

Collective Action to Reduce Goat Mortality

A Case Study of interventions supported by PRADAN in District Kandhamal, Odisha



September 2013

SOUTH ASIA
Pro Poor Livestock Policy Programme

A joint initiative of NDDB and FAO



This case study is the result of field visits undertaken by SA PPLPP in District Kandhamal, Odisha, where PRADAN has supported goat based livelihood interventions in five of the fourteen gram panchayats of the Balliguda block.

SA PPLPP gratefully acknowledges the inputs provided by Mr. Satish Patnaik, Project Executive, PRADAN, in developing this case study. We would also like to thank members of the PRADAN Odisha Team for the support provided in organizing field visits and facilitating community interactions.

Contents

1. Context	1
2. Implementation Strategy	4
3. Major Challenges and Learning	22
4. Outcomes and Impact	25
Annexure 1	26
List of Abbreviations	32



Context

Professional Assistance for Development Action (PRADAN), a reputed national level NGO working in eight states of western, central and eastern India, is promoting goat-rearing through women self-help groups in four of its programme states – Rajasthan, Jharkhand, West Bengal and Odisha¹. In PRADAN's programme areas, goat rearing, is predominantly a livelihood



The Sudra gram panchayat, where PRADAN's goat rearing interventions are presently concentrated, is surrounded by dense forests



activity for relatively poorer households. In these regions, goat rearing is characterized by high morbidity and mortality due to inadequate access to health care services, poor breed selection and unscientific husbandry and rearing practices resulting in low incomes. Through an innovative community-centric model implemented in the tribal dominated Balliguda block of District Kandhamal in Odisha, PRADAN has demonstrated an institutional framework with SHGs as the foundation, to facilitate access to preventive health and vaccination services, and knowledge sharing on improved rearing and husbandry practices.

PRADAN commenced its work in the Balliguda block of the Balliguda sub-division, district Kandhamal, 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). These groups, primarily comprising of women from relatively poorer households, started savings and credit activities, and this provided a forum for regular discussion on issues related to livelihoods and household well-being.

Balliguda block is located 700–1,000 meters 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 forests² which are a source of livelihood for families who collect non timber forest produce such as Sal (*Shorea Robusta*), Siali (*Bauhinia Vahlia*) and Tendu (*Diospyros Melanoxylon*, also known as East Indian Ebony) leaves, *sal* and *mahua* (*Madhuca Longifolia*) seeds and flowers. The other sources of livelihood comprise rain-fed agriculture, daily wage labour, brick making, poultry and goat rearing³. The landholding pattern ranges from 50 decimals (0.2 hectares) 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 family size is 5–6 members.

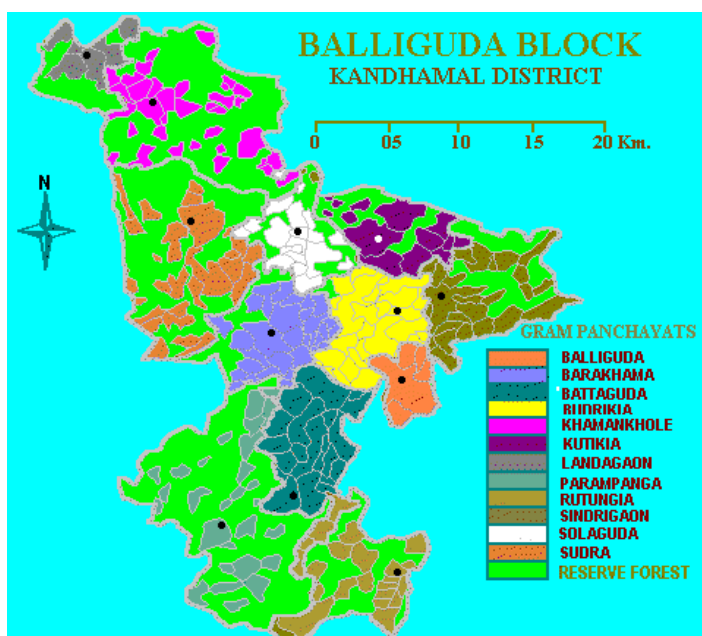
¹PRADAN's goat rearing interventions in Odisha are concentrated in the Kandhamal (Balliguda block) and Keonjhar districts.

²The forest cover ranges from 40–60% and comprises deciduous *sal* forest with a large number of seasonal plants and shrubs which are a good source of fodder for goats.

³A comparison between goat population numbers in the livestock census of 2003 and 2007 shows that the goat population in Odisha has increased from 5,973,919 to 7,127,038.

Balliguda block has a total of 14 gram panchayats⁴. PRADAN's initiatives on goat rearing have largely been concentrated in the Sudra gram panchayat, but in recent months goat rearing interventions have also been extended to seven villages in the Solaguda gram panchayat. In the Sudra gram panchayat, goat rearing interventions were initiated in four village clusters⁵ namely Ma Laxmi (5 villages), Patkhonda (2 villages), Ma Tulsi (1 village) and Ma Manikeswari (2 villages).

In the Ma Laxmi cluster in the Sudra gram panchayat that was visited as part of the case study, almost 180 out of the total of 257 households in the cluster have taken up goat rearing.



Source - <http://kandhamal.nic.in/km-map/blk-blg.htm>



Kandhamal Goats

The local goat reared in the region is called the Kandhamal⁶ goat, which is as yet not registered by the National Bureau of Animal Genetic Resources (NBAGR).

In its goat promotion activities, PRADAN decided to follow the village cluster approach to facilitate provision of services (such as deworming and preventive vaccination) and regular monitoring through trained paravets. Further, a village cluster generally falls within a single watershed, making it easier to create an immune zone through regular

vaccination. It is also easy for women to travel to villages within the same cluster, and to attend SHG meetings⁷ focusing on goat rearing activities. The names of villages, number of households practicing goat rearing and the SHGs in the Ma Laxmi cluster are listed in Table 1.

⁴Of the 14 gram panchayats in the Balliguda block namely Barakhama, Battaguda, Sudra, Budrukia, Balliguda, Khamankhole, Kutikia, Landagaon, Parampanga, Rutungia, Sindhriagaon, Sollaguda, Rebinkia and Medikia, 572 families in five gram panchayats (Barakhama, Battaguda, Sudra, Parampanga, Sollaguda) have taken up goat rearing.

⁵A cluster comprises 4–5 villages within a radius of 2.5–3 kms. Village clusters are named by SHG members.

⁶The Kandhamal goat, also known as the Phulbani goat, is similar in appearance to both the Ganjam and 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 kgs while a doe weighs an average of 25 kg. The Kandhamal goat has a milk yielding capacity of 300–500 ml per day.

⁷Discussions during SHG meetings are focused on the various programmes under implementation (goat rearing, integrated natural resources management, land and water conservation), in addition to regular savings and credit activities.

Table 1: Households rearing goats in the Ma Laxmi Cluster

Villages	Total Number of Households – 257(Goat rearing households - 180 ⁸)	Number and names of SHGs (Total = 13)
Parapadar	40 (21)	2 - Ma Laxmi, Ma Saraswati
Dakpadi	35 (2)	1 – Pragati/Vrindavati ⁹
Pippali	36 (28)	2 – Shanti, Supatha
Jargi	76 (37)	4 - Durga, Ashadeep, Chandrika, Negipaheri, Pragati
Kotteribhata	70 (48)	4 - Ma Tarini, Brundabati, Rudrakali, Santoshi

In January, 2013, there were a total of 2,030 goats in the Sudra gram panchayat. Of these, over 1,500 were owned by the 136 goat rearing households in the Ma Laxmi cluster (962 does, 125 and 92 castrated and non-castrated bucks respectively and 332 kids). Of the 92 non-castrated bucks, 30 are either of the pure Ganjam or Beetal breed, 50 are Ganjam or Beetal crosses of the F1 and F2 generation, and very few comprise local Kandhamal bucks.

⁸ In accordance with tribal traditions in the region, after marriage, while the son and daughter-in-law reside in a separate house, household assets, including livestock assets, continue to be commonly owned. Therefore, while there are a total of 180 goat-rearing households, livestock assets are held by only 136 of these families.

⁹ The two members from the Dakpadi village belong to the Vrindavati SHG. However, since there are no other goat rearing members from Dakpadi, they have associated themselves with the Pragati SHG in Jargi village.

Implementation Strategy



Women SHG members making *siali* leaf plates using bamboo twigs

During the initial years, PRADAN focused on building the capacity of SHG members through regular group meetings. Subsequently, a number of activities were identified to improve livelihoods, and these were gradually introduced in the villages – these included promoting the System of Rice Intensification (SRI), support for tomato cultivation, establishment of irrigation wells, land and water conservation programmes comprising lift and gravity flow irrigation and field-bunding, up-scaling NTFP activities¹⁰ and support for goat and poultry rearing.

In discussions with the community it emerged that households who had previously reared 2–3 goats, had over time given up this activity on account of the high levels of morbidity and mortality (averaging 25% for adult goats and 50% for goat kids). Further, based on the feedback from SHG meetings and PRADAN's own technical reviews, the following constraints emerged in goat rearing:

1. Delay in castration of unviable bucks leading to inbreeding, and frequent abortions and the birth of weak and unhealthy kids susceptible to endemic diseases. The non-availability of good quality bucks was another constraint that emerged during group meetings.
2. Vaccination and deworming was never practiced. In many remote villages vaccination is still considered a taboo. In addition, veterinary services were available only at the veterinary dispensary¹¹ located at the Barakhama gram panchayat which is 6–7 kms away from these villages. On account of the hilly terrain and dense forests, households are remotely located and difficult to access.
3. Due to the lack of proper shelter and the surrounding forests, predation of goats by wild animals was a major problem. In addition, there were frequent diseases due to the cold and rainy season.
4. Grazing in the surrounding forests was the only source of feed and fodder for goats. No additional supplementation 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.



A ready for sale dried *siali* leaf plate displayed by an SHG member

¹⁰A Kandhamal Women's Leaf-plate Cooperative was formed in 2005. Members of the cooperative were trained to improve the value of the *siali* leaf plates using different kinds of stitches and selecting the right kind of leaves. The leaf plates were further improved upon by a processing unit set up in the Balliguda block.

¹¹In addition to the veterinary dispensary at the Barakhama gram panchayat, a veterinary hospital is located at the Baliguda Block which is 25–30 kms away from these villages.

5. On account of recurrent diseases, distress sale of goats was high, as a result of which rearers could not bargain for a remunerative price with goat traders.

PRADAN initiated a number of activities to overcome these constraints.

In 2002-2003, PRADAN commenced its goat rearing programme with a focus on both strengthening existing goat units as well as encouraging new households to take up goat rearing. During this time there were a total of 30 women SHG members who took loans against the savings made by them in their respective SHGs and bought 2–3 goats. In addition to loans against savings, each SHG member was given a small one-time grant of Rs 2,000 from experimental funds available with PRADAN to purchase goats from the local market.

Support for the construction of goat sheds¹² using locally available material was another initial activity. Construction of a goat shed as per specifications



Goat shed constructed on a raised platform



A goat shed model put on display at the Maha-adhiveshan event in April 2013

provided by PRADAN was an important criteria to become a member of goat rearing groups¹³ within SHGs. In view of the remoteness of the region, PRADAN recognized the importance of training a community representative in basic health care, and on priority provide doorstep health services to goat rearers. In 2004, a few villagers were unanimously nominated by SHG members to undergo a 4–5 day training conducted by PRADAN. The training curriculum comprised both theoretical and hands-on training sessions focusing on the provision of first aid, vaccination and deworming, buck castration and detailed information on disease symptoms in goats. The training was held both in the field and at the PRADAN office in Balliguda, and was provided by a goat rearing expert from PRADAN along with an experienced retired veterinarian, who was paid an honorarium for imparting training. During this initial period, goat rearers were reluctant to pay for the services provided by the trained paravets.

¹² Goat sheds were to have the following specifications – construction on a raised platform to avoid direct contact with the earth, have two windows for proper ventilation and should be limed/ disinfected on a monthly basis. Considering that an adult goat requires 5–10 sq feet of open space, the goat shed was also designed to avoid over-crowding of goats.

¹³ The primary criteria for membership to the goat rearing group in an SHG is to have 2–3 goats and a well ventilated goat shed to house the goats. An SHG maintains 3 savings boxes for general savings, savings for agriculture related activities and for goat rearing. A member of the goat rearing group must deposit a minimum of Rs 20 every month in addition to the general savings which could be Rs 20 or more depending upon their capacity to save and the decisions of members.

In 2005, refresher trainings were organized for the trained paravets. Of the 10 paravets who were initially trained, six dropped out in search of more lucrative jobs. During the same year a major outbreak of PPR was also reported in the Balliguda block. Since the area was not considered prone to PPR, 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 started stocking PPR vaccines.



F2 Beetal Cross Doe



Pushari Digal with her F1 Beetal cross doe

Punjab (the breeding tract of the Beetal breed) and Himachal Pradesh, which is also approximately 1,000 meters above sea level and during winters the minimum temperature falls below one degree celsius. The breed improvement results failed for all breeds introduced except for the Ganjam, a registered breed native to Odisha and the Beetal (also a registered breed) whose F1 generation did not do well¹⁴ but the F2 generation has displayed positive results by way of increased body weight and improved resistance to diseases. The breed improvement trials continued for a period of 8 years and based on learning from these trials, the focus is now only on the promotion of the Ganjam and Beetal breeds. Beetal and Ganjam bucks are maintained by the group paravets, while the goat rearing group contributes towards the cost of the buck including its feed and health care.

At the same time, with the objective of improving productivity of the local non-descript Kandhamal breed, PRADAN in consultation with a few veterinarians (both government and private practitioners) introduced bucks of improved breeds like the Jamunapari, Sirohi, Marwari, Ganjam and Beetal. The main criteria for selecting these breeds were the weight of adult animals, the kidding rate, milk yield and acclimatizing ability. For example, the Beetal breed was chosen because of similar climatic conditions of the Balliguda block to that of



Pushari Digal, the SHG Group paravet with her pure Ganjam buck at the Maha-adhiveshan in April 2013 in Balliguda block

During the period 2006 to 2008, while refresher trainings were conducted for the trained paravets along with regular follow up on timely vaccination and deworming of goats by all the SHG members, new paravets were being simultaneously inducted and trained.

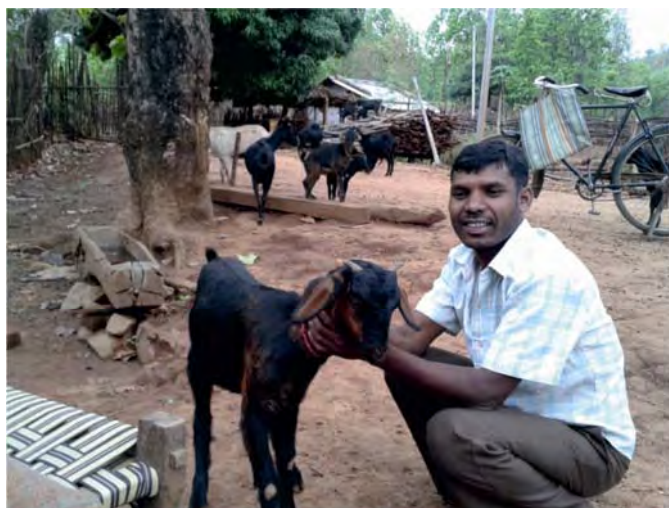
¹⁴A higher mortality was observed in the F1 generation of the Beetal crosses on account of the birth of relatively larger sized kids to smaller does of the local breed. Kids died during the kidding process. Further, the does had insufficient milk to feed the larger kids. Surviving progeny formed a viable first generation of improved goats. The F2 generation of Beetal crosses is surviving well in the project villages and rearers are happy with the body weight attained by the animals. Additionally, the groups now have access to funds that enables them to provide feed and supplements to pregnant and lactating does leading to better milk production to feed their kids.

In 2009–11, PRADAN received a grant of Rs 500,000 for its goat rearing programme from the Navajbai Ratan Tata Trust (NRTT). In view of the progress of goat rearing activities in the Sudra gram panchayat, the grant prioritized support for goat rearing in this village cluster. Seven high quality bucks of the Ganjam and 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 2 goats each during this period from markets in Bolangir, Kalahandi, Boudh and Ganjam districts. PRADAN motivated goat rearers to vaccinate their goats regularly, and also follow similar vaccination schedules. It was at this time that annual activity calendars (Annexure 1) 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 paravets 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 contacts were established with wholesale dealers who were ready to deliver medicines to the village if these were ordered in bulk.

Since the commencement of PRADAN's goat rearing initiative in the region, a total of 80 paravets were trained during the period 2002–2012. Of these only 18 continue to remain associated with this programme. Due to the sporadic interventions, neither the

goat rearers benefited through improved access to health care nor did the paravets receive adequate monetary benefits to enable them continue to provide these services. Most of these trained paravets are, however, running their own goat rearing enterprises successfully.

Following a review of its paravet programme in 2012, PRADAN introduced changes in its approach. The focus shifted to training more women as paravets who are members of the SHGs, and are referred to as **SHG Group Paravets**. Secondly, training and subsequent refresher training of goat rearers was prioritized following the realization that goat rearers needed to be sensitized to value the services provided by the paravets. Goat rearers were also trained in identifying the characteristics of good quality goats, through regular interaction with traders selling goats.



Upendra Mallick, the cluster paravet, on his way to deliver vaccines and medicines to the SHG group paravets stops to examine a goat at a household in Jargi village



The members of the Goat Rearers Federation Unnatipath at a monthly meeting in Jargi village in the Sudra gram panchayat of Balliguda block

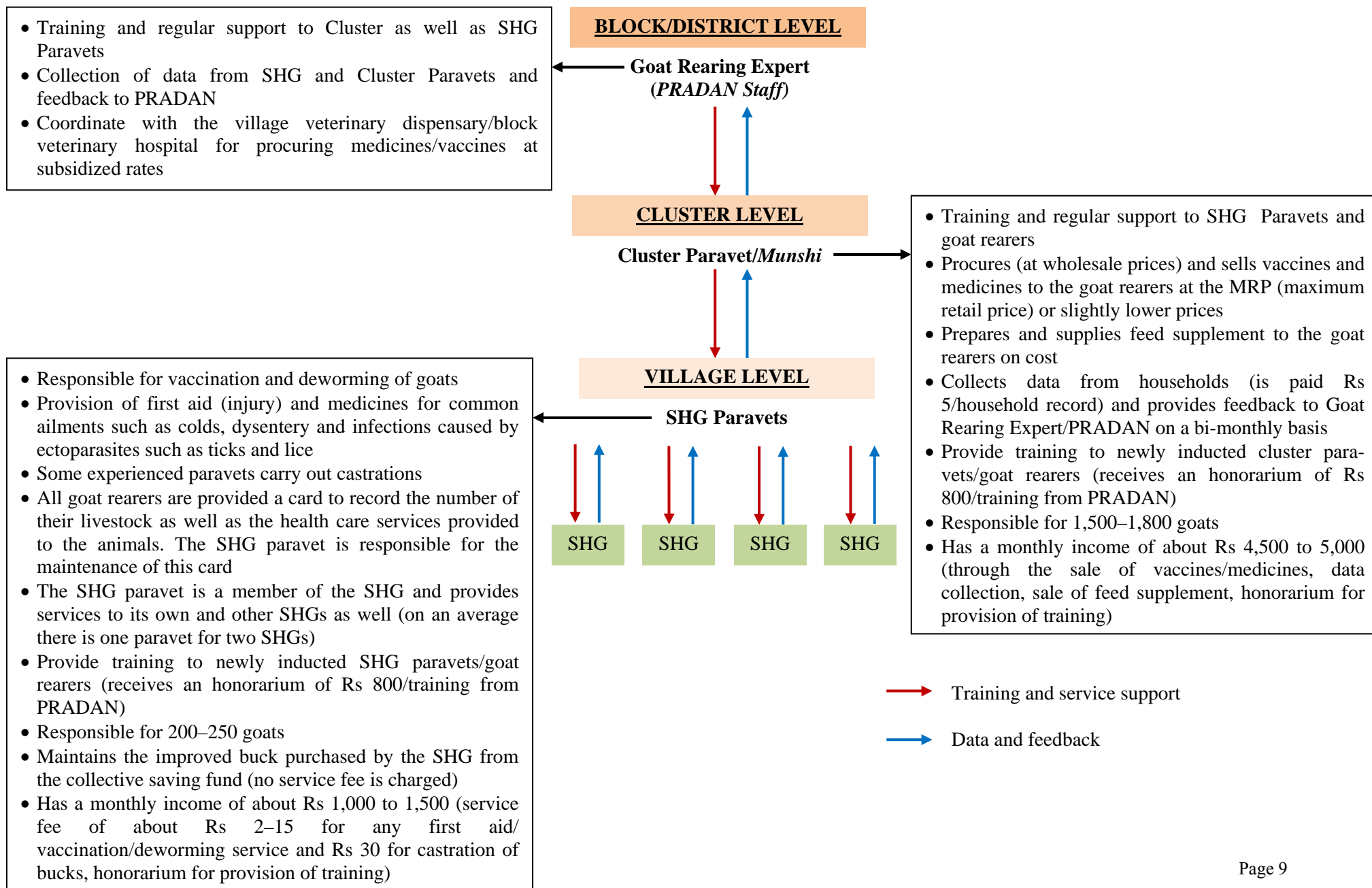
To facilitate monitoring and accountability of both the goat rearers and paravets, and track the health and management practices adopted by them, PRADAN introduced the concept of cluster *munshi* or cluster paravet. The main responsibility of the cluster *munshi* is the collection of data from goat rearing families on a bi-monthly basis. The data includes the number of goats (bucks, does and kids) in each household, details regarding vaccination and deworming and other health services provided, kidding details, mortality and sale of goats/kids etc. Cluster *munshis* are paid Rs 5 for the submission of consolidated data from each household.

One of the 18 practicing paravets, Purushottam, has been appointed as a PRADAN staff member to provide his services to the goat rearing programme in the Balliguda block. The Ma Laxmi cluster now has seven women SHG group paravets and one cluster paravet (*munshi*) to provide services to the 180 goat-rearing families in this cluster.



From left: Pushari Digal, the president of the Unnatipath Federation along with a few other federation members after attending the monthly federation meeting

Community Institution Model for Goat Rearing (Implemented by PRADAN, District Kandhamal, Odisha)



Goat rearing expert at PRADAN



Purushottam with the SHG group paravets Sehati (taking notes) and Pushpita during the health camp for goats. Health camps for goats are usually organized during the early morning hours as the goats are left out for grazing after 7 am

Purushottam Behardalai is a resident of Kirikutti village in the Daringbadi block of Kandhamal district. His family comprises of his wife and three school going children. He owns 50 decimals of land where paddy and turmeric are cultivated during the *kharif* season. He also owns 15 goats. Trained as an accountant, he used to handle account related work in an SHG in his village. In 2003, he was nominated by SHG members to undertake the training programme in goat management practices, organized by PRADAN. After the training, Purushottam started providing health care services to goat rearers within his village. He also kept in constant touch with the PRADAN team, who after assessing his potential and dedication, appointed him as a Goat Rearing Expert in 2006, a full-time staff position in the PRADAN team. In his new role, Purushottam was required to provide technical support and guidance to the expanding goat rearing programme in the Sudra gram panchayat of Balliguda block. Keen on working on goat rearing issues and expanding his knowledge base in this area, Purushottam relocated himself to the Balliguda block, while his family continued to stay in his native village, Kirikutti. At PRADAN, he received several opportunities to attend a series of 10–15 days training programmes, which were organized either by PRADAN or by other organizations, at various locations such as in the KBK region, Sambalpur and at the Central Institute for Research on Goats, Mathura. In addition to regular first-aid, vaccination and deworming practices he became well conversant with castration of bucks, operating abscesses and bone-setting procedures. Through training and regular practice, Purushottam gained considerable knowledge and expertise and started imparting training to newly inducted paravets and goat rearers. He maintains regular contact with veterinary officers, some of whom also contact him to collect veterinary medicines which arrive at the veterinary hospital in the Balliguda block. Since Purushottam visits remote villages, the veterinary officers rely on him to distribute these medicines. “After thoroughly checking the labels of medicines and vaccines for the manufacturing and expiry dates, I collect them from the government dispensary at a subsidized rate, which is almost half of the MRP printed on these medicines and sell them to the cluster or group paravets in these villages at the same rate at which they are bought. A list of medicines and vaccines which need to be procured, is prepared during the SHG group meetings and an approximate amount is advanced from the SHG funds to make the purchases”, says Purushottam.



Purushottam examining a goat during the goat health camp at Pippali village

Purushottam visits his village Kirikutti once in a month on a weekend to also oversee his herd of 15 goats. “There is hardly any time to sit at home during the visit to my village as all the neighbours are keen on getting my advice on their goats and request me to visit their homes. People are aware of my work at PRADAN and also want me to take up similar activities in my own village. I want to open my own goat farm in a couple of years' time when I go back to my village, after my children's schooling is over”, shares Purushottam. He proudly informs that his present designation at PRADAN is Goat Rearing Expert.

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 of 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 create a sustainable model. Presently the responsibilities of the Goat Rearers’ Federation consist of managing and training the cluster and SHG group paravets, coordinating a collective fund for purchase of goat related inputs like vaccines and feed, identifying and implementing other related livelihood activities which complement the goat rearing initiative¹⁵, and identifying neighbouring villages to promote goat rearing activities. These activities are currently closely monitored and facilitated by PRADAN team members. It is envisaged that when a large number of households take up goat rearing in the Sudra gram panchayat, the federation may also make inroads into 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 position of president¹⁶ revolves every three years, and is nominated by representatives from the 13 SHGs.

Membership of the Goat Rearers Federation depends on the following criteria:

1. The member should be willing to acquire / invest in goat rearing or have a minimum of five does.
2. She should be willing to invest time for training and skill development.
3. A lifetime membership fee of Rs 100 should be contributed towards the collective fund of the federation. The federation maintains a manual cash-book to record fund collection vis-à-vis expenditures made. The collected amount is deposited in the federation’s bank account and a monthly account statement is shared during cluster meetings.



The SHG paravet from Jargi village preparing for castration of bucks after the goat camp held at Pippali village. Also in the background is the SHG paravet from Pippali village and the Cluster paravet

Recently the goat rearers have also started depositing 10–20% of the total amount earned by them from the sale of goats. 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, clearly indicating which member has made this contribution. The federation’s collective fund is growing gradually and presently the total savings is approximately Rs 75,000 which will be utilized for the purchase of good quality bucks and for bulk purchase of medicines and vaccines¹⁷. In 2011 and again in June 2013, the

¹⁵In a recent development in the goat rearing programme, goat rearers are being encouraged to develop live fencing of fodder crops/trees such as sesbania, subabul, gliricedia to ensure that goats can be stall fed from the greens available within the homestead itself. It has been decided that one of the SHG member will be provided with seeds and other inputs to develop a seedling nursery on their land. The seedlings will then be sold to other SHG members at Rs 1 per seedling.

¹⁶Smt Pushari Digal, a group paravet is the president of the Unnatipath Federation for the past 3 years.

¹⁷ The savings of the goat rearers group in an SHG averages Rs 3,000–4,000. The collective fund improves the bargaining power of goat rearers enabling them to purchase vaccines, medicines and other inputs in bulk at

federation had sold goats collectively to meet bulk orders of 1½ and 2 quintals of goats respectively. These goats were purchased from member rearers. While in 2011, only the sale price of goats was realised, in June 2013 every goat rearer who sold her goats through the federation¹⁸, 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.

President of Unnatipath - the Federation of Goat Rearers'



Pushari Digal with her grand daughter

Pushari Digal, the president of the goat rearing federation, 'Unnatipath' for the past three years, is a resident of Jargi village in the Balliguda block of the Kandhamal district of Odisha. She was unanimously selected by all board members, representing one SHG each from the five villages that comprise the Ma Laxmi cluster of the Sudra gram panchayat. Federation members refer to her as 'Pushari Ma'. Pushari has been rearing goats since 2006 and has also been trained as a paravet by PRADAN. She has a total of 18 goats and an improved Ganjam buck. She

makes an annual income of Rs 14,000 from her goat rearing activity in addition to Rs 8,000-9,000 from the services provided by her as a group paravet. She owns 30 decimals of land, on which paddy is cultivated during the *kharif* season. She also retails dry fish, purchased in bulk at the weekend *haat* in her village through which she earns an additional Rs 200-300 per week. Pushari Ma's husband, Koleshwar Digal and two daughters, one of whom is married, are very supportive of her work as a paravet and as President of the Goat Rearers Federation. Pushari Ma shared that as President of the Federation she feels all the more responsible and tries to persuade as many women to take up goat rearing. 'I visited a few villages in the Bataguda gram panchayat while I was there to attend a family event. I tried persuading women in those villages, some of whom also visited us to learn from our work in the Sudra gram panchayat', shared Pushari Ma. She mentioned that in addition to the ongoing activities of the federation, there are plans to support poultry rearing through the setting up of a poultry rearing fund similar to the goat rearing fund. "It is an honour to work as President of this federation and at the same time a challenge to ensure that we set the best standards and take good decisions to benefit all goat rearers in the long run. While decisions are collectively taken by all members, I provide the final consent", emphasizes a proud Pushari Ma.



Pushari Ma feeding her goats on dry arhar (pigeon-pea) leaves

The Unnatipath federation convenes a monthly meeting on the last Monday of every month. The meeting is attended by 40–50 women representatives from the five villages. Each SHG board member is accompanied by 3–4 members. This ensures that gradually all women SHG members attend the monthly meetings and understand the working of the federation and in due course develop skills to take up the post of President when nominated by the federation board. Federation meetings are also attended by Shri Purshottam, PRADAN's goat rearing expert and the cluster paravet (*munshi*), who also maintains the accounts of the Unnatipath Federation.

wholesale rates. As savings in the collective fund have grown, federation members have also decided to purchase improved bucks with these funds, and thereby sustain their goat rearing interventions.

¹⁸The PRADAN Balliguda office was contacted for a bulk supply order from Bhubaneswar for 2 quintals (approximately 10 goats) of healthy goats in June, 2013. The federation was entrusted with the responsibility of arranging for good quality goats, which were procured from goat rearing families in the Sudra gram panchayat.

PRADAN's project executive also attends Federation meetings to understand the progress of the goat rearing programme. Discussions are steered by the women SHG members, and decisions are taken collectively. Issues discussed at the April 2013 meeting included preparations for the forthcoming *Maha-adhiveshan*¹⁹, procurement of vaccines from Behrampur²⁰, and development of a nursery of fodder crops by a selected SHG member.

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 the Sudra gram panchayat. Under this programme each beneficiary will 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, and specifically for the purchase of asbestos sheets for the shed). In addition to the support under the OTELP programme, each beneficiary will have to invest Rs 10,000 to Rs 12,000 of their own money for the remaining construction of the goat shed, which costs approximately Rs 20,000–22,000.



A recently constructed goat shed at Palami village in the Patakhonda cluster in the Sudra gram ganchayat

Training and Support

From 2009-2012, the annual cost incurred by PRADAN on training (basic course and subsequent refresher training) of paravets and goat rearers amounts to a total of Rs 280,400. While the basic training²¹ is for four days, a two-day refresher training for paravets is conducted once every month. As the programme is expanding to other villages these trained paravets also travel to these villages to provide training to newly inducted paravets and goat rearers. The target is to conduct at least 8 trainings in a year. These paravets are paid up to Rs 800 for providing training services and also sharing information and data regarding health care services provided to goats of SHG members. The annual costs of the training component are given in Table 2.

¹⁹Change through Unity and Collective Action - A report of the 6th *Maha-adhiveshan* of the Kandhamal Mahila Mandal, Balliguda, Kandhamal district, Odisha (<http://saplpp.org/news1/a-report-of-the-6th-maha-adhiveshan-of-the-kandhamal-mahila-mandal-balliguda-kandhamal-district-odisha>)

²⁰As per information provided by goat rearers, the efficacy of the PPR vaccine is compromised since the government dispensary which now stocks these vaccines does not have refrigeration facilities. In addition, goat rearers mentioned that the vaccines often do not have the requisite labeling specifying the manufacturing and expiry dates. Instances have been reported where goats have contracted PPR in spite of having been vaccinated. Goat rearers therefore do not now rely on vaccines available at the government dispensary, except for the ET vaccine which apparently does not require cold chain facilities.

²¹This includes a two day classroom based training module at the PRADAN office, followed by two days of practical training at the village level.

Table 2: Training components and costs (2012)

Training Components	Training of Paravets (newly inducted and refresher)	Training of goat rearers (newly inducted and refresher)	Training of newly inducted SHGs from surrounding gram panchayats
Travel, Food and honorarium for the veterinarian ²²	Rs 5,000/ day for a total of eight days in a year (2 day visit every quarter) = Rs 40,000		
11 paravets are paid a maximum of Rs 800 per training for conducting 8 trainings in a year (including sharing information and data regarding health care services provided to goats of SHG members)		Rs 800 for each paravet for 8 trainings in a year = Rs 70,400	
Exposure visits for women members to learn from the experience of on-going goat rearing initiatives.			Rs 40,000–50,000 annually
Monthly salary of the goat expert @ Rs 10,000/month = 120,000			
Total cost = Rs 40,000+70,400+50,000+120,000 = 280,400			
<i>NOTE: Since 2009-2010 the total training cost is being shared by PRADAN, OTELP and NRIT. For example the total cost incurred by PRADAN on training paravets and goat rearers in 2012, was approximately Rs 150,000, the remaining being borne by OTELP and NRIT. From 2013, part of the training expenses will also be funded by the Bill and Melinda Gates Foundation (BMGF).</i>			

PRADAN plans to upscale its goat rearing intervention by organizing a training of trainers programme for the existing SHG and cluster paravets so that in the next two years, these paravets would be able to train additional paravets, without seeking any support from PRADAN.

Self Help Groups 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 the record of their contribution is noted by the SHG group paravets (also referred to as *didis*). As the vaccines, medicines and dewormers are collectively bought from the funds in the goat rearing group, the SHG group paravets also keep records of the expenses incurred by each SHG member on regular vaccination and deworming of goats. This data is presented to the SHG members during the weekly SHG meetings. The SHG group paravets are also responsible for caring and maintenance of the improved quality buck, whose services are availed by both group and non-group members at no cost.



Meeting of SHG members

²²A retired government veterinary doctor from within the district or neighbouring districts is invited to support the PRADAN goat rearing expert in the training of paravets.



Sebati Digal, SHG Group paravet of village Jargi, displaying the goat rearing activity calendar as also the health records of the goats of SHG group members

Goat rearing is much more than just an additional source of income, observes Sebati Digal, Self Help Group paravet, Jargi village, District Kandhamal, Odisha

Sebati Digal, is a resident of Jargi village in the 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 which 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 household income. Sebati presently owns 24 goats comprising 14 does, six kids, three castrated bucks and one improved Beetal buck.

Last month Sebati didi, 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 the health and appearance, sell 2-3 goats every year", shared Sebati. She continues, "The main criteria for judging market readiness of the goats is weight gain in six months. If, in spite of deworming and feeding of *bokashi* (a kid is fed 30–40 mg of this multi-nutrient supplement each day) the weight of bucks remains less than 4 kg, these are considered unviable for further reproduction, and are castrated. Does are reared and bred until they are 3–4 years old, after which they are generally sold. A good quality goat gains approximately 7–8 kg of weight within 6 months".

Sebati informed that while 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 Beetal buck has a problem of standing in the initial days after its birth. It, however, gains very good weight later on. Castrated bucks are sold at the age of 1 ½ –2 years for Rs 5,000 by which time they gain approximately 30 kgs of weight.

Sebati has also been rearing *desi* poultry birds for the past 7–8 months. "I started with five poultry birds and now have a flock of 40 birds, 4–5 of these have been gifted to me by goat rearing households in lieu of the services provided to them over the past year", informed Sebati. The time interval between each clutch is 2–3 months and almost 10–12 eggs are laid per clutch. These eggs are largely consumed within the home. "Indeed my poultry unit started initially from the birds that were given to me by goat rearing households towards the services I had provided to their goats", shared Sebati.



Sebati didi prepares for the castration of bucks at the goat health camp held in Pippali village

Sebati joined the Ashadeep Self Help Group in 2008, and received her first SHG training in 2009 - a one-day practical training on goat rearing. She was subsequently selected by members of her SHG to attend the paravet training programme in the same year and subsequent refresher training every month. Since her nomination as the SHG group paravet, Sebati has been regularly providing vaccination and deworming 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 paravet. She has a good reputation in neighbouring villages too, where she has been to impart training to newly inducted goat rearers and group paravets.

“I prepare *bokashi* (multi-nutrient supplement) at home for my own goats and it costs me Rs 18 per kg”. 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 SHG meetings.

Sebati is completely dedicated to the promotion of goat rearing and ensuring the health of goats raised in the area, and promptly visits neighbouring villages to support her fellow paravets during goat health camps organized by them. Sebati is also an active member of the board of the Unnatipath Federation. “My family provides all support to enable me to participate in these community institutions. My husband takes care of household chores while I go out for training for 1–2 days. He also helps with maintaining the goats and the goat shed as 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 as many women from other villages too 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 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.



Sebati didi, displays a pack of the oral dewormer Albendazole that is administered to the goats. Her husband, Ramesh Digal is also seen in the picture

Group paravet at Pippali village in Balliguda block

Pushpita Malik is a group paravet for the Supath SHG in Pippali village in the Balliguda block. Her family comprises of 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 paravet three years ago and since then has been in regular practice. She has completed 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 on NREGA programmes. Pushpita is able to earn Rs 600–700 every month by providing health care services to goat rearers who are members of the Supath SHG. The services provided include first aid, vaccination and deworming and also castration of bucks. Pushpita was the first women in the entire Pippali village to take up goat rearing and even today she is the only woman paravet in her village. 'The villagers were initially extremely resistant to get their goats vaccinated or dewormed and were not willing to pay for any services for their livestock. The situation has completely changed today as the number of goats over the past three years has increased from 20 to 350 and people now voluntarily bring their goats for treatment, vaccination / deworming and even castration', shared Pushpita who is especially known for her skills as a vaccinator (she can vaccinate a record 150 goats in just two hours). She herself owns 17 goats comprising 12 does, four

castrated bucks and one improved Beetal buck. She also owns six local poultry birds whose eggs 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', shared Pushpita. She also maintains the records of all goat rearing households, and details of health services provided to them which are shared with members during SHG meetings. The vaccines and medicines are supplied at her doorstep by the cluster paravet, Upendra Mallick. She charges Rs 5–15 for any first aid services, Rs 30 for castration of bucks, Rs 2–3 for deworming and Rs 50 for administering one vial of vaccine of 100 doses, which is sufficient to vaccinate 90 goats. Although she is mother to an infant daughter, Pushpita has been regularly providing health services to village livestock and attending training programmes. 'Though 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 at the Pippali village in April 2013, Pushpita could be seen actively attending to the goats, injecting medicine for common cold and assisting the cluster paravet, Upendra Mallick, with buck castration.



Pushpita, preparing for the castration of bucks which are identified as being unviable. Pushpita resumed her work as a paravet soon after the birth of her daughter. This is, however, the first buck castration she is undertaking after an interval of six months. Also seen, assisting Pushpita in the picture, is Purushottam, the goat rearing expert.

Role and Responsibility of SHG and Cluster Paravets



Disbursement of medicines by the Cluster paravet to the SHG Group paravet, Village Pippali

Based on the 'goat rearing activity calendar',²³ collectively developed by PRADAN and goat rearers, a day and date is finalized by SHG members for vaccination and deworming. The requisition for the required vaccines and dewormers is submitted by the SHG group paravet to the cluster paravet (cluster *munshi*), who delivers the stock to the SHG group paravet's house on the day of vaccination²⁴. The goat rearers, who are informed a day before, bring their goats for vaccination or deworming to the SHG group paravet's house. In most cases the cluster paravet assists the SHG group paravet in vaccinating the goats. The cost of vaccine and dewormer is divided among the goat rearers and depending upon the number of

²³ Based on the month and season the annual calendar specifies the different practices, such as shed maintenance, health care, feed and fodder, data collection, monitoring, marketing and savings etc. required for goat rearing. Each goat rearer refers to this annual calendar in addition to information updates in the monthly SHG meetings.

²⁴ Vaccination and deworming is generally undertaken early morning between 6 to 7.30 am after which the goats are left out for grazing.

goats vaccinated/dewormed, the amount is deducted from the account of the respective goat rearer.

The SHG group paravets also maintain the improved buck, whose maintenance cost is met from the savings in the SHG goat rearing fund. There is no service fee charged. Generally a buck is viable to provide service for 5-6 years after which it is sold in consultation with SHG members and the sale proceeds are deposited in the collective fund of the federation.

SHG group paravets earn an average of Rs 800-1,000 every month from the services provided by them. This also includes the honorarium received for training²⁵ other goat rearers and paravets.

The cluster paravet however makes an earning of Rs 3,500-4,000 per month, as in addition to the services provided to the goat rearers he also earns an income from selling vaccines and medicines which are bought at a wholesale price and are sold either at the maximum retail price (MRP) or at a price slightly lower than this. The cluster paravet also prepares and supplies the feed supplement. Inputs etc. are purchased at Rs 15 per kg. In addition his costs of travel to the market for purchase of inputs are Rs 20-25 per trip. The feed supplement is sold to rearers at Rs 18/ per kg. The break-up of the cost of each ingredient used for making the feed supplement (referred to as *Bokashi* in Oriya) is presented in Table 3.

Table 3: Ingredients used to make <i>Bokashi</i> (a feed supplement)			
Feed ingredients	Cost per kg (Rs)	Quantity	Total cost
Rice husk	3	9 kg	27
Probiotic EM solution ²⁶		200 ml	61
Maize husk	18	½ kg	9
Mustard cake	12	½ kg	6
Jaggery	40	250 gms	10
Wheat husk	18	½ kg	9
Polythene bags for packing	Rs 0.50/pc)	10	5
Total quantity = 10 ½ kg			127

The cluster paravet is also responsible for ‘surprise’ monitoring visits to programme villages to ensure that goat rearers follow the practices listed in the ‘goat rearing activity calendar’.

In addition, a goat health camp is also organized once a month in each of the five villages, wherein all the goat rearers are asked to assemble at the SHG group paravet’s house. This health camp is organized and convened by 2 SHG group paravets and a cluster paravet. Most often the goat rearing expert and the Project Executive from PRADAN also join. The SHG group paravets may be from the same village or from a neighbouring village. For example, at the goat health camp organised in Pippali village in April 2013, in addition to Pushpita Malik the SHG group paravet from the village, Sebati Dugal, the SHG group paravet from village Jargi also participated. The goat rearing expert together with the cluster and SHG paravets takes stock of the situation by examining each and every goat to arrive at a list of major health problems observed among the flock. This is followed by administering the required medication. If a certain problem is observed occurring in a frequent pattern, a briefing session is also conducted with the goat rearers. For example at the Goat health camp in Pippali village in April 2013, a

²⁵ The Integrated Tribal Development Agency (ITDA) hires the services of trained paravets to train women from neighbouring districts like Malkangiri, Mayurbhanj and Koraput, who come to Balliguda to learn from PRADAN’s goat rearing interventions. ITDA pays these SHG group paravets Rs 1,000 for each training.

²⁶ The pro-biotic Effective Micro-organism (EM) solution is sourced from Maple Org Tech (India) ltd. The main constituents of this solution comprise Lactobacillus and Azospirillum bacteria and the enzyme Phosphokinase.

few goats infested with ectoparasites were retained and the goat rearers were asked to thoroughly sponge their goats with the disinfectant solution prepared by the SHG group paravet. In addition a list of these rearers was prepared to enable the Cluster paravet visit and review the condition and cleanliness of their goat sheds.

Vaccination

Almost all the vaccines except for ET²⁷ are procured from wholesale dealers in neighbouring districts like Behrampur, Phulbani or Bhubaneswar, which are at a distance of 180, 100 and 280 kms respectively. A portable freezer is carried along to store and transport these vaccines thereby maintaining the cold-chain. The cluster paravet has also been provided with a refrigerator and a generator²⁸. During the frequent power cuts, the refrigerator runs on the generator and there is enough ice to maintain the required temperature of the vaccines. As a norm, vaccinations are undertaken within a day or two of purchase of vaccines.



Pushpita treating goats for common cold during the goat health camp

Feed and fodder

Based on an assessment of the carrying capacity of the surrounding forests undertaken by PRADAN, each family has access to approximately 5–6 hectares of grazing land in the surrounding forests in addition to 10–50 decimals of land in and



Sycamore leaves being fed to goats

around the homestead area where poultry is also raised.



Arhar (pigeon pea) pods that are fed to goats

For six months after the *kharif* crops have been harvested, adult goats graze on fallow agricultural land²⁹, while 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 the nutritional supplements prepared by the cluster paravets. Stall-feeding and the nutritional supplement were in particular beneficial to bucks, pregnant and lactating does.

PRADAN was approached by Maple Org Tech (India) Ltd., a company which supplies nutritional supplements for livestock. This supplement, priced at Rs 80/kg was fed to goats on a trial basis for two months with resultant visible improvements in the health of goats. For example the goats had a healthy looking coat and there were very few incidents reported of

²⁷The ET vaccine supplied by the veterinary dispensary is thermo-stable and therefore does not require the maintenance of a cold chain, unlike the one available from private dealers. This vaccine is therefore procured at subsidized rates from the veterinary dispensary in the Barakhama gram panchayat. A vial of 100 doses of ET vaccine costs Rs 300–350 in the market while at the veterinary dispensary the same vaccine is available at Rs 150 only.

²⁸A refrigerator and a generator were bought from the funds provided under the OTELP programme in 2010.

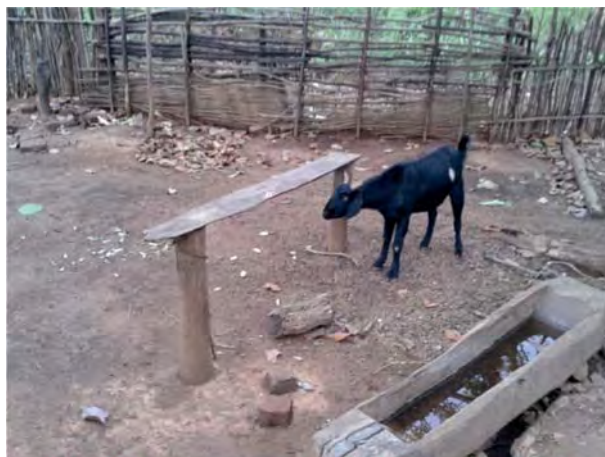
²⁹Goats are left out for grazing on their own, and they either graze in the nearby forests or on fallow agricultural lands. After grazing for 3–4 hours, the goats come back home on their own.

common cold and diarrhoea. The cost of the purchased nutritional supplement was too high, and PRADAN therefore requested the company to only provide the EM formula so that the feed could be locally manufactured using available material and crop residues. After much negotiation the company agreed to only supply the EM solution which is used by the cluster paravets to make a nutritional supplement which is sold to goat rearers at an affordable price of Rs 18/ kg. An adult goat is fed 50gms of this nutritional supplement every day; a kid, however, is fed the same in lesser quantity. Goats are also fed on crop residues of *arhar* (pigeon pea), horse gram, black gram, maize and leaves of jackfruit, subabul, sesbania, ficus and sycamore trees.

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 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 main reasons—it was difficult for one person to manage goat kids of different members and secondly 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 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 and decrease the risk of predation.



Goat kids are reared in a fenced area within the homestead to protect them from predators

Goat trader who supplies goat kids in the Balliguda block

Debarchana Digal has been a goat trader for the last 30 years and is a resident of village Barakhama in the Balliguda block. He has been supplying goat kids to PRADAN project villages for the past four years, and in particular has been the main supplier of the improved Ganjam bucks. He purchases goat kids from a number of village *haats*, such as Sompur, Amugha, Mohangiri, Tusra, Kusurla, Raikiya, Tikabali, Surkiya etc., spread across the Bolangir, Kalahandi, Boudh and Ganjam districts of Odisha. He travels from Monday to Thursday to purchase goat kids, feeds and houses them for one day and sells them in neighbouring villages over the weekend. Sale at village *haats* is more profitable for him as compared to selling goats to individual women goat rearers in the village. At village *haats* sale of 8-10 goat kids fetches him an overall net profit of Rs 1,500–2,000 on a weekly or fortnightly basis, after deduction of transportation and other costs, as compared to an overall net profit of only Rs 1,200–1,300 when he sells to women SHG members. Debarchana Digal earns Rs 200 per goat during sale at local *haats*, whereas he earns a smaller margin of Rs 50-100 per



Debarchana Digal on his way to his village after purchasing goats from neighbouring markets

goat, when he supplies goats to women SHG members. His monthly income ranges from Rs 6,000 to Rs 8,000. Debarchana is even flexible with exchanging goat kids if the rearers observe that the animal is not doing well within 10–15 days time. 'I do incur some loss during such dealings, however this has helped me gain the trust of these women rearers who in turn do not buy from any other trader and I am able to secure my business', shares Debarchana Digal. Satish Patnaik, Project Executive, PRADAN informed that for the recently launched goat rearing initiative in Pallami village, all the goats were supplied by Debarchana Digal only. 'I have been in this trade for the past thirty years but the kind of recognition and trust I have received while working with the women goat rearers in the past four years, is beyond measure", informa Debarchana.

Sale of Goats

The sale of goats is presently done by each individual household, since 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. It is however envisaged that owing to an increase in the number of people taking up goat rearing, there will be larger numbers available for sale, and more distant markets may need to be tapped. At that time the Federation may also take up a larger role in marketing. For now the women goat rearers have been trained to calculate the best price for their goat based on the market price. Each SHG group paravet has been provided with a weighing balance and the goat rearers weigh their goats a day or two prior to sale. This facilitates negotiation with traders since the goat rearers are aware of the weight of their stock.



SHG group paravets, Sehati and Pushpita displaying the weighing balance used by goat rearers to assess the weight of their goats prior to sale.

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, since the annual recurring expenditure is approximately Rs 790 per year. Table 4 provides a break-up of the cost incurred on goats each year. This excludes the cost at which the goats are purchased³⁰ and the cost of shed construction.

Table 4: Cost of rearing one goat per year		
Component	Details	Annual Expenditure on raising one goat
Feed and fodder for goats	15kg <i>Bokashi</i> (mineral mixture) @ Rs 18/kg (Quantity to be fed 50gms/day)	Rs 270
	Other supplements like dry leaves, oil cake in case of a buck	Rs 80
	Grazing cost for 6 months ³¹ @ Rs 120/goat	Rs 120
Goat Shed	Repair works, liming or disinfecting	Rs 120
Vaccines and medicines	Vaccines for PPR ³² , Goat Pox, FMD, ET @ Rs 8 per vaccine per year; medicines for common diseases like cold, dysentery, bloating etc.; Mifex ³³	Rs 200
Annual recurring cost		Rs 790

³⁰ It is believed that after 4–5 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.

³¹ This is largely paid in kind, either paddy or a poultry bird at the end of the year.

³² Although PPR vaccination provides immunity for three years, in the Sudra gram panchayat, PPR vaccination is administered annually, including a booster dose to goats not vaccinated the previous year.

³³ Mifex is a multi-mineral mixture of calcium, magnesium and phosphorus, fed to pregnant and lactating does (25 ml/ day).

Major Challenges and Learning

PRADAN's goat rearing intervention has faced a number of challenges. Learning and experience gained has contributed to modifying and refining the implementation approach through a collaborative process that includes self monitoring by goat rearers, regular review and monitoring by the group and cluster paravets, and discussion among goat rearers. Some of the key learning from the goat rearing interventions in District Kandhamal are summarised below:

Breed Improvement

The maximum weight gained by the local Kandhamal breed, is 25–30 kg at the age of 1½ – 2 years. While the 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 the Sudra gram panchayat. These breed improvement trials were scattered and continued over a period of 8 years. The performance of these breeds vis-à-vis goat rearers perceptions were 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 breed of goats (a 1½ – 2 years old Beetal buck weighs 40–45 kg). Even with the Beetal breed, the first generation (F1) of kids did not yield good results – there was high kid and doe mortality on account of the relatively larger size of the foetus. Kids of the surviving progeny (the F2 generation) however displayed positive results by way of increased body weight and an improved resistance to diseases. Based on the learning, the focus now is only on the promotion of the Ganjam and Beetal breeds, and also the selection of improved bucks of the local Kandhamal goat.



Raji Digal, SHG group paravet from Katteribhata village with her pure Beetal buck at the Maha-adhiveshan in Balliguda block

Training and Awareness

In the first few years, a large number of training programmes were organized for paravets. However, only 10 percent of the paravets trained in these initial years continue to remain associated with the programme. Unlike the present cluster based approach, in the initial years, paravets were selected from various SHGs across the Kandhamal district and it was difficult to monitor and provide regular back-stopping and technical support. Due to lack of awareness among goat rearers, the services provided by these paravets were often not demanded or acknowledged resulting in inadequate monetary benefits to the paravets. Learning from this experience, PRADAN shifted to the cluster approach of training



A few goats were found infested with ectoparasites during the goat health camp. One of the goat rearers wipes the kid with diluted ectoparasiticide, prepared by the SHG paravet

paravets and has also commenced a training component for goat rearers, who are regularly trained in implementing the 'goat rearing activity calendar'. This has ensured that activities like vaccination and deworming are carried out simultaneously by goat rearers in a village. The training of goat-rearers has also contributed to an increased recognition and value of the services of the SHG group paravets and the cluster paravet, thereby ensuring a viable income for these paravets, and sustainability of the preventive health care activities.

Livestock health and management

While PRADAN closely monitored the trends in health and management practices in goat rearing through the data collected by the SHG group paravets, a need was felt to strengthen monitoring and accountability through a 2-tier structure. This led to the introduction of the cluster paravet concept. Also referred to as cluster *munshi*, the responsibility of the cluster paravet comprises data collection of goat rearing households on a bi-monthly basis. This is in addition to the data collected by the SHG group paravets, which focuses on the health care services provided to the goats. The cluster paravet monitors the activity of SHG group paravets, supports them during vaccination drives and assists in the castration of inferior quality bucks. S/he also coordinates the procurement of vaccines and medicines both from the government dispensary and from private dealers in neighbouring districts and delivers these medicines and vaccines at the door-steps of SHG group paravets. Decisions regarding procurement of vaccines, medicines and other inputs are however taken collectively by all the SHG group paravets. Recently the role of the cluster paravet has also been extended to mentoring newly inducted SHG group paravets.



A goat rearer displaying the Mifex solution, a multi-mineral mixture fed to pregnant and lactating does

Livestock Nutrition

Grazing in the surrounding forests was the only source of nutrition for the goats and a need was felt for providing additional nutritional supplements especially to the buck and pregnant and lactating does. The ready-made nutritional supplements provided to these goats had shown positive results in term of improved resistance to diseases and healthy looking animals. The supplement however was too expensive for goat rearers. PRADAN in consultation with goat rearers explored the possibility of preparing the nutritional supplement using locally available material and crop residues. The company, Maple Org Tech (India) Ltd, which supplied nutritional supplements for livestock was contacted and after considerable negotiation the company agreed to supply only the EM solution which was used for the preparation of the nutritional supplement commonly called *Bokashi*. A considerable effort was made by PRADAN to convince the company to supply only the EM solution. It even required facilitating field visits for company representatives to observe and understand the



Goats being fed with dry arhar pods and rice water

efforts put in by the SHGs to make the goat rearing model a success. As opposed to the readymade nutritional supplement that costs Rs 80/kg, the locally made alternative costs only Rs 18/kg and is used by all the goat rearers. It is also made by the cluster paravets, providing them with an additional source of income, and therefore likely to sustain beyond project support.

Livestock Insurance

During the initial years of PRADAN's goat rearing initiative, a goat insurance scheme promoted by two insurance companies was introduced on a pilot basis with a few goat rearers. The experience however was very negative since in spite of regular follow-up, claims for dead goats were never settled by these companies. The Unnatipath Federation is therefore planning to introduce its own insurance scheme whereby each goat rearer will contribute Rs 20 annually to a common insurance fund and if a goat dies in spite of regular vaccination and prescribed management practices, the goat rearer shall be reimbursed the full cost of the goat. Monitoring will be done by the cluster and group paravets, who will be consulted prior to reaching a decision regarding reimbursement.

Outcomes and Impact

PRADAN's goat rearing interventions in the district of Kandhmal, Odisha, were designed with the twin objectives of increasing household income from goat rearing by reducing mortality and morbidity, 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% and 15% from the earlier 25% and 50% respectively. In view of the reduction in mortality and morbidity on account of regular vaccination and deworming, goat rearers are willing to now pay for these services. Regular training and knowledge dissemination to both paravets and goat rearers is a major factor that has led to the adoption of improved rearing and management practices, and has contributed to an increase in the number of households taking up goat rearing. The SHGs and their federation demonstrate an institutional framework to collectively access inputs to 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 upscale their existing goat rearing enterprise but also 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 which has emerged as 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 cluster paravets will be further groomed to individually take-on the training of newly inducted paravets and goat rearers. This will also be a source of additional income for these paravets. It is envisaged that 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, whose eggs and meat is generally consumed within the home. Many goat rearing families exchange poultry birds in lieu of cash for the services provided by the paravets. During recent SHG meetings, many members have 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, deworming, proper housing and feed supplementation for the poultry birds.



Pushari Digal, President of the Unnatipath Federation with her goats



ANNUAL ACTIVITY CALENDAR

Goat rearing activity	JANUARY	FEBRUARY	
Shed/ Enclosure for Goats			<ol style="list-style-type: none"> 1. Liming of shed 2. If required, fresh laying of the shed floor with soil and dung mixed with gammexine after scraping the previous flooring¹.
Health			<ol style="list-style-type: none"> 1. Enterotoxemia (ET) vaccination to goats. 2. Gradation / evaluation of goat rearing group members based on the data collected regarding their goat herd². 3. Castration of bucks³ 4. Deworming with ivermectin.
Feed			<ol style="list-style-type: none"> 1. Collection and drying of leaves/pods of pigeon pea (<i>arhar</i>), black gram and other pulses. 2. Preparation/ supply of <i>bokashi</i>.
Marketing/ SHG Meetings			<ol style="list-style-type: none"> 1. Selection of new members in the goat rearing groups. 2. Weighing and selling of goats after feeding them on <i>bokashi</i>⁴

¹ Activities listed in the calendar are implemented over a period of two months to ensure adequate monitoring and handholding support to enable goat rearing households to successfully adopt these activities.

² Gradation/ evaluation of goat rearing members is carried out against the four main activities – shed upkeep, health, feed and marketing. Each activity has 10 questions against which each member rearer is graded. Members scoring less than 50% in any activity are made to undertake a refresher training and a thorough review by the SHG.

³ Most kidding takes place during the months of August and September. Castration of unviable bucks is therefore undertaken in February. Castration is not practiced during the monsoon months from June to September.

⁴ Prior to sale, goats are fed on *bokashi* for 15 days which helps in weight gain.

Goat rearing activity	MARCH	APRIL	
Shed/ Enclosure for Goats			<ol style="list-style-type: none"> 1. Spraying of a suitable ectoparasiticide in sheds and enclosures for goats. 2. Thatching of the shed roof⁵.
Health			<ol style="list-style-type: none"> 1. Conducting health camps in all villages including operating abscesses, horn cutting, tick and lice treatment. 2. Feeding goats on jaggery mixed water twice a day⁶.
Feed			<ol style="list-style-type: none"> 1. Feeding supplements to does and weak animals. 2. Preparation and supply of bokashi. 3. Collection of dry leaves from the surrounding forests⁷.
Marketing/ SHG Meetings			<ol style="list-style-type: none"> 1. SHG Meetings and audit of cluster, SHG and member accounts⁸. 2. Goat sale⁹.


⁵ This is to protect goats from heat stroke during the peak summer months of April and May.

⁶ During the months of April and May there is not enough water in water bodies in the forests.

⁷ The month of March marks the leaf-drop season in deciduous forests.

⁸ While account keeping is regularly done during the monthly SHG meetings, an annual audit is carried out in March to assess any defaulting SHG members. Defaulters have to pay their outstanding dues by June when the accounts are closed after due verification.

⁹ Most social functions like marriages are held during the months of April, July and December. There is a higher demand for goats at this time, and therefore opportunities for increased incomes for goat rearers.

Goat rearing activity	MAY	JUNE	
Shed/ Enclosure for Goats			<ol style="list-style-type: none"> 1. Repair of goat-shed including the raised platform to ensure good ventilation. 2. Liming and re-flooring if required with soil and dung mixed with gammexine¹⁰.
Health			<ol style="list-style-type: none"> 1. Deworming with fenbendazole. 2. Vaccination against PPR and Goat Pox. 3. Castration of bucks.
Feed			<ol style="list-style-type: none"> 1. Nursery preparation for planting of fodder trees and grasses such as <i>subabool</i>, <i>gliricidia</i>, <i>napier</i> and <i>miscanthus</i>. 2. Preparation / supply of bokashi.
Marketing/ SHG Meetings			<ol style="list-style-type: none"> 1. Purchase of does and good quality bucks. 2. Exchange of bucks among SHGs¹¹. 3. Payment of outstanding dues by defaulters and review of members¹².

¹⁰ Shed repairing is done on a larger scale prior to the onset of the monsoons.

¹¹ Bucks are exchanged every year to avoid inbreeding. Preferably the bucks of one SHG from a village are exchanged with the bucks of another SHG in a different village.

¹² SHG members are reviewed / graded based on their credit history for future reference in disbursing loans from SHG funds.

Goat rearing activity	JULY	AUGUST	
Shed/ Enclosure for Goats			Regular cleaning of shed by applying ash and spraying diluted ectoparasiticide.
Health			<ol style="list-style-type: none"> 1. Vaccination against FMD. 2. Administering an injectible liver tonic to goat herds. 3. Deworming with Livamisol, an injectible dewormer. 4. Constructing a boundary around the shed for goat kids.
Feed			<ol style="list-style-type: none"> 1. Planting <i>subabool</i>, <i>gliricedia</i>, <i>miscanthus</i> and <i>napier</i> seedlings. 2. Preparation / supply of <i>bokashi</i>. 3. Feeding cultivated green fodder to the goats (<i>napier</i>, <i>gliricedia</i>, <i>subabool</i> and <i>miscanthus</i>)
Marketing/ SHG Meetings			Weighing and sale of unviable bucks and other goats.

Goat rearing activity	SEPTEMBER	OCTOBER	
Shed/ Enclosure for Goats			Regular cleaning of shed by applying ash and spraying diluted ectoparasiticide.
Health			<ol style="list-style-type: none"> 1. Deworming with Livamisol, an injectible dewormer. 2. Constructing a boundary around the shed for goat kids. 3. Conducting health camps in all villages.
Feed			<ol style="list-style-type: none"> 1. Feeding goats on fresh <i>subabool</i> leaves 2. Preparation /supply of <i>bokashi</i>.
Marketing/ SHG Meetings			Weighing of goat/kids.

Goat rearing activity	NOVEMBER	DECEMBER	
Shed/ Enclosure for Goats			<ol style="list-style-type: none"> 1. Repair of shed and flooring with soil and cow dung mixed with gammexine. 2. Verification of the wooden fence around each shed for housing goat kids.
Health			<ol style="list-style-type: none"> 1. Castration of unviable bucks . 2. Deworming with fenbendazole/ albendazole.
Feed			<ol style="list-style-type: none"> 1. Preparation / supply of bokashi. 2. Feeding goats on green leaves and napier cuttings.
Marketing/ SHG Meetings			Buying bucks and does ¹³ .

¹³ There is no disease outbreak during the winter months (November to January). A preferred practice is the induction of new animals at this time. New members also join the SHGs and goats need to be purchased.

List of Abbreviations

BMGF	Bill and Melinda Gates Foundation
EM	Effective Microorganisms
ET	Enterotoxemia
FMD	Foot and Mouth Disease
GP	Gram Panchayat
IVRI	Indian Veterinary Research Institute
NBAGR	National Bureau of Animal Genetic Resources
NGO	Non Government Organisation
NRTT	Navajbai Ratan Tata Trust
NTFP	Non Timber Forest Produce
OTELP	Orissa Tribal Employment Livelihood Programme
PPR	Peste Des Petits Ruminants
PRADAN	Professional Assistance for Development Action
SHG	Self Help Group
SRI	System of Rice Intensification





Disclaimer: The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of the National Dairy Development Board of India (NDDB) and the Food and Agriculture Organisation of the United Nations (FAO) concerning the legal status of any country, territory, city or area or its authorities, or concerning the delimitations of its frontiers or boundaries. The opinions expressed are solely of the author(s) and do not constitute in any way the official position of the NDDB or the FAO.

Reproduction and dissemination of material from this study for educational or non-commercial purposes is authorised without any prior written permission from the copyright holders, provided the source is fully acknowledged. Reproduction of material from this study for resale or other commercial purposes is prohibited without prior written permission from the copyright holders.

Photo Credits: PRADAN, Balliguda, Odisha and SA PPLPP



Suggested Citation: SA PPLPP (2013), "Collective Action to Reduce Goat Mortality - A Case Study of interventions supported by PRADAN in District Kandhamal, Odisha"

© SA PPLPP (<http://saplpp.org/copyright>)



SOUTH ASIA Pro Poor Livestock Policy Programme

A joint initiative of NDDB and FAO

Regional Office:

NDDB House (6th Floor), PB 4906, Safdarjung Enclave

New Delhi - 110029, INDIA

Tel: +91 (0) 11 2619 7851/7649, E-mail: sapplp@sapplp.org

Website: www.sapplp.org