 50,000 (100% of HH income)</li> <li>- Rs 15–20,000 (30–40% of HH income)</li> <li>- High</li> <li>- Awareness about best practices</li> </ul>
Capital	<ol style="list-style-type: none"> <li>Fixed capital</li> <li>Working capital</li> </ol>	<ul style="list-style-type: none"> <li>- &gt; Rs 20,000 (depending on breed and herd size)</li> <li>- &gt; Rs 5,000 (depending on feed and herd size)</li> </ul>

Source: Livelihood Study, PRADAN, Abu Road

Abu Road has a huge forest area available, as seen in Figure 2. Of the total land available in Abu Road, more than 50 per cent is either un-allotted or free for grazing. The forest department allows grazing on land that has not been allotted. Some area of the forest is

reserved for regeneration and some area of the allotted land is also available for grazing. Grazing on the other 50 per cent of the allotted land will also be permitted by the Forest Department because goat excreta provides manure for the forest.

**Figure 2: Forest Land and Pasture Land in Abu Road (in Hectares)**

Source: Livelihood Study, PRADAN, Abu Road

Abu Road also has around 1,500 ha of pasture land, of which half is available for grazing whereas the rest is encroached upon by big farmers. Other than this, 80 per cent of the families have less than three *bighas* of land, which is mostly used for agriculture purposes (primarily to provide food security). So only a limited number of goats, five or ten, can be supported by agriculture waste.

Assuming that the grazing land required per goat is around 0.05 ha, the available land (forest and pasture land) in Abu Road can support an additional three lakh goats (current goat population in Abu Road is 32,000). This means that 6,000 families can pursue goat-rearing activity as a livelihood, presuming that the each family has a herd size of 50 goats.

The survey revealed that around 55 per cent of the income of the families comes from wage labour, mostly unskilled labour, regardless of the primary occupation of the community, and around 22 per cent comes from agriculture. Although a large number of families rear goats, only two per cent of the families consider livestock or goat-rearing as the primary source of income, mainly because of the lack of capital to invest in goat-rearing as well as the fear of the high mortality rate of goats. Usually, the goats are taken for grazing, either by the children (mostly girls) and old men or women because goat-rearing is seen as a secondary activity.

Discussions with the community indicated that goat-rearing could become an activity of focus if it were to fetch a competitive return of more than Rs 20,000 per year and the un-skilled labour can eventually look at goat-rearing as a replacement activity.

*Although there is huge scope for goat-rearing in Abu Road, the activity, per se, is seen only as a buffer that can be used in emergencies rather than as a viable livelihood activity in itself*

## Challenges in Goat-Rearing in Abu Road

Although there is a huge scope for goat-rearing in Abu Road, the activity, per se, is seen only as a buffer that can be used in emergencies rather than as a viable livelihood activity in itself.

Goats are highly susceptible to diseases and have a high mortality rate. Goat-kid mortality is as high as 50 per cent whereas the mortality for the adult is 30 per cent; moreover, there are almost no veterinary services in the area. There are only nine veterinary sub-centres for 87 villages; these are inaccessible to farmers because of these are so far away.

If a goat falls ill, it is treated locally. The villagers were not aware of vaccinations and de-worming for goats. They had no idea how or why goats fell ill, and largely believed that if a goat becomes sick, it is difficult to save it. They cited examples when the entire herd of a family was wiped out because of disease. As per the data available from the Animal Husbandry Department (AHD), the seasonal mortality of goats is 25–30 per cent mainly from PPR (*Peste Des Petits Ruminants*) also known as goat plague, FMD (Foot and Mouth Disease), diarrhoea, etc. People do not invest more than Rs 100–200 on goats; whereas they do understand that it is a big liquid asset for them, they find rearing goats to be very risky.

The community also does not have any separate enclosures to keep goats, mainly because it considers goats to be a liquid cash asset; so the villagers share the same room with the goats. However, some of the bigger farmers have now begun to construct a *bada* (local, compact, open fencing) for sheltering goats but these are prone to thefts and also attacks by wild animals.

**Table 5: Challenges in Goat-Rearing**

Challenges	Drivers	Impact
Low body weight and milk yield/ Malnutrition	<ul style="list-style-type: none"> <li>- Use of low productivity/non-descript breeds</li> <li>- Limited capital to buy nutrient-rich fodder and supplements</li> <li>- Mindset of treating goats as a sustenance animal, thereby driving the lack of investment in key productivity (for example, fodder) and health (for example, de-worming) drivers</li> </ul>	<ul style="list-style-type: none"> <li>- 60–100% less meat/goat</li> <li>- Up to 100% less goat productivity, and slower herd size expansion</li> </ul>
High mortality rate	<ul style="list-style-type: none"> <li>- Limited access to, or willingness to invest in veterinary services</li> <li>- Lack of awareness about goat diseases and preventive measures</li> </ul>	<ul style="list-style-type: none"> <li>- Mortality rate is up to 25%</li> </ul>
Inefficient and socially harmful grazing habits	<ul style="list-style-type: none"> <li>- Labour-constrained families send children to take goats out to graze. They are not able to properly tend to the goats</li> </ul>	<ul style="list-style-type: none"> <li>- In-breeding</li> <li>- Negative impact on children's education</li> </ul>
Goats stolen/ eaten by animals	<ul style="list-style-type: none"> <li>- Lack of secure sheds to ensure physical safety of animals</li> </ul>	<ul style="list-style-type: none"> <li>- Loss of 5–10% goats</li> </ul>
Exploitation by butcher	<ul style="list-style-type: none"> <li>- Excess supply in the Abu Road local slaughter market</li> <li>- Lack of awareness of prices and true goat weight</li> <li>- Distance of more than 100 km to major <i>mandis</i>, and the lack of labour and capital challenge individual small-holders' access to markets</li> </ul>	<ul style="list-style-type: none"> <li>- Goat price is 20–30% less than potential</li> </ul>

Source: Livelihood Study, PRADAN, Abu Road

As many as 95 per cent of the families that rear goats, practise full grazing—deploying mostly young girls or old women for the job. Goats travel almost 12–15 km per day, hampering weight gain and productivity, and also allowing in-breeding. Although the *Sirohi* is a sturdy breed, many farmers have non-descript breeds that do not gain weight and are more susceptible to disease. And because the demand in the local *mandi* is met by the nearby villages, traders usually exploit farmers and negotiate the rate to their own advantage. Because of all these challenges, families get

less than 10 per cent of the potential income from goat-rearing and, hence, they practise it as a subsistence livelihood or a secondary livelihood.

### PILOTING THE ACTIVITY

After the livelihood analysis, the team, at end of 2012, thought of piloting the best practice model with 50 families, which would be a demonstration for the other farmers. These families were selected from four villages on the basis that they already practise goat-rearing,



are landless or small marginal farmers and are members of an SHG. The demonstration was conducted with support from Centre for Micro-finance (CMF), Jaipur, for infrastructure and MPOWER for capacity-building of the para-vet.

The main objectives of the pilot were to:

- Bring change in the feeding practices (from full-grazing to semi-stall feeding).
- Ensure para-vet services to each family.
- Demonstrate the impact of constructing sheds on goat health.
- Control cross-breeding (castrate all non-descript bucks and introduce improved breeds of bucks).

### INTRODUCTION OF FEED AND FODDER

Feeding habits that would ensure proper growth of goat-kids and reduce mortality were introduced, which would take care of the goats during pregnancy and of the kids after birth. Instead of only open grazing, all farmers were educated to add locally available materials such as maize *daliya* (ground), *jeerala* (feed concentrate) and *chana daliya* to the diet of the goats and the kids. This brought a major change in the health of the animals in terms of meat production and also in family awareness levels. Now, at least 50 per cent of the families have adopted this practice whereas the rest are slowly accepting this. We have started fodder plantation (*Ber* and *Dhencha*) with some families, to improve fodder availability during stress periods.

### SHED CONSTRUCTION

The construction of goat sheds is a critical intervention in promoting goat-based livelihoods. The design was verified by experts. Inputs from farmers, based on local resource availability and their preferences,

led to changes being made to the design. The material for the shed construction for all the families was centrally purchased and the farmers took responsibility for constructing their own sheds under the supervision of a para-vet and other professionals. It was a time-consuming activity; by the end of June 2013, however, all the sheds were completed.

### DEVELOPING PARA-VETS AND THE HEALTH SYSTEM

SHG members select a para-vet from the community. The selected para-vets then undergo residential training programmes. They visit farmers regularly and provide veterinary services. A monthly central meeting of all para-vets is held at the Abu Road office, with an objective to track the progress, cross-learning and organizing support plans from professionals.

All para-vets attend SHG meetings fortnightly and interact with women goat farmers regarding the issues and required services. They also maintain a record of the services provided, which is again shared at the Cluster level for service appraisal. Every month, they present a progress report of each farmer at the Cluster level as well as the SHG level, discuss issues and prepare the next action plan in the meeting.

Para-vets had been initially provided with medical kits; but now they maintain their own. All vaccines and medicines are purchased centrally from the Abu Road local market and from nearby areas with an indent generated by the para-vet from their Clusters. Para-vets also collect an advance amount from the community towards the purchase of vaccines and medicines. All vaccines are maintained in the freezer installed at the PRADAN office, Abu Road. To maintain the cold chains, para-vets are provided with ice boxes to carry the

vaccines in the field. All the farmers pay for the cost of services provided by the para-vets as per the rates defined at the Cluster level by SHGs.

Para-vets are also well linked to the nearby veterinary hospitals and, in case of any complication, they immediately refer the case to the veterinary doctors. Besides vaccination, para-vets also provide castration services for male goat kids. Castration stops in-breeding and helps in rapid weight gain, leading to a high yield. Till date, para-vets have attended to 500 such cases with a payment (Rs 50/ per case) from the community.

### COMMUNITY TAKING CHARGE

Recently the community expressed the need for a separate space for discussing this activity—a place beyond the SHG forum. So a Goat-rearing Group (GRG) has been formed, in which only goat-rearing families meet periodically to discuss their business. One member is selected as a *pashu sakhi* from the GRG, and PRADAN facilitates her/his skill enhancement so that the *pashu sakhi* is able to provide regular education and some basic services to goat-rearers.

GRGs have a Goat-rearing Development Committee (GRDC), which meets once a month at the central office. The main function of the GRDC is to prepare an action plan, review with the Cluster representatives, follow up with *pashu sakhis* and para-vets, and discuss input services (de-worming, vaccination, medicine, equipment, new induction, training and exposure of farmers, para-vets and *pashu sakhis*) and also monitor the output (mortality rate, meat production, market linkages, etc.).

*A Goat-rearing Group (GRG) has been formed, in which only goat-rearing families meet periodically to discuss their business. One member is selected as a pashu sakhi from the GRG, and PRADAN facilitates her/his skill enhancement so that the pashu sakhi is able to provide regular education and some basic services to goat-rearers*

### ISSUES FACED DURING IMPLEMENTATION

First-hand experience in goat-rearing threw up several issues and challenges. These were:

- To maintain a cold chain for the vaccines from the government department.
- To ensure that every family provides proper nutrients to the goat and the buck.
- To build the skill level of para-vets, and upgrade their skills and knowledge through the second phase of training.

But in MPOWER there is no scope for a second-phase training budget.

- The delay in shed construction resulted in the buck not being introduced as per design.

### IMPACT

- There is a change in growth parameters for both adult goats and kids. (A six-month-old buck weighs 6–10 kg.)
- There is a significant change in goat health and the mortality rate in specific clusters. (Reduced from 25–30 per cent mortality to 5–7 per cent)
- There is excitement around goat-based livelihoods. All goat-rearers belonging to a hamlet have formed an activity group (GRG) that meets twice a month.
- Locally established veterinary services have made the process easy and reduced the drudgery for a goat-rearer. Currently, 10 para-vets are actively providing services in 12 villages. There is a well-established linkage with the veterinary hospital and the GRG through para-vets.

- Farmers see the potential in the goat-rearing activity and meet twice a month to share their experiences and also to monitor the activity regularly.
- Preventive services are standardized at the Cluster level, wherein the para-vet is treated like an entrepreneur. Routine preventive services such as vaccination, de-worming and castration have been stabilized at the community level.
- Women entrepreneurs from SHGs have been trained as *pashu sakhis*. They visited ACF (Ambuja Cement Foundation) an NGO in Pali district near Sirohi, where the system is functioning well. Following the exposure visits, four *pashu sakhis*, who are currently functioning in their goat Clusters. More *pashu sakhis* are being selected, to be trained for supporting the service system.
- In January 2014, MPOWER sanctioned a project supporting a total of 1,303 families (including the earlier 50 families). The project included the capacity-building cost as well as part of the infrastructure development cost.

# Backyard Goat Farming: A Poverty Alleviation Tool

SANJEEV KUMAR

*Introducing systems, promoting research, and imparting information on the latest developments to goat rearers, who are usually poor, illiterate, marginalized and unorganized, and are largely the aged, the widows and destitute families, is imperative so that people on the fringes of society experience self-sufficiency, and dignity of labour and life*

## BACKGROUND

With over 140 million goats, India has the second largest goat population in the world. Largely owned by poor and marginal farmers, as a supplementary livelihood, goats have multiple uses in the lives of the people—as food, as means to access cash in emergencies, as a source of income and as part of religious rituals. Keeping goats also indicates the social status of farmers.

With the fragmentation of land (due to increasing population and division of land) and erratic rainfall, most of the marginal land-holding families find solace in goat-farming as a coping mechanism, for the supplementary income it provides. Goat-rearing gains importance especially in times of drought or excessive rainfall, which adversely affect crops. This livelihood activity is the poor man's choice, despite the apathy and negligence shown to this sector by mainstream institutions.

Whereas development workers are, to some extent, realizing the importance of goats in the socio-economic context, very limited attention has been paid to promoting it as a means to enhance productivity and strengthen livelihoods of the people. Moreover, very little data on the experiences of when it has been used as a resource is available.

The major focus of development in the field of livestock has remained milk-centric and mainly on large ruminants. Apathy and bias have prevailed about goat-based livelihoods development. Goats are largely kept and managed by women and poor families, whose political voice is negligible and who are unorganized. The demands for services for goat-farming, therefore, have not attracted the attention of policy makers, planners or development workers.



## GOAT-REARING AS A LIVELIHOOD

Table 1 shows the socio-economic condition of farmers rearing animals.

Small livestock has been a woman's asset and has largely taken care of by her, especially in small herd sizes of three to seven. There exists an implicit bias in government programmes, in terms of investment, research, education and extension, in which the focus is more on large ruminants and milk-centric livestock development. Poultry is the only other livestock, on which attention has been shifted from backyard small-holder poultry to large organized poultry farms.

Goat-rearing is the primary or secondary livelihood activity for over 50 lakh poor families across the country. Considering this, the goat has been referred to in different ways to highlight the asset that it is proving to be for the poor. It is known as the:

- Poor man's cow (provides nutritious milk at low cost)
- ATM for the poor (cash available immediately)
- Walking crop (can walk miles to get water and feed, in adverse climatic conditions)

- Moving fridge (the milk can be obtained from goat more than twice in a day)
- Bank on hooves
- Insurance for the poor
- Women's asset

Goat-rearing is the preferred activity of poor families for the following reasons:

1. The goat being a small animal, goat-rearing is a manageable activity, requiring a comparatively small area.
2. Capital investment is very low; therefore, a poor family can start the activity easily.
3. The gestation period of a goat is comparatively less (about six months) and the kids grow fast.
4. During drought or when there is an epidemic, the risk in the goat-rearing activity is comparatively lower than for larger animals. Because goats can survive on shrubs during droughts, the price usually is reasonable. Should one or two goats die, there would be a comparatively lower economic impact on the family than if a cow or a buffalo were to die.
5. Male and female kids of goats are sold at the same rate whereas cows and buffaloes are not.

**Table 1: Farm-reared Animals across Castes**

Caste	Economic Condition		
	Upper	Medium	Lower
SC	<i>Cross breed (CB) cow, buffalo</i>	<i>CB cow</i>	<i>Indigenous cow, goat, pig, poultry</i>
ST	CB cow, buffalo	Buffalo, goat	Indigenous cow, goat, poultry, pig
OBC	CB cow, buffalo	Buffalo, goat	Indigenous cow, goat, poultry
General	CB cow, buffalo	CB cow, buffalo	Indigenous cow, goat

Source: Livelihood Study, PRADAN, Abu Road

6. The goat, the parts of a goat's body/the products prepared from goats' produce, etc., are saleable in the market and many cottage industries are based on goats and the goat-rearing activity.
7. The milk of a goat is used for treatment of many diseases. It is easily digestible due to the lower fat content and has proved useful for the treatment of stomach problems of infants. It requires only systematic market development.
8. Milk can be obtained many times a day from a goat. In addition, there is no impact on the quantity of milk if there is a delay in milking.
9. The goats are ready for pregnancy in nine months. There is, therefore, scope for breed improvement.

*Various agencies have undertaken efforts to streamline and strengthen goat-based livelihoods. Many of these efforts have come from either the goat-farmers themselves or from grass-roots agencies working closely with such poor communities*

### WHAT AILS GOAT FARMING

As per the study undertaken by The Goat Trust in 317 sample villages, across six states, some of the key problems and challenges faced in goat-based livelihoods are:

1. Insufficient grazing of goats due to decreasing land area; this has an adverse impact on production.
2. Absence of preventive practices and first-aid at the village level, leading to high mortality and morbidity of goats.
3. Goats, being small, are easy victims of attack by wild animals.
4. Due to the low cost of goats, goat-rearing, as an activity, does not attract the interest of the banking and insurance companies, and financial linkages remain weak.
5. Standard production processes such as feed, low-cost housing design and

feed preservation have been weak. Context-specific, pro-poor production technology needs to be developed.

6. There is no standard pricing system for goats. The lack of collective marketing becomes a barrier to developing goat-rearing.

7. Goat-milk, in spite of its high value and nutrition, has not received attention and largely remains unacceptable by urban people.

Equally important is the fact that goat-rearers are usually poor, illiterate, marginalized and unorganized. Goat-farming has been an occupation of the aged, the widows and the destitute families, and hence pro-poor systems and sensitivity need to be integrated into the programme to address the issues.

### PRESENT EFFORTS

Various agencies have undertaken efforts to streamline and strengthen goat-based livelihoods. Many of these efforts have come from either the goat-farmers themselves or from grass-roots agencies working closely with such poor communities.

Whereas goat farmers in Rajasthan, especially from Alwar and Ajmer, have shown entrepreneurship in goat-farming by leveraging *Bakr-Id* demands and producing high vigour stall-fed bucks, NGOs such as PRADAN, BAIF Development Research Foundation, World Vision, ANTHRA (an NGO based in Pune), IBTADA (an NGO based in Alwar), Bosco Gram Vikas Kendra (BGVK), Watershed Support Services and Activities (WASSAN), Gramin Development Services (GDS) and many other NGOs, have taken initiatives to promote goat-based livelihoods in various parts of the country. The Rural Agricultural Institute, Narayangaon, (RAIN) in Maharashtra has worked on dairy

goat promotion by importing and crossing *Sannen* goats with local goats. The Nimbkar Agriculture Research Institute (NARI) is another NGO based in Phaltan, Maharashtra, which has standardized the artificial insemination process and has worked on boar-goat crosses for goat-meat promotion. The International Livestock Research Institute (ILRI) and HEIFER International are other organizations supporting goat-based livelihoods through partnerships with grass-roots agencies. The Indo-Swiss Goat Development Project in Rajasthan conducted a research-oriented programme, in which the productivity of the *Sirohi* and its crosses with exotic breeds were recorded, over a period, to understand the field-level performance of cross-breeding in goats. Capitalization of Livestock Programme Experiences in India (CALPI) has worked in an advisory role to many organizations, to strengthen goat-based livelihoods.

The Goat Trust, Lucknow, has worked on a pro-poor, goat-based livelihood support model in association with 34 NGOs in six states of the country and replicated it in Jharkhand, under government-sponsored programmes.

The Indian Council for Agriculture Research (ICAR) has established the Central Institute for Research on Goats (CIRG) at Makdoom, where research on goats had been undertaken. The Central Sheep and Wool Research Institute (CSWRI) and the Central Arid Zone Research Institute (CAZRI) are the other institutions working on goat and goat products research and extension. The National Dairy Research Institute (NDRI) had the *Sannen* and the *Beetal* as well the *Alpine* and the *Beetal* crosses at its farm, to understand the potential of milk productivity of goats under research trial. The National Agriculture Innovation Project (NAIP), sponsored by the ICAR, studied goat-rearing in dry land regions such as Bundelkhand and

Andhra Pradesh, introduced goat-rearing to the region and trained youth volunteers for its promotion.

The government's poverty alleviation programmes such as the Swarn Jayanti Swarojgar Yojana (SGSY), the District Poverty Initiatives Programme (DPIP) and the Tribal Development Programme have provided goats as subsidized livelihood assets. Several state governments have taken the initiative to work on goat-based livelihoods, namely, the IFAD supported Mitigation of Poverty in Western Rajasthan (MPOWER) and the Bundelkhand package programme, in which NGOs and government departments are working to strengthen goat-based livelihoods, with varying success.

## PROBLEMS AND KEY APPROACH

Various agencies have worked to enhance the income and the quality of life of goat farmers. The essence of the approach has revolved around the following problems and interventions.

## MAJOR LEARNING AND OUTCOMES

Most of the development programmes on goat-based livelihoods in the last decade have been a failure. They have aimed at providing a subsidized asset with a pre-defined unit size. Although a part of the problem remains the selection and implementation of the poverty alleviation programme, it was also realized that the design of the programme had an inherent weakness which did not address the key problem of goat farmers. Field experiments by various grass-roots agencies in the last decade have provided key learnings to be incorporated in the design, in order to solve the problems of the goat farmers.

Facilitating the community-led support system development should precede any goat asset development programme. This includes:

Problem (Effect)	Cause	Solutions
High mortality/ morbidity in goats	Financial and non-financial constraints to adopt improved practices. Less accessibility to first-aid services and lack of knowledge	<ul style="list-style-type: none"> <li>• Introduce a community based service provider to educate goat rearers</li> <li>• Introduce community insurance</li> </ul>
Genetic degradation/low quality of goats	Lack of focus on improved buck breeding in goats	<ul style="list-style-type: none"> <li>• Create awareness and set up a breeding service</li> <li>• Provide selective kids nursery</li> </ul>
Feed scarcity and seasonal stress	Low awareness about alternative feed and non-existence of fodder cultivation and preservation	<ul style="list-style-type: none"> <li>• Develop pastures for grazing</li> <li>• Conduct a participatory rural appraisal (PRA)-based analysis of feed seasonality, kidding seasonality and disease analysis</li> <li>• Develop a short- and long-term plan</li> </ul>
Low share of producers in consumer-level meat price growth	Absence of a transparent system for price estimation of goats. Skewed information accessibility	<ul style="list-style-type: none"> <li>• Introduce a live body-weight-based price estimation</li> <li>• Conduct seller-buyer interface workshops</li> </ul>

- Focusing on the replacement of low-quality goats with productive goats because labour and natural resources for goat farming, remain limited at the household level
- Facilitating the PRA-based problem-analysis (feed, disease/kidding seasonality) to develop an in-depth understanding of the problems and the inter-play of existing resources and conditions before developing suggestions
- Starting from what fits the livelihood basket and not imposing a unit size
- Educating women on animal productivity management before acquiring goats as assets
- Developing private land along with commons for fodder
- Understanding market preferences of

breed, colour, size, seasonality and pricing in partnership with the community

- Involving stakeholders such as traders, feed-suppliers and market regulators in the programme

### KEY IDEAS AND INNOVATIONS

Most of the somewhat successful goat-based livelihoods projects had the following key components:

- Involving selected village women/men as improved goat management knowledge disseminators and preventive goat health workers. Almost all the NGO-led models focused on developing a village-based service provider to provide improved management knowledge such as feeding, breeding, preventive health, signs of contagious disease such as PPR and Goat Pox.



- Introducing community insurance as an alternative system of risk protection
- Creating a learning platform such as Bakari Paalak Paathshaala to adapt technologies in context and to promote collective learning
- Building awareness on live body-weight pricing of goats and collective marketing
- Replacing low-quality goats
- Creating an acceptance of live body-weight price estimation among traditional traders
- Introducing logistics management for goat marketing
- Introducing high cost technology such as estrous synchronization and artificial insemination (AI).
- Building institutional interest in goat marketing

#### **CHALLENGES AHEAD**

- Ensuring low-cost feed availability
- Grazing land management

# Introducing Goat-rearing in Balliguda

RUCHITA KHURANA

*Using SHGs as the base to explore different ways of building traditional livelihoods-generation activities such as goat-rearing becomes a worthwhile journey for the tribals of Kandhamal district, who adopt scientific methods with the help of trained para-vets of the community, bringing hope to those struggling for survival*

PRADAN commenced its work in Balliguda block of Kandhamal district, Odisha, in 2000, with the objective of building the community's human, social and financial capital. PRADAN initiated the formation of women's Self Help Groups (SHGs), primarily comprising women from relatively poor households, and helped them start savings and credit activities, providing a forum for regular discussion on issues related to livelihoods and household well-being.

Balliguda block is located 700–1,000 m above sea level and is largely inhabited by Kandha tribals. The region receives an annual rainfall of 1,200–1,600 mm. The area is surrounded by dense forests, which are a source of livelihood for families that collect non timber forest produce (NTFP) such as *sal* (*Shorea Robusta*), *siali* (*Bauhinia Vahlia*) and *tendu* (*Diospyros Melanoxylon*, also known as the East Indian Ebony) leaves, and *mahua* (*Madhuca Longifolia*) seeds and flowers. The other sources of livelihood comprise rain-fed agriculture, daily wage labour, brick-making, and poultry and goat-rearing. The land-holding pattern ranges from 50 decimals (0.2 ha) to one hectare (2.47 acres). Agriculture is rain-fed and primarily meets subsistence needs. Paddy and turmeric are the main crops grown in the *kharif* season. The average size of a family is five to six members.

PRADAN initiated goat-rearing as a livelihood activity in Balliguda for the relatively poor and landless households. The initiatives on goat-rearing have largely been concentrated in the Sudra *gram panchayat* because it is surrounded by a dense deciduous sal forest, which has a large number of seasonal plants and shrubs that are a good source of fodder for goats. Goat-rearing interventions were initiated in Sudra in four village clusters—Ma Laxmi (five villages), Patkhonda (two villages), Ma Tulsi (one village) and Ma Manikeswari (two villages). The intervention has been extended to seven villages in Solaguda *gram panchayat* now.

The local goat reared in the region is called the Kandhamal goat, or Phulbani, which is as yet not registered by the National Bureau of Animal Genetic Resources (NBAGR). The Phulbani is similar in appearance to both the Ganjam and the Black Bengal goat breeds. It has stout legs, is slender in shape and can easily climb mountains. The twinning rate is high. An adult buck may weigh close to 30 kg whereas a doe weighs an average of 25 kg. It has a milk yielding capacity of 300–500 ml per day.

The Balliguda region, however, is characterized by high morbidity and mortality of goats due to inadequate access to health care services, poor breed selection, and unscientific husbandry and rearing practices. This livelihood activity, therefore, resulted in low incomes. Through an innovative community-centric model, PRADAN demonstrated an institutional framework, with the SHGs as the foundation, to facilitate access to preventive health and vaccination services, and knowledge-sharing on improved rearing and husbandry practices.

In its goat promotion activities, PRADAN decided to follow the village cluster approach to facilitate the provision of services (such as de-worming and preventive vaccination) and regular monitoring through trained para-vets. A village cluster usually falls within a single watershed, making it easier to create an immune zone through regular vaccination.

### ISSUES IN GOAT-REARING

During the initial years, PRADAN focused on building the capacity of SHG members through regular group meetings. Subsequently, a number of activities to improve livelihoods were identified and introduced gradually in

*PRADAN decided to follow the village cluster approach to facilitate the provision of services (such as de-worming and preventive vaccination) and regular monitoring through trained para-vets*

the villages. These included promoting the System of Rice Intensification (SRI), providing support for tomato cultivation, establishing irrigation wells, introducing land and water conservation programmes, comprising lift and gravity flow irrigation and field-bunding, up-scaling NTFP activities, and offering support for goat and poultry-rearing.

In discussions with the community, it emerged that households that had previously reared two to three goats had, over time, given up this activity on account of the high levels of morbidity and mortality (averaging 25 per cent of the adult goats and 50 per cent of the kids). Further, based on the feedback from the SHG meetings and PRADAN's own technical reviews, the following constraints emerged in goat-rearing.

- Delay in castration of unviable bucks led to in-breeding and frequent abortions, and the birth of weak and unhealthy kids that were susceptible to endemic diseases. The non-availability of good quality bucks was another constraint that emerged during the group meetings.
- Vaccination and de-worming was never practised. In many remote villages, vaccination is still considered a taboo. In addition, veterinary services were available only at the veterinary dispensary, located at the Barakhama *gram panchayat* that was 6–7 km away from these villages. On account of the hilly terrain and dense forests, households are remotely located and are difficult to access.
- Due to the lack of proper shelter, the goats were attacked by wild animals from the surrounding forests. In addition, the goats

were susceptible frequently to diseases from exposure to cold and rain.

- Grazing in the surrounding forests was the only source of feed and fodder for the goats. No additional supplementary food was provided. With forests and grazing areas located at higher altitudes, it was difficult for pregnant and lactating goats to graze, and this further contributed to the high levels of mortality.
- On account of recurrent diseases, distress sale of goats was high; as a consequence, rearers could not bargain for remunerative prices with goat traders.

### THE IMPLEMENTATION STRATEGY

In 2002-2003, PRADAN commenced its goat-rearing programme, with a focus on strengthening the existing goat units as well as encouraging new households to take up goat-rearing. At that time, 30 women SHG members had taken loans against the savings made by them in their respective SHGs and had bought two to three goats each. In addition to loans against savings, each SHG member was given a small one-time grant of Rs 2,000 from the experimental funds available with PRADAN, to purchase goats from the local market. Support was provided for the construction of goat sheds, using locally available material. The construction of a goat shed, as per specifications provided by PRADAN, was an important criterion for becoming a member of the goat-rearing groups within the SHGs. Goat sheds were constructed on a raised platform to avoid direct contact with the earth, had to have two windows for good ventilation and had to be limed/disinfected on a monthly basis. Considering that an adult goat requires

*In 2002-2003, PRADAN commenced its goat-rearing programme, with a focus on strengthening the existing goat units as well as encouraging new households to take up goat-rearing*

5–10 sq ft of open space, the goat shed was also designed to avoid overcrowding of goats.

Because of the remoteness of the region, PRADAN recognized the importance of training a community representative in basic health care, who would provide doorstep health services

to goat-rearers. In 2004, a few villagers were unanimously nominated by the SHG members to undergo a four- to five-day training conducted by PRADAN. The training curriculum comprised both theoretical and hands-on training sessions, focusing on the provision of first aid, administering vaccination and de-worming, performing buck castration as well as providing detailed information on disease symptoms in goats. The training was conducted in the field and at the PRADAN office in Balliguda by a goat-rearing expert from PRADAN, along with an experienced retired veterinarian, who was paid an honorarium. During this initial period, goat-rearers were reluctant to pay for the services provided by the trained para-vets.

In 2005, refresher training programmes were organized for the trained para-vets. Of the ten trained para-vets, six dropped out in search of more lucrative jobs. During the same year, a major outbreak of PPR (*Peste Des Petits Ruminants*), also known as goat plague, was reported in Balliguda block. The area was not considered prone to PPR; hence, vaccines were not available at the block veterinary hospital. PRADAN approached the Indian Veterinary Research Institute (IVRI) to conduct tests, which proved that the disease was indeed PPR. Following this, the district hospital began to stock PPR vaccines.

Between 2006 and 2008, refresher training programmes were conducted for trained

para-vets; new para-vets were inducted and trained too. Concurrently, SHG members conducted regular follow-ups on timely vaccination and de-worming of all goats.

In 2009–11, PRADAN received a grant of Rs 5,00,000 for its goat-rearing programme from Navajbai Ratan Tata Trust (NRTT). In view of the progress in the goat-rearing activities in

Sudra *gram panchayat*, the grant prioritized support for goat-rearing in this village Cluster. Seven high quality bucks of the Ganjam and the Beetal breeds were purchased from the local market in Ganjam district and from the government farm in Chiplima in Sambalpur district, respectively. In addition, each goat-rearer from the five villages in the Sudra *gram panchayat* received financial support for the purchase of one goat, on condition that each goat-rearer would purchase an additional goat from their own savings. A total of 120 goat-rearers purchased two goats each from Bolangir, Kalahandi, Boudh and Ganjam district markets.

PRADAN motivated goat-rearers to vaccinate their goats regularly and also follow regular vaccination schedules. It was at this time that annual activity calendars were developed, to ensure that all goat-rearers followed the same management schedule. Vaccination of the entire village herd was organized on a single day and para-vets were paid directly from the SHG goat-rearing fund. Likewise, first-aid medicines were also purchased from SHG funds. Medicines and vaccines were initially purchased at subsidized rates from the government veterinary dispensary in Barakhama *panchayat* or from the block veterinary hospital in Balliguda. However, gradually contact was established with

*PRADAN motivated goat-rearers to vaccinate their goats regularly and also follow regular vaccination schedules. It was at this time that annual activity calendars were developed, to ensure that all goat-rearers followed the same management schedule*

wholesale dealers, who were ready to deliver medicines to the village, if ordered in bulk.

Between 2002 and 2012, PRADAN trained a total of 80 para-vets. Of these, only 18 continue to remain associated with this programme. Due to sporadic interventions, neither did the goat-rearers benefit from the improved access to health care nor did para-vets receive

adequate monetary benefits to enable them to continue to provide these services. Most of these trained para-vets are, however, running their own goat-rearing enterprises successfully.

Following a review of its para-vet programme in 2012, PRADAN introduced changes in its approach. The focus shifted to training women SHG members as para-vets. They are referred to as SHG para-vets. Second, training and subsequent refresher training of goat-rearers was prioritized, following the realization that goat-rearers needed to be sensitized to the value of the services provided by the para-vets. Goat-rearers were also trained to identify the characteristics of good quality goats, through regular interactions with the traders selling goats.

To facilitate monitoring and accountability of both the goat-rearers and the para-vets, and to track the health and management practices adopted by them, PRADAN introduced the concept of a Cluster *munshi*, or a Cluster para-vet. The main responsibility of the Cluster *munshi* was to collect data from the goat-rearing families on a bi-monthly basis. The data would include the number of goats (bucks, does and kids) in each household, and details regarding vaccination, de-worming, other health services availed of, kidding, mortality and sale of goats/kids, etc.



### UNNATIPATH: A GOAT-REARERS' FEDERATION

In 2010, SHGs in the Ma Laxmi Cluster were federated into an apex institution, a goat-rearers' Federation called Unnatipath (or the pathway to progress), comprising 180 members (one member from each goat-rearing family). The Federation was established with the objective of strengthening goat-rearing activities at the *gram panchayat* level and, thereby, creating a sustainable model. Currently, the responsibilities of the goat-rearers' Federation comprises managing and training the Cluster and the SHG para-vets, co-ordinating a collective fund for the purchase of goat-related inputs such as vaccines and feed, identifying and implementing other related livelihood activities, which complement the goat-rearing initiative, and identifying neighbouring villages to promote goat-rearing activities. These activities are closely monitored and facilitated by the PRADAN team. When a large number of households take up goat-rearing in the Sudra *gram panchayat*, it is envisaged that the Federation may also make inroads into the collective marketing of goats.

The Board of the Unnatipath Federation comprises a President and 12 Board Members, one each from the 13 SHGs in this Cluster. The President is nominated by the representatives of the SHGs, and has a term of three years. Membership to the goat-rearers' Federation depends on the following criteria:

1. A member should be willing to acquire/ invest in goat-rearing or have a minimum of five does.
2. A member should be willing to invest time for training and skill-development.
3. A lifetime membership fee of Rs 100 will be the contribution towards the collective fund of the Federation.

Recently, the goat-rearers have started depositing 10–20 per cent of the total amount earned by them from the sale of goats with the Federation. For example, if goats are sold by a member for Rs 6,000, Rs 600 to 1,200 is placed in the SHG goat-rearing fund, with clear record of which member has made this contribution. The Federation's collective fund is growing gradually and, at present, the total savings are approximately Rs 75,000, to be utilized for the purchase of good quality bucks and for the bulk purchase of medicines and vaccines. In 2011 and again in June 2013, the Federation sold goats collectively, to meet the bulk orders of one-and-a-half quintals of goats. These goats were purchased from member-rearers. In 2011, only the sale price of goats was realized; in June 2013, every goat-rearer who sold her goats through the Federation, earned a commission of Rs 100 per goat, in addition to the sale price. This commission was also deposited in the Federation's collective fund.

In 2012, on account of the success of the goat-rearing programme in the Ma Laxmi Cluster, the Orissa Tribal Empowerment and Livelihood Programme (OTELP) offered to extend their support for a similar initiative in the Palami and Kambarkiya villages in the Patakhonda Cluster in Sudra *gram panchayat*. Under this programme, each beneficiary would receive an amount of Rs 22,000 (Rs 15,000 for the purchase of goats and Rs 7,000 for the construction of the goat shed, specifically for the purchase of asbestos sheets for the shed). In addition to the support under the OTEL P programme, each beneficiary would have to invest Rs 10,000 to Rs 12,000 of her own money for the remaining construction of the goat shed, which costs approximately Rs 20,000–22,000.

## TRAINING AND SUPPORT

From 2009–12, the annual cost incurred by PRADAN on training (basic course and subsequent refresher training) of para-vets and goat-rearers, amounts to Rs 2,80,400. Whereas the basic training is for four days, a two-day refresher training for para-vets is conducted once every month. As the programme expands to other villages, these trained para-vets also travel to these villages to provide training to newly inducted para-vets and goat-rearers. The target is to conduct at least eight training programmes a year. These para-vets are paid up to Rs 800 for providing training services, and also sharing information and data regarding health care services provided to the goats of SHG members.

PRADAN plans to up-scale its goat-rearing intervention by organizing a training of trainers programme for the existing SHG and Cluster para-vets so that, in the next two years, these para-vets are able to train additional para-vets,

*PRADAN plans to up-scale its goat-rearing intervention by organizing a training of trainers programme for the existing SHG and Cluster para-vets so that, in the next two years, these para-vets are able to train additional para-vets, without seeking any support from PRADAN*

without seeking any support from PRADAN.

## SHGS AND THEIR ROLE IN UP-SCALING GOAT-REARING IN THE AREA

Every week, during the SHG meetings, women deposit some money in any one or all of the three savings boxes (general savings, savings for agriculture-related activities and savings for goat-rearing) and a record of

their contribution is made by the SHG para-vets (also referred to as *didis*). As the vaccines and medicines, including for de-worming, are collectively bought from the funds in the goat-rearing group, SHG para-vets also keep records of the expenses incurred by each SHG member on regular vaccination and de-worming of goats. This data is presented to SHG members during the weekly SHG meetings. SHG para-vets are also responsible for the care and maintenance of the improved quality buck, whose services are availed of by both group and non-group members without any charge.

## SEBATI DIGAL FINDS GOAT-REARING A LUCRATIVE BUSINESS

Sebati Digal is a resident of Jargi village in Sudra *gram panchayat*. She stays in a joint family, comprising her father-in-law, husband Ramesh Digal and three children, studying in classes IX, VII and VI. The family owns 1.65 acres of land. Paddy is the only crop grown; it is barely sufficient to meet household needs. Sebati's husband works as a wage labourer to support the family. Goat-rearing, initiated by Sebati, contributes to the household income. Sebati owns 24 goats—14 does, six kids, three castrated bucks and one improved Beetal buck—at present. Last month, Sebati *did*i, as she is referred to in the village, sold three goats for Rs 12,500 and six kids for Rs 7,200. "I maintain 20–25 goats at a time, and based on their health and appearance, I sell two to three goats every year. The main criteria for judging market readiness of the goats is the weight gain in six months. If, in spite of de-worming and feeding of *bokashi* (a kid is fed 30–40 mg of this multi-nutrient supplement each day), the weight of the bucks remains less than 4 kg, these are considered unviable for further reproduction

and are castrated. The does are reared and bred until they are three to four years old, after which they are usually sold. A good quality goat gains approximately 7–8 kg of weight within six months." Sebati also says that whereas the kid of a cross between the local goat and the Ganjam buck shows good initial growth, the kid from a cross of a local goat and a Beetal buck has a problem standing in the initial days after its birth. It, however, gains very good weight later on. Castrated bucks are sold at the age of a year-and-a-half to two years for Rs 5,000 by which time they gain approximately 30 kg. Sebati has also been rearing *desi* poultry birds for the past seven to eight months. "I started with five poultry birds and now have a flock of 40 birds; four or five of these have been gifted to me by goat-rearing households in lieu of the services provided to them over the past year." The time interval between each clutch is two to three months and almost 10–12 eggs are laid per clutch. These eggs are largely consumed within the home.

Sebati joined the Ashadeep SHG in 2008 and received her first SHG training in 2009—a one-day practical training in goat-rearing. She was subsequently selected by the members of her SHG to attend the para-vet training programme the same year and subsequent refresher trainings every month. Since her nomination as the SHG group para-vet, Sebati has been regularly providing vaccination and de-worming services, and carrying out castrations of unviable bucks in her village. She is able to earn Rs 800–1,000 every month through her services as a para-vet. She has a good reputation in the neighbouring villages as well, where she has imparted training to newly inducted goat-rearers and group para-vets. "I prepare *Bokashi* (multi-nutrient supplement) at home for my own goats and it costs me Rs 18 per kilogramme." Sebati also maintains the health records of goat-rearing households in her village. This includes individual health cards issued to goat-rearers, in addition to a register, which she maintains and presents during the SHG meetings. Sebati is completely dedicated to the promotion of goat-rearing and ensuring the health of the goats raised in the area. She visits neighbouring villages, to support her fellow para-vets during the goat health camps organized by them. Sebati is also an active member of the Board of the Unnatipath Federation.

"My family provides all the support to allow me to participate in these community institutions. My husband takes care of the household chores while I go out for training for one or two days. He also helps with maintaining the goats and the goat shed when I am engaged with various group meetings and training programmes. The response and respect I receive from villagers is very encouraging and I try to persuade the women from other villages also to take up goat-rearing. Goat-rearing has not only been an additional source of income for most families here but has also created a strong bond among the women members in the SHG," says the smiling Sebati while she is busy taking notes from the goat-rearing expert during the health camp at Pippali village.

### **THE ROLE AND RESPONSIBILITY OF THE SHG AND CLUSTER PARA-VETS**

Based on the 'goat-rearing activity calendar', collectively developed by PRADAN and the

goat-rearers, a day and date is finalized by the SHG members for the vaccination and de-worming of goats. The requisition for the vaccines and de-wormers is submitted

by the SHG group para-vet to the Cluster para-vet (Cluster *munshi*), who delivers the stock to the SHG para-vet's house on the day of the vaccination. The goat-rearers, who are informed a day before, bring their goats

for vaccination or de-worming to the SHG para-vet's house. The cost of the vaccine and de-wormer is divided among the goat-rearers, and depending upon the number of goats vaccinated/de-wormed, the amount is

### GROUP PARA-VET AT PIPPALI VILLAGE IN BALLIGUDA BLOCK

Pushpita Malik is the group para-vet for Supath SHG in Pippali village in Balliguda block. She lives with her husband and two children, a son and a daughter, who are six years and six months old, respectively. Pushpita was trained as a group para-vet three years ago and since then has been in regular practice. She has completed her Higher Secondary (Class X) education and her family owns one acre of land on which paddy is cultivated during the kharif season. For the remaining months, her husband works as a wage labourer under the NREGA programmes. Pushpita earns Rs 600–700 every month by providing health care services to the goats of the rearers, who are members of Supath SHG. The services provided include first aid, vaccination de-worming and castration of bucks.

Pushpita was the first woman in Pippali to take up goat-rearing; even today, she is the only woman para-vet in her village. "The villagers were initially extremely resistant to get their goats vaccinated or de-wormed, and were not willing to pay for any services for their livestock. The situation has completely changed today because the number of goats over the past three years has increased from 20 to 350 and the people now voluntarily bring their goats for treatment, vaccination/de-worming and even castration," she says. Pushpita is especially known for her skills as a vaccinator (she can vaccinate a record 150 goats in just two hours).

Pushpita owns 17 goats—12 does, four castrated bucks and one improved Beetal buck. She also owns six local poultry birds, the eggs of which are consumed at home. "I intend to sell four castrated bucks in a month's time and expect to receive at least Rs 5,000 for each," she says. She also maintains the records of all the goat-rearing households and the details of health services provided to them. She shares these with the members during the SHG meetings. The vaccines and medicines are supplied at her doorstep by the Cluster para-vet, Upendra Mallick. She charges Rs 5–15 for any first-aid services, Rs 30 for castration of bucks, Rs 2–3 for de-worming and Rs 50 for administering one vial of vaccine of 100 doses, sufficient to vaccinate 90 goats.

Although she is a mother to an infant daughter, Pushpita has been regularly providing health services to village livestock and attending training programmes. "Although there is no one at home to take care of my younger daughter, my group members are very helpful and look after her while I go for training or am providing health care services to their goats," says Pushpita. During a health camp organized in Pippali village in April 2013, Pushpita could be seen actively attending to goats, injecting medicine for common cold and assisting the Cluster para-vet, Upendra Mallick, with buck castration.

deducted from the account of the respective goat-rearer. The SHG para-vets also maintain the improved buck, the cost for which is met from the savings in the SHG goat-rearing fund. There is no service fee charged. Usually, a buck provides service for five to six years after which it is sold in consultation with the SHG members, and the sale proceeds are deposited in the collective fund of the Federation. The SHG para-vets earn an average of Rs 800-1,000 every month from the services provided by them. This also includes the honorarium received for training other goat-rearers and para-vets.

The Cluster para-vet, however, makes an earning of Rs 3,500-4,000 per month because, in addition to the services provided to the goat-rearers, she also earns an income from selling vaccines and medicines bought at a wholesale price and are sold either at the Maximum Retail Price (MRP) or at a price slightly lower than this. She also prepares and supplies the feed supplement. The inputs are purchased at Rs 15 per kg.

The Cluster para-vet is also responsible for 'surprise' monitoring visits to programme villages, to ensure that goat-rearers are following the practices listed in the 'goat-rearing activity calendar'.

In addition, a goat health camp is organized once a month in each of the five villages, wherein all the goat-rearers are asked to assemble at the SHG para-vet's house. This health camp is organized and convened by two SHG para-vets and a Cluster para-vet. Most often, the goat-rearing expert and the Project Executive from PRADAN are also present. The SHG para-vets may be from the same village or from a neighbouring village. The goat-rearing expert, together with the Cluster and

*In addition, a goat health camp is organized once a month in each of the five villages, wherein all the goat-rearers are asked to assemble at the SHG para-vet's house*

the SHG para-vets, take stock of the situation by examining each and every goat, and then make a list of the major health problems observed among the flock. This is followed by administering the required medication. If a certain problem occurs frequently, a

briefing session is conducted with the goat-rearers. For example, at the Goat Health Camp in Pippali village in April 2013, a few goats were found to be infested with ecto-parasites. These goats were retained and the goat-rearers were asked to thoroughly sponge their goats with the disinfectant solution prepared by the SHG para-vet. In addition, a list of these rearers was prepared to enable the Cluster para-vet to visit and review the condition and cleanliness of their goat sheds.

## VACCINATION

Almost all the vaccines except for Enterotoxemia (ET) are procured from wholesale dealers in neighbouring districts such as Behrampur, Phulbani or Bhubaneswar at a distance of 180, 100 and 280 km, respectively. A portable freezer is used to store and transport these vaccines, thereby maintaining the cold chain. The Cluster para-vet has also been provided with a refrigerator and a generator through funding from OTELP in 2010. As a norm, vaccinations are undertaken within a day or two of purchase of the vaccines.

## FEED AND FODDER

Based on an assessment, undertaken by PRADAN, of the carrying capacity of the surrounding forests, each family has access to approximately 5 to 6 ha of grazing land in the forest, in addition to 10-50 decimals of land in and around the homestead area where poultry is also raised. For six months after the *kharif* crops have been harvested,



adult goats graze on fallow agricultural land whereas the kids are stall-fed within the homestead area. During the *kharif* cropping season, goats are taken for grazing to the surrounding forests. PRADAN introduced the practice of stall-feeding goats, in addition to providing nutritional supplements prepared by the Cluster para-vets. Stall-feeding and the nutritional supplement were, in particular, beneficial to bucks, and pregnant and lactating does.

PRADAN was approached by Maple Org Tech (India) Ltd., a company that supplies nutritional supplements for livestock. The supplement, priced at Rs 80 per kg, was fed to goats on a trial basis for two months, resulting in visible improvement in the health of the goats. The goats had a healthy looking coat and there were very few incidents reported of the common cold and diarrhoea. The cost of the purchased nutritional supplement was very high; PRADAN, therefore, requested the company to provide the probiotic EM formula only so that the feed could be locally manufactured, using the available material and crop residues. After much negotiation, the company agreed to supply the probiotic EM solution, which the Cluster para-vets used to make a nutritional supplement and sold to goat-rearers at an affordable price of Rs 18 per kg. An adult goat is fed 50 gm of this nutritional supplement every day; a kid, however, is fed a lesser quantity. Goats are also fed on crop residues of *arhar* (pigeon pea), horse gram, black gram, maize and the leaves of jackfruit, subabul, sesbania, ficus and sycamore trees.

### BREED IMPROVEMENT

The maximum weight gained by the local Kandhamal breed is 25–30 kg at the age of one-and-a-half to two years. Whereas their milk yield is good, the goats are largely reared

for meat. With the objective of upgrading the existing local breed, PRADAN decided to introduce bucks of relatively more productive breeds such as the Jamunapari, Marwari, Sirohi, Beetal and Ganjam. Bucks of these breeds were introduced by PRADAN in the five goat-rearing villages of Sudra *gram panchayat*. These breed improvement trials were scattered and continued over a period of eight years. The performance of these breeds vis-à-vis goat-rearers' perceptions was closely monitored during this time. Owing to their adaptability, feed requirement and kidding results, positive feedback was obtained only with regard to the Ganjam (which is also indigenous to the area) and the Beetal breeds of goats (a one-and-a-half- to two-year-old Beetal buck weighs 40–45 kg). Based on the learning, the focus now is only on the promotion of the Ganjam and Beetal breeds, and on the selection of improved bucks of the local Kandhamal goat.

### GOAT CRÈCHES

In January 2012, PRADAN initiated the practice of goat crèches in which an enclosure made of wooden planks or bamboo sticks was built in front of a selected house and goat kids of the SHG members were kept there during the day when adult goats were let out for grazing. The practice, however, was not considered viable by goat-rearers on account of two reasons—it was difficult for one person to manage goat kids of different members and, second, the lactating does came back to their respective houses to feed their kids at noon and either had to be escorted to the crèche or the kids were deprived of the afternoon feed. This had an adverse effect on the health of the goat kids. Based on the learning from this initial pilot, goat-rearers decided to construct a fenced area around their own houses for goat kids, to decrease the risk of predation.

## SALE OF GOATS

The sale of goats is, at present, done by each individual household because the demand for healthy goats is more than the supply. Buyers from neighbouring districts frequently visit these villages to buy healthy goats, and these visits have increased after the launch of the goat-rearing programme. Owing to an increase in the number of people taking up goat-rearing, there will likely be larger numbers available for sale and more distant markets may need to be tapped. At that time, the Federation may take up a larger role in marketing. For now the women goat-rearers have been trained to calculate the best price for their goats, based on the market price. Each SHG para-vet has been provided with a weighing balance and the goat-rearers weigh their goats a day or two prior to the sale. This

facilitates negotiations with traders because the goat-rearers are aware of the weight of their stock.

On an average, a goat-rearer earns a gross profit of Rs 3,000–3,500 from each goat and the net profit is Rs 2,300–2,800 because the annual recurring expenditure is approximately Rs 790. The following Table provides a break-up of the cost incurred on goats each year. This excludes the cost of shed construction and the costs of goats purchased. (After four to five years, the cost of a goat is recovered from its sale price. Additionally, the number of kids produced by a female doe over four to five years more than makes up for the cost at which it was initially purchased. A goat starts reproducing at the age of one-and-a-half years).

**Table 1: Cost of Rearing One Goat Per Year**

Component	Details	Annual Expenditure for Raising One Goat
Feed and fodder for goats	15 kg Bokashi (nutrient supplement) @ Rs 18 per kg (quantity 50 gm per day)	Rs 270
	Other supplements such as dry leaves, oil cakes in case of buck	Rs 80
	Grazing cost for six months @ Rs 120 per goat (paid in kind either through paddy or poultry bird at the end of the year)	Rs 120
Goat shed	Repair works, liming or disinfecting	Rs 120
Vaccines and Medicines	Vaccines for PPR (administered annually, including a booster dose for goats not vaccinated the previous year), Goat-pox, FMD, ET @ Rs 8 per vaccine per year Medicines for common diseases such as cold, dysentery, bloating etc. Mifex (a multi-mineral mixture of calcium, magnesium and phosphorus, fed to pregnant and lactating does @ 25 ml per day).	Rs 200

## OUTCOMES AND IMPACT

PRADAN's goat-rearing interventions in Kandhamal district were designed with the twin objectives of increasing household income from goat-rearing by reducing mortality and morbidity, and by improving management and rearing practices, and facilitating the establishment of community institutions and processes to ensure sustainability of these interventions. The adult and kid mortality in goats has come down to 8 per cent and 15 per cent from the earlier 25 per cent and 50 per cent, respectively. In view of the reduction in mortality and morbidity on account of regular vaccination and de-worming, goat-rearers are willing to pay for these services now.

Regular training and knowledge-dissemination to both para-vets and goat-rearers are major factors that led to the adoption of improved rearing and management practices, and contributed to an increase in the number of households taking up goat-rearing. The SHGs and their Federation demonstrate the institutional framework, to access inputs collectively and strengthen goat-rearing activities, in addition to regular monitoring and data-collection that enables an understanding of trends in goat-rearing and incomes earned by goat-rearers. The positive outcomes observed by the women goat-rearers have further strengthened their willingness to not only up-scale their existing goat-rearing enterprise but also to encourage women from neighbouring villages to join the goat-rearing groups.

## THE ROAD AHEAD

There is a definite focus on increasing the number of families practising goat-rearing, a viable livelihood activity in the region. In addition to the Sudra *gram panchayat*, the goat-rearing programme is also being extended to four other *gram panchayats*, namely Solaguda, Barakhama, Bataguda and Parampanga. With the objective of sustaining this initiative over time, PRADAN is planning to organize a training of trainers programme whereby the SHG and the Cluster para-vets will be further groomed to take on the training of newly inducted para-vets and goat-rearers. This will also be a source of additional income for para-vets.

New households taking up goat-rearing will be linked to the Unnatipath Federation, which is expected, in due course, to take up the collective marketing of goats. Most households also rear local poultry birds, the eggs and meat of which are usually consumed within the home. Many goat-rearing families exchange poultry birds instead of cash for the services provided by the para-vets. During recent SHG meetings, many members expressed their willingness to expand their poultry enterprise to augment family income. In this regard, PRADAN has already initiated discussions with SHG members, to strengthen the existing poultry units by ensuring regular vaccination and de-worming, proper housing and feed supplementation for poultry birds.

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*This article is an excerpt from "Case study of Interventions Supported by PRADAN in Balliguda" conducted by South Asia Pro Poor Livestock Policy Programme (SA PPLPP) in September 2013.*

# Small Ruminants, Big Opportunities

NARESH NAIN AND SANJAY SHARMA

*With the diminishing opportunities in agriculture and the lack of water for assured irrigation, villagers in Rajasthan are turning more and more to goat-rearing, and are realizing its viability as a livelihoods option, opening up possibilities of enhanced income and self-sufficiency*

In 2003, Asha (the name means Hope) became a goat-rearing farmer. She purchased 15 goats and a buck under the World Bank-funded District Poverty Initiative Project (DPIP), from a village 20 km away from hers. She invested Rs 32,000 in this venture, of which Rs 18,320 was provided by DPIP. She took a loan from the local money-lender for the remaining amount by mortgaging some of her belongings at the rate of three per cent per month.

Taking up goat-rearing as an income-generation activity proved to be a great blessing for her family. With the income she got from goat-rearing, she built a two-room, cement house. Three years ago when she needed money for the marriage of her son, she sold some of her goats for Rs 1,40,000. She used a part of this for the marriage.

Earlier, her family owned a camel, which her husband used to ferry illegally cut trees to the nearby market, earning thereby about Rs 60–80 on alternate days. They sold the camel and are focusing on goat-rearing alone. They earn a handsome income from rearing goats and lead a more dignified life now.

At the time of induction of goats, Asha had 15 animals with five kid goats. The first thing she did when she began goat-rearing was to de-worm and vaccinate her goats. She spends a lot of time looking after the goat kids and is seen feeding them milk with a bottle at times, and grooming and cleaning them at other times. She is very particular about hygiene, cleaning the goat-shed twice a day. Although she cannot read the names of the medicines, she can identify the ones that her animals may need by their colour.

As a result of her untiring efforts and dogged perseverance, her goats are healthy and there has been no mortality amongst her herd. At present, she has 120 goats worth more than Rs five lakhs at the current market rate. She has been selling male goats for the last ten years. In the last three years, the income from her goats has been Rs 63,000, Rs 1,27,000 and Rs 1,62,000. She has increased the parent herd size to 125.

From her goat-rearing income, she repaid all the loans taken to start the activity. She also provided financial support to one family in the village for their daughter's marriage last year. Things have really changed drastically for this family in the last ten years—it has transformed from being a family with high debts to a family that has assets worth Rs 5,00,000 at its disposal.

She proudly declares, "*Ye bakri mere jaanvar nahi hai, meri jaan hai. Bhai saab, ye sab bakri palan ka kamaal hai* (These goats are not just animals for me; they are my life. My life has changed because of goat-rearing).

The lives of other women—Geeta, Baby, Usha, Neelam and hundreds more—from the villages in the surrounding areas have been transformed after they decided to take up goat-rearing as their primary source of income.

## REGIONAL CONTEXT AND RATIONALE

The PRADAN Dholpur team extended its work to the Sarmathura region of the district in 2002. Sarmathura region has two distinct topographies—one is the extension of the Aravalli range with laterite top-soil and sand-stone underneath and the other is the ravine area of the River Chambal with sandy soil and highly undulating land. The rainfall in this area ranges from 350–400 mm and the vegetation comprises thorny bushes and trees. The climate

is hot during the summers, with temperatures rising as high as 49 degrees Celsius, it's cold during the winters, with temperatures falling to four degrees Celsius.

The area is inhabited by the Thakur and Gurjar, the Meena (Schedule Tribes), and the Jatav (Schedule Castes) communities. The Thakurs earn their livelihood mainly through agriculture, livestock, stone mines and by migrating to cities to work as wage labourers. The primary source of livelihood of the Meenas and the Jatavs is working in sand-stone quarries as wage labourers; a few of them are engaged in livestock-rearing and agriculture. The Gurjars keep large herds of cattle and goats. People of every caste in this region rear livestock, mainly buffaloes and goats. The region is in the arid zone and has a vast forest cover of thorny bushes and plants; the goats are thus able to survive, even the drought years.

Rain is the only source of water in the *Daang* (the Sarmathura area is commonly known as the *Daang* region in the local language). Wells fail to provide drinking water to the villagers in the summer months, with more than 90 per cent drying up during that period. Such being the availability of water, agriculture in this region is primarily rain-fed. The stake, therefore, has gradually shifted to other sources of livelihood such as rearing of livestock. Moreover, the area is mostly inhabited by the Gurjar community for whom the traditional occupation has been livestock-rearing. For other villagers too, livestock-rearing is becoming a major source of income because the rocky terrain and the lack of irrigation restrict agriculture to subsistence levels only. For this reason, the area has a huge population of cattle (buffaloes, cows and goats).

With the increasing shortage of green fodder and an abundant availability of grazing land, rearing of goats is becoming more popular.

Even in the levelled regions of the district, families with marginal or no land-holding and those who find it difficult to meet the cost of feeding a buffalo, prefer goat-rearing as a means of livelihood.

Given the above context, PRADAN intervened in the goat-rearing activity with a comprehensive livelihoods-promotion approach. With the support of DPII, the PRADAN team planned to make goat-rearing an income-generating activity. PRADAN helped over 800 families purchase over 9,000 goats in 30 villages.

There are, however, many challenges that make families reluctant to take up goat-rearing as an activity and secure a better remuneration.

**Breed:** The breed reared in the area is mostly of the local variety, a cross of the Jamunapari and other breeds, and is highly susceptible to diseases. Whereas the body structure of these goats is similar to that of the Jamunapari, the body is black with brownish parallel stripes on either side of the nose and the legs.

**High mortality:** Poor management practices, and the lack of vaccination and preventive care have resulted in over 35 per cent mortality rate among the kids and 8–10 per cent mortality amongst the adult goats.

**Herd-size management:** Small-holders keep four to ten animals and a family member is engaged the whole day in tending these animals in the forest. One person engaged for the whole day with a small number of animals is not economically viable and may be an indicator of disguised unemployment.

*Given the above context, PRADAN intervened in The goat-rearing activity with a comprehensive livelihoods-promotion approach. With the support of DPII, the PRADAN team planned to make goat-rearing an income-generating activity. PRADAN helped over 800 families purchase over 9,000 goats in 30 villages*

**Feeding pattern:** The goats in the area depend on free-grazing in the forest land. The minimum requirement of dry fodder and concentrates for weight development are, therefore, not met. Free-grazing does not provide, to a large extent, the goats with their nutritional requirement.

**Management practices:** The goats receive minimum attention and care. Their housing facilities are inadequate and congested.

The goats are usually crammed into a small enclosure, open to the elements. This leads to outbreak of diseases such as pneumonia and other respiratory disorders. There is no proper arrangement to keep kids and they are mostly sheltered under baskets or low height enclosures, which often leads to their death by suffocation. The lack of awareness about hygiene and sanitation, the lack of proper ventilation in houses and the traditional practices of feeding, breeding, watering and rearing have had a severe impact on the goat and kid mortality, thereby affecting the economic viability of the activity.

**Health practices:** The health management of the goat is traditional, and primarily, home-based. Goats are very sensitive to diseases—both viral and bacterial. The common diseases prevalent in the region are PPR (*Peste Des Petits Ruminants*), also known as goat plague, Enterotoxemia (ET), liver fluke, diarrhoea, goat-pox, pneumonia, etc. But the absence of proper veterinary services in the region coupled with the lack of awareness among the



people has had a tremendous negative impact on the overall health scenario. Mass death of goats is not an uncommon feature; this often deters villagers from taking up goat-rearing as a full-scale livelihood activity. The vets of the region more inclined to tend to cattle, giving little or no priority to the goats. Low awareness about prevalent diseases and the absence of preventive measures such as regular de-worming and seasonal vaccination for, say, PPR and ET, result in high mortality in goats.

**Marketing practices:** The market for goats is fluctuating and exploitative. Traders come to the village, weigh the animals in a very crude manner (using their hands) and quote a rate, which is usually very low. The rate fluctuates depending on the demand-supply situation at that point in time. Farmers sell their goats and bucks to *khatiks* (local traders), based on an average rate of animals—decided on a rough estimation by the farmer and the trader. Often, farmers are forced to sell the goats at a rate much lower than prevailing market rates.

**Insurance services:** Little heed is paid to insuring animals. Insurance companies too are not very keen to insure goats and usually like to insure goats that have been purchased through projects or loans from mainstream financial institutions.

**Lack of financial resources to invest:** Farmers do not have access to financial services to either optimize the size of their herd or invest in making a shelter for the goats.

*Goat-keeping is meant for the landless, the small or the marginal families. These families are encouraged to take loans either from their groups or other financial institutions, to buy at least five goats and a buck. They are then provided with the basic skills-set required to keep goats in a way that the animal mortality is less than five per cent and the farmers are able to earn at least Rs 25,000 from the third year onwards.*

## INTERVENTIONS

### SAHELI (Federation) Promoting Goat-Rearing Activity

Saheli (Sangh for Empowerment and Livelihood) is a Federation of over 150 SHGs promoted by PRADAN in the Sarmathura region of Dholpur. This Federation was started in 2003, to act as a platform for peer learning, solidarity, togetherness and to promote goat-based livelihood activities among members.

Goat-keeping is meant for the landless, the small or the marginal families. These families are encouraged to take loans either from their groups or other financial institutions, to buy at least five goats and a buck. They are then provided with the basic skills-set required to keep goats in a way that the animal mortality is less than five per cent and the farmers are able to earn at least Rs 25,000 from the third year onwards. If the family has access to grazing land, the Federation motivates the family to increase its herd-size to a minimum of 35 so that the yearly engagement of one earning member of the family in goat-keeping is financially justifiable and economically viable.

The goat-rearing activity was initiated with the support of DPII, which provided a subsidy to SHG members for the purchase of 15 goats and one buck. The goat-rearing programme is run by the Federation and has been operational for over seven years now through its own resources. The Federation generates revenue from the community by providing services such as vaccinations, de-worming, mineral mixture and *rahat kosh* (insurance). At present, over

**Table1: Intervention by the Federation in Goat Promotion in Sarmathura**

Barriers/ Challenges	How the Federation Has Overcome These
Credit for goat purchasing	<ul style="list-style-type: none"> <li>- Formed women's Self Help Groups (SHGs)</li> <li>- Helped SHGs take credit from the Federation and other financial institutions</li> <li>- Linked SHG members with government schemes and NABARD (National Bank for Agriculture and Rural Development)</li> </ul>
Availability of quality breeding bucks	<ul style="list-style-type: none"> <li>- Linked farmers to buck breeding farms from where bucks are purchased in bulk</li> <li>- Linked farmers with the veterinary department, which helped them get subsidized breeding bucks</li> </ul>
Risk mitigation through mutuals	<ul style="list-style-type: none"> <li>- Started <i>rahat kosh</i> (mutuals) at the Federation, to provide immediate relief to the farmer when a goat dies</li> </ul>
Disease outbreak from time to time (such as PPR and ET)	<ul style="list-style-type: none"> <li>- Trained farmers through para-vets to recognize symptoms of diseases and realize the importance of regular vaccination</li> <li>- Organized season-based health camps to ensure de-worming and vaccination of goats</li> </ul>
Getting quality vaccines	<ul style="list-style-type: none"> <li>- Purchased vaccines and other medicines in bulk and provided them to para-vets, who, in turn, use them in villages</li> </ul>
High adult and kids mortality	<ul style="list-style-type: none"> <li>- Organized season-based skill enhancement training (SET) programmes that focus on kid management, colostrum feeding, naval chord management, balanced rationing, regular de-worming and vaccination and creating awareness about better rearing and management practices, and goat shelter management (regular cleaning, ventilation and white-washing of the shelter)</li> </ul>
Absence of health care for goats	<ul style="list-style-type: none"> <li>- Created a pool of local youth to work as para-vets to provide health care services to the farmers at their door-step</li> <li>- Created a cadre of <i>Pashu Sakhis</i>, to provide SET to all goat-farmers</li> </ul>
Small herd-size not economically viable	<ul style="list-style-type: none"> <li>- Linked farmers to financial services and government schemes to take loans to increase the herd size to 15 goats and one buck</li> </ul>
Market: margin does not reach the farmer	<ul style="list-style-type: none"> <li>- Tried the following interventions:               <ol style="list-style-type: none"> <li>a. Take demand from outside and then sell the goats collectively</li> <li>b. Helped farmers link with the local veterinary department for some breeding bucks</li> <li>c. Invited traders from different places to the area</li> </ol> </li> </ul>

### Risk Mitigation through *Rahat Kosh*

The Federation provides *rahat kosh* services to the farmers to mitigate risks arising from the mortality of goats.

This is a unique service started in 2004 by the Federation. One of the risk mitigation strategies has been to provide immediate financial support to the member if her goat dies. For the *rahat kosh*, members pool in a premium and this reserve of funds is used to provide relief to its members. Any member, who has at least five goats, can avail of the services of the *rahat kosh* after paying a premium of five per cent of the cost of the goat. The premium also involves round-the-year vaccination and de-worming of the insured animal. Against this premium, the goat-rearer is eligible to get financial support up to 75 per cent of the cost of the goat (cost at the time of becoming the member for this service) if her goat dies. For the claim settlement, the verification of the animal mortality is done through the *Pashu Sakhi* of that Cluster. She reports the death to the Cluster, which then informs the Federation. The Federation, after verification by its Executive Committee, issues a cheque in the name of the member.

1,600 families are engaged in this activity with an approximate herd size in the range of 24 to 35; the maximum number has even touched 120 goats per family. At present, the *Pashu Sakhis* (Women Community Resource Persons) are being financially supported by the Mahila Kisan Shashaktikaran Pariyojana (MKSP). The para-vets, however, charge for their services from the farmers. Para-vets earn between Rs 3,000–5,000 per month, by providing veterinary services to the farmers.

In order to motivate the poor farmers, the Federation has initiated the concept of giving gifts (goat kids) to very poor families. This gift is given on the condition that the family passes on such a gift to another very poor family, once it starts to earn from the activity.

### CHALLENGES FOR THE FEDERATION

The Aravalli Plateau and the Chambal River Basin have large tracts of forests as well as unused land; goat-rearers use these lands for grazing. Although there is plenty of such land available in the region, there is need to promote pasture land development along with drought proofing measures. Because of

the erratic rainfall and because of the ensuing shortage of green fodder for larger animals, most of the farmers of this region prefer to rear goats.

Over the years, the demand for goat meat has been increasing and goat meat prices have also been rising. Given the proximity of Dholpur to bigger markets such as Agra, Gwalior and Delhi, the demand has been increasing steadily. The challenge is to organize the market and set strict terms of trading so that the farmers are not at a disadvantage. At present, goats are still bought on estimation and not by the actual weight of the animals, which is one of the reasons why farmers are not getting the price they might otherwise get.

### POLICY IMPLICATIONS

Over the last decade, in Sarmathura region, there has been a change in policies to favour small ruminants.

1. In 2003–04, there was a large-scale outbreak of disease among goats; the PRADAN team was not able to diagnose this, given its limited knowledge of

goat-keeping. A sample was taken for testing, to identify the disease. The local veterinary department did not have any facilities to conduct the necessary tests. The sample was then taken to a Research Centre in Bareilly, where it was directed to Ranikhet. The sample tested positive for PPR. The same report was shown to the Animal Husbandry Department in Dholpur. It was only after this intervention detected the existence of the PPR that the veterinary department was informed and vaccination against the disease was made available. The Federation now purchases the vaccines from the department so that it can vaccinate the goats in the season against PPR.

2. The focus shifted from introducing breeds from outside the district to improving the existing breed, that is, the Sarmathura breed.
3. The Sarmathura region has been recognized by the Animal Husbandry Department of the Government of Rajasthan as a Goat Cluster (a region suitable for goat-keeping, given the geographical conditions and the large tract of grazing land availability). The Government of Rajasthan cleared a project for starting the Sarmathura Goat Resource Centre to be run and managed by the existing Federation on a PPP model.
4. The livestock department of the Government of Rajasthan has formed working committees to identify and compile best practices in goat-rearing in Dholpur, Alwar, Dausa, Ajmer and other districts of the State and to explore how *Pashu Sakhis* can be accredited through the veterinary university in Rajasthan.

## THE WAY FORWARD

Given the experiences of the Federation in promoting goat-based livelihoods in the Chambal River Basin and the Aravalli Plateau region of Dholpur, a dedicated Resource Centre with the support of the government veterinary department and Rajeevika (Rajasthan Grameen Aajeevika Vikas Parishad) will be set up, with the following focus:

- To act as a training centre for goat-keeping farmers of the surrounding region
- To provide SET to farmers on better rearing and management practices in goat-keeping, optimum herd, breed improvement and quality buck-keeping
- To ensure input supply to goat-keepers such as de-wormers, vaccines (PPR, ET, etc.) as well as feed and fodder seeds
- To provide market linkages to goat farmers
- To provide insurance services (through *rahat kosh*) to mitigate risks
- To make breeding bucks suitable to the local conditions available

The Resource Centre will promote goat-based livelihoods in the region by:

- Identifying five progressive farmers from three Clusters, namely, Jhiri, Madanpur and Domai/Karoli, which are interested in running the buck/breeding, buck aggregation centres at each Cluster. A total five such centres (decentralized breeding farms) will be set up
- Training the farmers on model buck-keeping and buck-breeding, better rearing and management practices in goat-rearing, kid management, breeding practices and balanced feeding of the animals

- Educating farmers on the importance of hygienic, clean, well-ventilated housing with stall-feeding facilities and practices
- Providing the identified progressive farmers with 50 good quality kids each (male and female) funded by the Resource Centre on its terms and conditions, thereby functioning as multiplier units in a decentralized manner. The Resource Centre will procure adult bucks and goats from Cluster Aggregation Centres—CACs—one CAC will be established in three to four *panchayats*; it will be a part of the Federation, but will be run by the progressive farmers at the behest of the Federation) and then provide them either to government-sponsored schemes or to interested farmers on a cost basis
- Marketing strategy: There will be two strategies:
  - “ Farmers will sell their goats and bucks to the CACs at the market price
  - “ The Centre will consider the demand from the market and pick up the animals from each CAC and then sell them to the trader/market at a price, keeping a margin to cover the operational cost.

#### Haat system:

- All the CACs and the farmers will come together every quarter for a day at Sarmathura and sell their goats at better trading terms and conditions and also have the opportunity to purchase quality goats and bucks as per their needs
- The aim will be to capture seasonal marketing opportunities such as Eid and other festivals
  - “ Organizing exhibitions to promote goat-based livelihoods, in which various stakeholders such as feed manufacturers, processing industries and pharmaceutical companies will be invited to participate, where:
    - The farmers will showcase the quality of the goats and bucks being reared by them.
    - The Centre will felicitate the best farmers to motivate other farmers to take up the activity
  - “ The Centre will also have its own farm for 300 quality bucks and goats so that it will be able to provide seed bucks to progressive farmers, who will then rear them for a fixed period of time and then sell them back to the Centre as per the terms and conditions.

# Mass Vaccination Programme: Preventing Deadly Diseases in Small Livestock in Keonjhar

TARA PRASAD TRIPATHY AND NITYANAND DHAL

*Establishing sustainable private-public delivery systems for basic vaccination of BYP and small ruminants is bringing about change in Keonjhar, combating deadly diseases that wipe out the stock on a regular basis thereby offering hope to the landless poor*

Livestock, especially backyard poultry birds (BYP) and shoats (sheep and goat), has been the most significant contributor to the livelihoods of the poor and marginalized rural families of society, especially women—it not only enhances their food security but also meets most of their cash flow needs, including in emergencies. The poorer the family, the higher is the relevance of small livestock in their life. That is why probably poultry birds are called the poor woman's ATM and goats are called a poor man's cow.

However, livestock suffer immensely due to the absence of proper supporting service systems in the area. The occurrence of destructive diseases such as Newcastle Disease (ND) and fowl-pox in poultry birds, and *Peste Des Petits Ruminants* (PPR), enterotoxaemia and goat-pox in goats has severely affected this sector, causing frequent mass mortality. In spite of this, the poor farmers do not give up and continue to rear poultry and shoats. Most poor families either borrow new stock from relatives and neighbours or take a loan from their SHGs to restart the activity.

Both poultry birds and shoats have a high regeneration potential and, thus, within a small period, a sizeable increase in flock or herd size can be attained. If mortality can be checked and some improved rearing practices ensured, this intervention can bring in a substantial income. In the absence of control over mass mortality, the families lack the confidence to make investments to rear poultry or shoats for business, and thus allow these to grow on their own at a sub-optimal level. This situation calls for a systematic intervention to control the mass mortality of livestock, in order to help poor families make a decent income.



## CONTEXT

PRADAN started its intervention in livestock promotion (small ruminants and BYP) in Banspal and Patna blocks of Keonjhar. As seen in Table 1, most of the families in both the blocks have goats and BYP. In Banspal, the forest coverage is very high, that is, the average grazing land available for goats is about 5 to 6 ha per family; each family has an average backyard of about 50 decimals to one acre in both the blocks.

In spite of this huge carrying capacity of the locality and the growing market demand for poultry and goat meat, the potential of this business is not being harnessed. The single most important reason for this under-utilization is the inability to combat deadly diseases, which wipe out the stock on a regular

basis. In most of the villages, Ranikhet Disease (RD) occurs at least twice in a year and kills 60–90 per cent of the poultry whereas fowl-pox occurs at least once a year, affecting 40–70 per cent of the birds. Similarly, PPR in shoats occurs almost every alternate year, resulting in the death of about 60 to 90 per cent of the shoats. Although remedies are available to control the diseases, families seldom access these. Poultry and small ruminant sector can support the poorest section of the society; however, the control of diseases is far beyond the villagers' ability. The current structure of the Animal Resource Department (ARD), with its thin staff presence, is unable to address this huge challenge. The focus of the department is mostly confined to large ruminants (cattle and buffaloes). Private players also do not find this sector lucrative enough to venture into.

**Table 1: Socio-Economic Profile of the Project Area**

Parameters	Banspal Block	Patna Block
Scheduled Tribe (ST) %	79.3	52.9
Scheduled Caste (SC) %	4.3	8.3
Below Poverty Line (BPL) %	88.4	72.68
Population density per sq km	60	278
Literacy level %	27	64
Terrain	Hilly terrain with high forest cover	Undulating terrain with thin forest cover
Community	Bhuyian, Juang and Gauda	Gond, Mahanta
Average annual income	Rs 22,000	Rs 30,000
Livelihood sources	Forest dependence (selling wood), livestock-rearing, wage labour and agriculture	Agriculture, livestock-rearing and wage labour
Average annual income (BYP and goats)	Rs 4,000	Rs 5,000
Livestock population (average per family)	Poultry: 8–12	Poultry: 10–15
	Goats: 5–7	Goats: 3–5
	Cattle: 2	Cattle: 2

Source: Sample data collection from the operational area and Census 2001.

The team decided to intervene in establishing veterinary services for BYP and small ruminants belonging to poor farmers in the Banspal and Patna blocks. The overall objective of the intervention was to establish sustainable private-public delivery systems for basic vaccinations of BYP and small ruminants.

*This initiative was taken to address various constraints of the livestock sector in the area in order to ensure substantial income to the poorer families in a sustainable manner*

The objectives for the programme to be achieved in the short run (1–2-year period) were:

- Building awareness and developing appreciation on improved livestock rearing practices, including regular vaccination and de-worming
- Establishing a system for the provision of vaccination and medication services on a sustainable basis at the door-step of the farmers by developing entrepreneurs around these services
- Ensuring regular vaccination of poultry and other ruminants belonging to all the farmers in the project area on a regular basis
- Providing approximately Rs 10,000 to 12,000 additional annual financial return to targeted families

Considering the above challenges, PRADAN initiated a pilot project covering about 10,000 families in the Banspal and Patna blocks in April 2011, with the support of GALVmed—a not-for-profit global alliance, which has a focus on ensuring better livestock health and improving the livelihoods of poor livestock keepers. GALVmed provided technical and financial support for the programme from April 2011 to March 2013. This initiative was taken to address various constraints of the livestock

sector in the area in order to ensure substantial income to the poorer families in a sustainable manner.

The pilot project was initially implemented in 53 villages of 10 *gram panchayats* of Banspal block. After an initial positive experience, this project was

expanded to six more villages of the block and to the adjacent Patna block, covering another 58 villages in 9 *gram panchayats*. In total, the pilot project covers 117 villages spread over 21 *gram panchayats* belonging to the two blocks.

## MODEL

- Three to five community animal health workers (CAHWs) were selected in each *gram panchayat* by the already existing SHG members of the respective areas so that the CAHWs could provide service to about 200 to 250 farmers residing in two to three villages. In this way, CAHWs would be able to earn about Rs 3,000 per month over 12–15 days.
- CAHWs were prepared through a series of training on administering vaccinations (ND and fowl-pox) and de-worming of BYP, and administering PPR vaccinations and de-worming of goats along with some livestock-related first-aid services in their localities.
- In each village, a village resource person (VRP), usually a woman, was trained to demonstrate good rearing practices and to provide support to CAHWs during the vaccination, de-worming and medication processes.
- The local poultry co-operative stocked all BYP vaccines and worked as a stockist.

Locally identified medicine stores or independent entrepreneurs served as retailers for BYP vaccines at the block level for the CAHWs. These CAHWs worked in close collaboration with the ARD so that they could support each other to make their work more effective.

*Building a local cadre to conduct vaccination and de-worming was a key requirement of this project; therefore, all SHG members of the gram panchayat organized meetings, in which two or three CAHWs were selected to look after every gram panchayat*

'ASHA didis', in health services. Following this event, many SHG leaders and PRI members took the responsibility of organizing village-level meetings to share information about this project.

In addition to this, one or two SHG leaders from each village were selected as VRPs, who assumed the responsibility of mobilizing the community and providing the necessary support to CAHWs during the

## IMPLEMENTATION

The intervention in the two blocks was started with an orientation of PRI members and the SHG leaders at the *panchayat* level. Meetings were called at the *panchayat* level, in which SHG members, their family members and PRI members assembled. Awareness was created about the importance of de-worming and vaccination for the health and life of the livestock. Following this village-to-village campaigning, awareness was created through street plays (*pala*) enacted by local groups, through posters and leaflets and through movie-shows in all the villages. This helped in generating the required understanding and appreciation about the importance of vaccination and the de-worming of BYPs and small ruminants. In most cases, the participants appreciated 'the need and importance' of these services.

A point that was raised in the discussion was the need for having an on-time, door-to-door service to the rearers. Building a local cadre to conduct vaccinations and de-worming was a key requirement of this project; therefore, all SHG members of the *gram panchayat* organized meetings, in which two or three CAHWs were selected to look after every *gram panchayat*. A total of 25 CAHWs were selected from the 10 *gram panchayats*. The role of the CAHWs was largely conceived as the role played by the

vaccination and de-worming activity. A total of 97 VRPs were selected from all the 53 project villages in Banspal block and were given an initial training of two days.

Orientation events were organized for CAHWs and VRPs separately. The events helped participants develop a better understanding about the potential returns from BYP and goat-rearing. It helped them to take ownership of the project and gain clarity about their role. A series of technical trainings were conducted for CAHWs by the GALVmed consultant and the local veterinary assistant surgeon, regarding the administration of de-wormers and vaccines such as Lasota, R2B, fowl-pox for poultry, and PPR and goat-pox for goats; improved rearing practices (proper housing, nutrition, sanitation, etc.), cold chain and identification and control of important diseases. Issues such as communication skills to deal with clients were also discussed. In the technical training programmes, theoretical and practical aspects were covered so that the participants felt confident to go to the field. These included a three-day training in poultry de-worming and vaccination, a one-day training on management practices, a one-day training on goat de-worming and vaccination, and a one-day training on cold chain.

A motivation event was also organized with the help of external resource persons; the objective was to train the participants for their future work, including interacting with the community, communicating with people, leadership roles, etc. To facilitate the work and enhance efficiency, regular meetings at the *gram panchayat* level as well as at the project level were organized, wherein detailed plans were made, progress vis-à-vis the plan was tracked, problems and concerns were raised, and actions steps were planned to address concerns.

Simultaneously, 22 leaders were selected by SHG members from their respective areas to act as members of the co-operative body conceived for the project. Three meetings

*The community responded well to the drive to vaccinate its birds and goats. Within a period of two to three months of the vaccination process, outbreaks of PPR were completely controlled in the vaccinated goats*

were organized of these leaders, to generate a common understanding of the need of the co-operative body and to develop a strategy for its sustenance.

The community responded well to the drive to vaccinate its birds and goats. Within a period of two to three months of the

vaccination process, outbreaks of PPR were completely controlled in the vaccinated goats whereas the goats in the same hamlets that were not vaccinated died. A similar observation was made about ND outbreaks among flocks. Once the community observed the visible gain in weight after the administration of the de-wormers, they as well as the CAHWs, steadily gained confidence on the efficacy of the vaccination and de-worming process.

### **Rasmita Naik Extends Herself as CAHW**

Rasmita Naik, a housewife, used to do her household chores and sometimes opt for wage work in her own or nearby villages to help run her family. She was selected by her SHG to work as a VRP for her village during the initial period of the GALVmed pilot project. After the CAHW of her area dropped out of the project, she was chosen as CAHW by SHG members.

Her husband used to work as a wage labourer in the nearby mines. Due to his ill-health and the closure of the mine, however, there was no income for the household. It was difficult for Rasmita to run her family during this period. After her selection and subsequent training as CAHW, she started carrying out vaccination and de-worming in her operational area, and gradually learned all the skills and gained the confidence of the community. She now earns Rs 2,500 to 3,000 per month and manages her family solely on the income generated from this work. She can afford clothes for her children; provide for private tuitions for her daughter, which in turn has enabled the daughter to get a scholarship in Class V. She has also managed to pay for the repairs of her house this year.

She is proud that she provides the finances to run her family and is respected by the community. Even her parents are proud of their daughter and the work she does. Her husband, who does not keep too well, supports her in managing the household work and in taking care of their children. He accompanies her when she needs to go to distant places for vaccination, etc.

## EXPANSION

Because of the success of the project, it was expanded to two more *panchayats* in Banspal block and to nine *panchayats* in Patna block.

The Patna block had a strong SHG Federation and was very active in generating awareness among the community members about the concepts of vaccination and de-worming and their benefits. They were brought to the Banspal area for an exposure visit, to understand the advantages of mass vaccination conducted by CAHWs and the benefits accrued by the farmers.

After their exposure visit, the women members were eager to kick-start a similar programme in their area and conducted village-level, concept-seeding meetings, in which they selected new CAHWs, giving priority to women. In all, they selected 44 CAHWs (17 women) to cover 58 villages. These new CAHWs were taken to Banspal, and each of them stayed with an experienced CAHW for two days to understand their role. This exposure and orientation programme was very effective. The CAHWs in Patna block were trained as entrepreneurs from the very beginning. The area is more socio-economically sound and the importance of vaccination in large animals was largely known; hence, service charge collection from the community was mandatory from the very beginning. The CAHWs underwent intense training and were provided with vaccination kits.

## MAJOR CHALLENGES

Amid these positive outcomes, some challenges too came up that needed to be addressed.

- **Drop-out of CAHWs in the initial period:** Ten CAHWs dropped out of the initial pool of 24. The relatively educated youth left when they found opportunities

to earn more. Some others dropped out at a later stage when they found it difficult to collect the service charge and to face the community, post the bird-flu period.

Women CAHWs were found to be better workers when the potential business volume was in their own village; it was difficult for them to visit other villages in the evening hours for vaccination and de-worming services.

- **Low income realization by CAHWs:** A major challenge was the low income of the CAHWs because of high predation and extreme cold, which affected the chicks; the remoteness and relatively small size of villages coupled with low paying capacity because of abject poverty. Further, the relatively large size of vaccine packs, for example, the goat PPR vaccine (100 doses) was loss-incurring due to under-utilization of the vaccine.
- **Co-operation of ARD:** Although the ARD was sensitized to the project from its inception, livestock inspectors (LIs) of the area perceived the presence of CAHWs as a threat to their business. Earlier, LIs administered the vaccination without maintaining a cold chain. As awareness developed about the importance of a cold chain in the project, it affected the acceptance of LIs in the area. A series of events were organized to allow interaction between CAHWs and the ARD department staff to understand and appreciate each other's efforts and to develop a collaborative spirit.
- **Establishing a supply line:** The existing broiler poultry co-operative of PRADAN serves as the vaccine supplier at the Patna block level. However, the most difficult

challenge was to establish the bottom rung of the supply line in Banspal block. The few existing human medicine shops in this remote area did not find the supplying of vaccine a profitable business because of the operating costs of running deep-freezers, taking care of the medicines during power failures, the maintenance efforts, etc., seemed to outweigh the income realization at the current business volume. Small-sized freezers have been installed so as to reduce maintenance and power consumption to make it more economical. At present, entrepreneurs looking after the SHG Federation accounts are serving as the vaccine supply point.

- **Cold chain maintenance:** Another challenge is to maintain the cold chain when reaching remote villages especially during the summer season. This often resulted in losses to CAHWs. To address this problem, the vaccination calendar was designed in such a way that the vaccination was done before summer began so that the issue of cold chain maintenance in the height of summer does not come up.

### LESSONS LEARNT

- The inclusion of all households in this project has helped in creating mass mobilization.
- Technical training programmes by the GALVmed Consultant, emphasizing the practical aspects of poultry health and husbandry practices, helped in building confidence among CAHWs.
- Looking at the context of this area (terrain, population density, literacy rate, etc.) and then selecting a critical number of CAHWs

was helpful in reaching all the households although the income per CAHW is only supplementary because it is not a full-time occupation.

- Monthly *gram panchayat*-level meetings of all CAHWs and VRPs were effective for the timely implementation of this programme.
- Selecting women VRPs at the hamlet level helped in organizing events and supporting CAHWs during vaccination and de-worming operations while generating awareness in the community.
- Vaccinations for poultry and small ruminants, provided as a package instead of focusing only on the ND, helped address major livestock-related problems, and farmers' confidence in the project and in CAHWs increased.
- Flexibility in financial re-allocation was very helpful for timely incorporation of learning and for bringing necessary changes in the programme.
- Involving SHGs in the selection of CAHWs and, subsequently, in the mobilization of farmers was very effective.
- Farmers need to pay for services from the start. This was a lesson that was incorporated when expanding to other areas.
- The use of street plays as a tool for mass awareness was very useful.

### SILLOVERS

- **By area:** After the success of the intervention in the *gram panchayats*, the program was, within a year, expanded to two more *gram panchayats* of Banspal block and nine *gram panchayats* of



Patna block (from April 2012). Moreover, CAHWs extended their services to nearby villages and *gram panchayats*, as well as to villages where their relatives reside.

- **By species:** Besides goat de-worming and PPR vaccination, sheep were also included in the programme. Post first-aid training, some CAHWs gave first-aid treatment to large ruminants as well. Ducks too were vaccinated against ND by CAHWs.
- **By diseases:** Besides PPR vaccination and de-worming in goats, goat-pox and Enterotoxemia (ET) vaccination was also carried out because there was an epidemic in the area. Now, in some villages, people are demanding Foot and Mouth Disease (FMD) vaccination for large ruminants. For birds, besides ND vaccination and de-worming for poultry, vaccination against fowl-pox for all the birds was also done.

## IMPACT

The outcomes expected from this intervention were largely realized in the area. Of the 12,000 household (HHs) that were contacted, 9,000 kept livestock; of these, 7,587 HHs have received vaccination services. ND in poultry and PPR in goats have been completely controlled in the villages covered by the project. The impact of de-worming of poultry and goats is clearly visible in the area, in terms of their growth and lustre, indicating the good health of the birds and goats.

Farmers have expressed huge appreciation for the vaccination and de-worming of livestock. A community that had lost confidence in vaccinations because these were not effective earlier, due to the cold chain maintenance issue, has regained its trust and realized the importance of maintaining the cold chain. The overall mortality of small livestock population (poultry and goats) has reduced significantly and this has helped restore the confidence of the poor farmers in taking up poultry and goat-keeping as reliable and significant livelihood opportunities.

Although the project closed in March 2013, the mass vaccination programme is going on in Keonjhar operational area. CAHWs also provide treatment to BYPs and goats in their respective areas, and organize regular health camps for animals. The service being available at the doorstep of the farmers at a reasonable price, it is accessible to all the farmers, including the poorest section.

At present, CAHWs trained through this project provide all the vaccination and de-worming services within a very short time span (two to three months). These CAHWs are independent entrepreneurs and earn about Rs 2,000 to Rs 3,000 by working about 10–15 days in a month.

**Table 2: Analysis and Interpretation of Key Data Gathered during the Project**

Livestock Population Per HH	Goat			Poultry				
	Adults	Kids	Total	Cocks	Hens	Growers	Chicks	Total
Average 2012	7.68	4.168	11.85	2.85	3.36	5.48	12.11	23.81
Average 2011	5.59	3.42	9.01	1.25	2.23	1.88	5.92	11.28

### Malati Munda: An Inspiration

Malati, of Putugaon village, is a member of the Gajalaxmi SHG; she stays alone, looking after her home, agriculture and livestock whereas her husband works as a security guard in Keonjhar and stays there with their grown-up son and daughter.

Malati had 42 poultry and 6 goats (four male and two female) when the mass vaccination programme started in the village last year. Although she always kept a good stock, often the RD outbreak used to wipe out her stock as it did for the other villagers. Earlier, she used to medicate her goats through the local LI, and was not aware of the vaccination and the de-worming possibilities for her BYP and goats. When the villagers selected Kirttan Patra to receive training as CAHW through the GALVmed project and he extended his service to the community, Malati was the first to avail of this facility.

She regularly vaccinates and de-worms her BYP and goats, and has noticed a visible change in their growth and also realized that the stock completely survived the next outbreak. Currently, she has 48 poultry birds and six goats.

In the period of nine months ( March–November 2012), she sold her poultry in two phases, earning Rs 8,500 in total. She also consumed 20 poultry birds. She has retained all her six goats and plans to sell five of them during the Raja festival in June. She is expecting more than Rs 15,000 from that sale. In future, she wants to increase her poultry and goat population so that she can earn Rs 20,000 to Rs 25,000.

The revenue from her livestock is intended to pay for her daughter Pranati Munda's higher education and marriage. Her daughter is a graduate and wants to do B.Ed. this year. Malati is an inspiration for the members of 11 SHGs in Putugaon village, who discuss the benefits of this programme in various forums, including the SHG, the Village-level Cluster, Federation and the *gram panchayat*.

The various aspects of sustainability of the intervention such as demand continuity, affordability by the community, timely availability of quality vaccines, financial sustainability of CAHWs and the establishment of the cold chain are found to be largely addressed.

### WAY AHEAD

To ensure substantial income to the farmers, along with focusing on checking losses arising out of mortality due to preventable diseases, the team is also intervening in a more holistic nature, which includes the following aspects:

- Service system establishment for preventive, as well as curative, disease control such as vaccination, de-worming, first-aid and medication for important prevailing diseases in the area, under the supervision of a competent authority.
- Breed improvement
- Housing and nutrition improvement

Until livestock is promoted as a large-scale income generation intervention, any poverty reduction strategy may potentially fail to achieve its goal.



*Farmer grazing his goats in Daang, Sarmathura, Dholpur district, Rajasthan*

Although there is huge scope for goat-rearing and a large number of families rear goats, the activity, per se, is seen only as a buffer that can be used in emergencies rather than as a viable livelihood activity mainly because of the lack of capital to invest in goat-rearing as well as the fear of the high mortality rate of goats.





**PRADAN** is a voluntary organization registered in Delhi under the Societies Registration Act. PRADAN works through small teams of professionals in selected villages across eight states. The focus of PRADAN's work is to promote and strengthen livelihoods for the rural poor. It involves organizing the poor, enhancing their capabilities, introducing ways to improve their income and linking them to banks, markets and other economic services. The professionals work directly with the poor, using their knowledge and skills to help remove poverty. *NewsReach*, PRADAN's bimonthly journal, is a forum for sharing the thoughts and experiences of these professionals working in remote and far-flung areas in the field. *NewsReach* helps them to reach out and connect with each other, the development fraternity and the outside world.

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