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Concept Note

Livestock pathway for livelihood improvement in the tribal areas of Jharkhand

(This concept note was evolved through a consultative process involving different stakeholders in the livestock sector in Jharkhand. The process was facilitated by the International Livestock Research Institute (ILRI) and supported by CInI)

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1. Background

Livestock are integral part of farming system in India. The livestock sector is socially and economically very significant in the country due to the multi-functionality of livestock performing output, input, asset and socio-cultural functions. This sector is adding value to the tune of Rs 131 thousand crore (4.2%) to the country's GDP (in 2007-08 at 1999-00 prices), contributing over one-fourth (25.6%) to the agricultural GDP and providing employment to more than 20 million people in principal or subsidiary status (Smita and Chauhan, 2009).

Given its high income and employment generation potential, the development of the livestock sector for the improvement of livelihoods has been undertaken by the Sir Ratan Tata Trust (SRTT) in the under privileged states of Uttarakhand, Jharkhand, Arunachal Pradesh, Mizoram, and Nagaland with particular focus on tribal and other marginalised groups. The International Livestock Research Institute (ILRI), technical partners in the SRTT venture will be developing a long term proposal for the programme of Enhancing Livelihoods through Livestock Knowledge Systems (ELKS) in the selected states.

This concept note developed after a sector analysis (Smita and Chauhan, 2009) based on secondary information, a stakeholder consultation and working group discussions provides empirical inputs for formulation of evidence based livestock investment strategy in the state of Jharkhand.

2. Livestock sector in Jharkhand

The State of Jharkhand has a total geographical area of 74,677 km². The human population of Jharkhand is 26.9 million (2001 Census) and average population density is 338 persons per sq. km. Jharkhand is home to about 31 tribal groups that make up about 28 per cent of the state's population and 8 per cent of the Scheduled Tribe (ST) population of India. The major tribal districts in the state are in the South & south-western parts (Simdega, Gumla, West Singhbhum, Lohardaga, Latehar, Ranchi, Saraikela-Kharsawan and East Singhbhum) and in the North eastern parts (Dumka, Pakur, Jamatra and Sahibganj). The proportion of tribal population in these districts ranges from 28 percent in E. Singhbhum to 70 per cent in Simdega. Jharkhand also has a sizeable population (12%) of the Scheduled Castes (SCs) that are largely concentrated in the northern and central districts of the state (Chatra, Palamu, Garwa, Dhanbad, Hazaribagh, Koderma, Bokaro, Girdih and Deoghar). The tribal district of Latehar where ST population was 45% also had high proportion (21%) SC population.

The agriculture sector (including livestock) contributes 12 percent of the state GDP (TE 2005-06). As the proportion of barren, waste and fallow land is very high in the state, the net sown area is only 22 percent of the total geographical area. The cropping intensity is very low as only 3% is sown more than once a year with the remainder used only for mono-cropping. Agricultural production is carried out predominantly under rainfed conditions as irrigation coverage is limited to only about 9% of the net sown area.

The livestock sector in Jharkhand contributes 27% of the value of output from agriculture and allied activities. The main features of the livestock distribution across land-holding categories are:

- Higher stocking rate of male draught cattle on larger holdings (>2.00 hectare) .

- Indigenous milch cows are reared by all the categories of farmers.
- Stocking rate of milch animals (cows + buffaloes) ranges from 1000-2500 per 1000 small and marginal farmers indicating the importance of dairying for these farmers.
- Small ruminant and poultry dominate the composition of livestock on holdings of landless, near landless, marginal and small farmers.

The high incidence of poverty in Jharkhand has its roots in low agricultural income due to poor productivity levels but very high dependence of workforce on agricultural sector. The occupation distribution of the workforce shows that 78% of the rural workforce is dependent on agriculture sector for employment and within agriculture sector, about 42% are working as agricultural labourers having limited and low income opportunities.

The composition of livestock and poultry across social groups shows that ST, SC and OBC have higher proportion of small ruminants and pigs (23-27%) in their stock than the higher castes (Social group others). Overall, about 37% of the small ruminants and pigs in Jharkhand are owned by ST/SC households and another 48 percent by the other backward castes.

Apart from social and institutional issues, the breeding, feeding, health care and management practices followed by the livestock keepers have important bearing on the production performance of the animals such as cattle, goats and pigs. The low yield levels result in very low income generation or in net losses from livestock rearing (Table 23). However, as the investment level and the out-of-pocket expenses are nearly negligible in the livestock production in the rural Jharkhand, the farmers continue to rear livestock for whatever small production they can get from them. By and large, livestock production absorbs the family labour and in the absence of alternate employment opportunities, it provides a source of employment to the rural households, who may actually be disguisedly unemployed in low income generating subsistence nature of production system. In this context livestock based interventions developed through participatory process of various stakeholders are likely to have high success rate in achieving its target of improving the livelihood status of the poor livestock farmers in Jharkhand.

3. Development interventions

3.1 Development of goatery

3.1.1 Goal: Enhancing Tribal Livelihoods through Goatery Promotion in Jharkhand

3.1.2 Key Objective: Establish Robust and Upscalable Model of Goat Rearing System for Tribal Livelihood

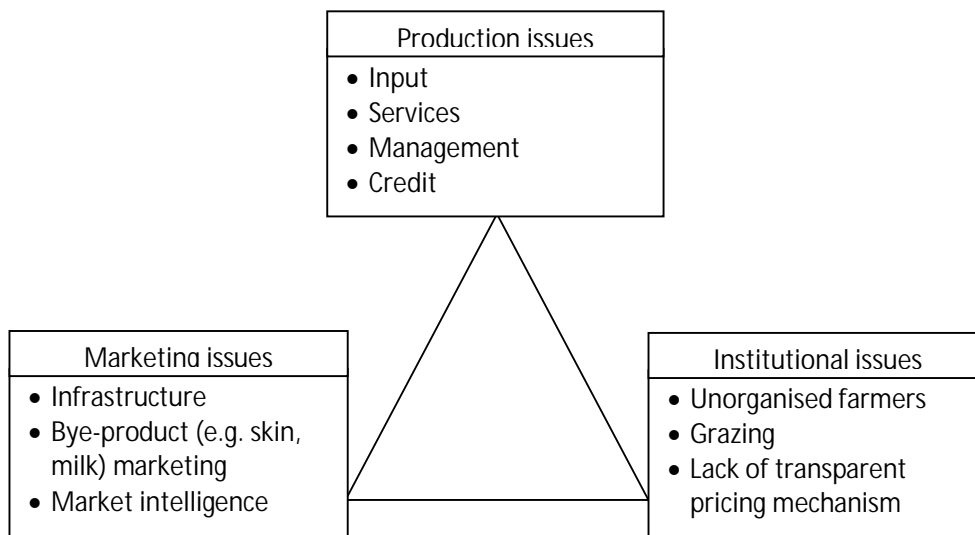
3.1.3 Introduction: Goat is a multi functional animal and plays a significant role in the tribal household economy and nutrition of landless, small and marginal farmers in the state. Because of various issues of access to infrastructure Goat rearing yet could not be evolved as an enterprise. Given the critical interventions goats can efficiently survive on available shrubs and trees in adverse harsh environment in low fertility lands where no other crop can be grown. In pastoral and agricultural subsistence tribal societies in the state, goats are kept as a source of additional income [buffer food security] and as an insurance against disaster. Goats are also used in ceremonial feasting and for the payment of social dues, hence culturally suitable to their environment. In addition to this, goat has religious and ritualistic importance in many societies.

Goats in tribal areas have been an integral livelihood resource for the community. Goats are the cash economy resource for the tribals, wherein in need of immediate cash they are sold and the needs

are met. Each household has on average 2-3 goats. However, traditional management practices and no timely health services have been always a problem in terms of supporting as livelihood of the tribal households. In Jharkhand specifically, goats form the integral part of farming system of the tribal communities and one of the key livelihood resource. The local breeds are reared by the tribals, mostly as open grazing because of availability of forest resources and wastelands.

3.1.4 Key Issues: There are various issues observed in terms of the goat rearing practices adopted by the tribals. These most of the times become severe enough to wipe out majority of animal population and create a major livelihood set back for the tribal communities. The major problems of goat rearing in Jharkhand are:

- Severe Genetic Erosion – due to the indiscriminate breeding and absence of elite bucks of good breeds, there has been severe genetic erosion, resulting in low weight at birth, poor growth and high susceptibility to various diseases.
- Poor Health Care – In the absence of timely vaccination, over 30-40% of the goats die from diseases such as Pest de petite ruminants (PPR), Enterotoxaemia and Goat Pox. Poor infrastructure for disease diagnosis and other facilities affect the survival. Various types of skin diseases are also common.
- Malnutrition: with the depleting natural resources, particularly the community pastures, there is severe shortage of fodder and feed, leading to poor growth. Goat rearing on free grazing land being an age old practice, the feeding through cultivated fodder, concentrate and mineral mixture is never seen. In absence of deworming, the growth is further stunted.
- Housing and Potable Water: poor housing facilities and shortage of drinking water may also affect the growth and productivity
- Marketing: There has been severe exploitation as the goat keepers in times of distress often sell their animals to local middlemen. In the absence of organized marketing, lack of information about the weight of animal and price for the produce, the goat farmers receive very low returns. Thus, the goat keepers tend to increase their herd size to enhance their income and face fodder shortage, thereby posing a serious threat to the biodiversity and environment.
- Transfer of Technology: while the traditional practices in goat rearing are too traditional and also vanishing, there are very few new technologies being introduced for benefit of poor goat farmers. The promotion of goat husbandry as livelihood source is very much limited in the Animal Husbandry Extension services. As the goat keepers stay in scattered and remote villages, there is no effort to either share traditional knowledge or to impart new knowledge for promotion.



3.1.5 Advantages and Prospects: With so many issues confronting the goat promotion as livelihood resource for the tribal communities, there are various prospects, which if considered systematically and in comprehensive manner could result in goat rearing becoming substantial livelihood resource. The key advantages and prospects of goat rearing are:

- (i) goat rearing requires low initial investment for rearing
- (ii) Goats utilize low quality feed resources that are not preferred by other ruminants. Requires meager housing and poses no management problems
- (iii) Effective use of CPRs while improving productivity and providing the manure to improve fertility of cropped lands through their droppings
- (iv) Risk of rearing in drought period is low compared to other livestock species, especially large ruminants
- (v) It is ideal for mixed species grazing, wherein they graze on thorny bushes, weeds, crop residue and agricultural by products
- (vi) No religious problems against slaughter and consumption of goat meat.
- (vii) Goat meat is low in cholesterol as compared to other red meat and relatively good for people who prefer low fat diet
- (viii) Goats are prolific breeders and achieve sexual maturity at an early stage of 10-12 months. The gestation period is short and they start giving milk at the age of 16-17 months. Twinning is very common and triplets and quadruplets are also recorded.
- (ix) Goat is a browser and on account of its prehensile tongue, it is able to graze on very short grasses and browse foliage normally not consumed by other ruminants

So considering these advantages and prospects, there is a strong need to promote a comprehensive developmental model of goat promotion, which could provide substantial income for the tribal households.

3.1.6 Present Models in the State: Being a tribal dominated state, as in most of the livelihood based interventions, goat rearing also has been undertaken traditionally wherein various issues pertaining to rearing and management could be seen. There has as such not been much focused approach towards goat promotion for livelihood enhancement in the state. Small scale interventions through the civil society organizations could be seen at various places. However an integrated and comprehensive approach towards promoting goat rearing as a livelihood intervention has not been in the state till date. A few models to learn, which have been initiated are as follows

BAIF Goat Promotion Model: BAIF, one of the known organizations in rural development has been implementing a goat development programme in West Bengal. The programme has been implemented in Burdwan district, which is adjoining to Jharkhand state and has similar socio-economic conditions. BAIF, Animal Husbandry Department and local NGOs have been involved in implementing the project, which had the following objectives: (i) to motivate goat keepers to organize themselves to adopt sustainable goat husbandry without damaging the ecosystem; (ii) to promote improved breeding through use of superior breeding bucks; (iii) to promote best practices for feeding, health care and housing; and (iv) to establish linkages with market for better price realization. Under this approach, the programme has been able to look at various aspects of goat rearing, which would generate quality livelihood resources for the tribal communities. Based on the example in West Bengal, BAIF has now started working in Jharkhand (Godda district) with replication of the approach. This project is just been initiated.

State Government Approach: It is been heard that state government has entered in agreement with a private firm from Kolkata towards promoting goat rearing as a business enterprise. The details of the same are not known and there is a need to understand in depth about this programme of the state government.

PRADAN Goat Promotion Approach: PRADAN focuses on the induction of new animals, better housing and veterinary care, especially immunization against certain well-known killer diseases like PPR (Peste des petits ruminants). Systems have been set up to procure and administer necessary vaccines in collaboration with government agencies. PRADAN assists poor women in goat rearing as a potential livelihood supplement. The programme enables women to obtain credit to buy goats and provide improved shelter and veterinary support. Training a cadre of para-vets to provide animal health care on a routine basis is also an important intervention. The programmes are implemented in clusters so that capacity building, veterinary support, and marketing can be taken up in a more systematic manner

There are other small scale interventions promoted by various organizations. There is a strong need to have an indepth analysis of the different models promoted in the state, especially the BAIF model, to get learnings and initiate the goat promotion programme.

3.1.7 Proposed Model of Goat based Livelihood Promotion: The present models being underway in the state have certain gaps such as intensive market linkages, institutional strengthening, strong extension networks, fodder promotion, etc. There is initially a need to study these models for further analysis of the gaps and build them in the proposed model.

In terms of the proposed model, the basic approach is towards looking at the same in comprehensive manner, wherein each and every aspect in goat promotion would be strongly looked at. The promotion would be in form of an enterprise, wherein the backward-forward linkages would be promoted systematically along with the institutional structure for sustainability of the enterprise. This integrated and comprehensive focus to take care at all the aspects of goat rearing for livelihood enhancement would form the model for development. The uniqueness would be integrating goat rearing within the farming system of the tribal communities, wherein proper management practices and availability of dual crops for food as well as fodder would be focused.

3.1.8 Targeting. In terms of outreach proposed under the model, it is felt that this should be initially looked upon as a pilot, wherein intensive involvement of different stakeholders would be the key. It is felt that the pilot needs to be demonstrated in different agro-ecological zones within Jharkhand and thus the plans are to undertake the pilot in 4 districts of the four regions, which are Santhal Parganas, Singhbhum, Ranchi and Hazaribagh-Palamau. Goat rearing is suitable as a livelihood intervention across the state. However, the statistical analysis across the state shows that it is mostly concentrated in few districts such as Deoghar, Palamu, Ranchi, Saraikela and Gumla. These districts show a fairly better status compared to others and be good potential for developing a comprehensive model for goat promotion. To initiate action on pilot basis, it is proposed that one block from each district in Singhbhum, Ranchi, Santhal Pargana and Hazaribag-Palamu regions be selected. The plans are to select a cluster of 10 villages in one block for each district. Within each village, the household selection would be done through a detailed analysis. The field locations, wherein CInI presently has its presence through the partner organizations would be given priority to initiate the model promotion

3.1.9 Pilot and Upscaling Strategy: The pilot would be implemented intensively with support for technology transfer, institutionalization, market linkages, extension services and other inputs. The roles of each stakeholder would be defined clearly, as is shown in the stakeholder matrix (3.1.11). The suggested plan is that in a five years programme frame to promote goat rearing, the first 2 years should be intensively focusing on demonstrating the pilot in the select villages (40 villages in 4 blocks of 4 districts of 4 regions of Jharkhand). This intensive piloting across the different locations would generate a lot of learnings, which would be documented systematically. The learnings should be cross shared during pilot stage and improvements would be brought in pilot stage. The two years of piloting would generate quality results and learning, which would be then brought in the next phase of upscaling the strategy to newer areas. This upscaling would be done in systematic manner, by consolidating in the same project blocks by adding new villages and also pilot in new districts. The upscaling would be defined in the 5 years programme, which would be undertaken through the partners. This would generate a good outreach to showcase the efforts to mainstream players and further expand the same on large scale across the state. The mainstreaming would definitely happen through partnership with the state government, as it would require tremendous human and financial resources. The strategy would be defined accordingly in the following stages

- Piloting – 2 years in 4 locations with 10 villages in each location, covering about 300 hhs in each location
- Upscaling within programme – Year 3 onwards for 2 years, consolidating with 10 villages within same location and scaling in 3 new districts with 5 villages each
- Mainstreaming – in last year with strong support from the government machineries

Components proposed within the pilot are breed improvement, training and capacity building of community members and partners, extension services for medicinal, breeding and feed support, fodder development (pasture development through agroforestry and fodder dual crops), institutionalization (backward-forward linkages) and market linkages. All these aspects would be critically implemented and documented for learnings to be considered in upscaling mode.

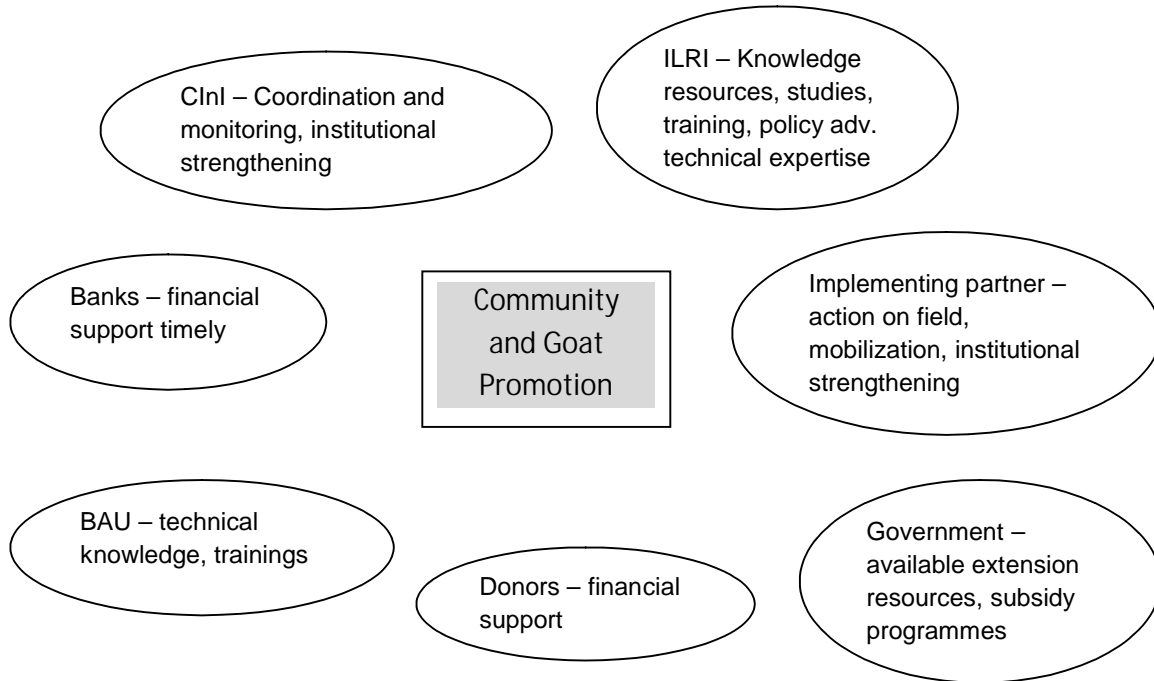
3.1.10 Innovations: The proposed programme would also include innovations, which would be field tested and refined for further upscaling. These innovations would be promoting dual crops, which could provide both food to hhs and fodder to animals, service provider promotion for quality services to the rearers, artificial insemination, low cost housing for goats, etc. These innovations would be worked out strongly in terms of defining the process and then bringing in action to ensure that they are sound for taking further. There would be regular additions to the innovations while the programme implementation.

3.1.11 Stakeholders Matrix: There are various stakeholders, which are important in this programme. The various players important in the programme are community, implementing partners, support institutions (technical and managerial), donors, banks (NABARD and local banks), government and individual experts. Each stakeholder would have a defined role and the role would also vary in the different stages of pilot, upscaling and mainstreaming.

In the pilot stage, the role of following members would be important: (i) community (preferably women members); (ii) implementing partners (at 4 locations); (iii) CInI to play the coordinating role and monitoring support (programmatic and financial); (iv) ILRI to play the knowledge resource provision support role, wherein they bring the expert knowledge, resources and training inputs; (v) BAU for the technical knowledge resource; (vi) banks for the financial linkages; (vii) government for extension services; and (viii) donors for piloting the innovation.

In the upscaling stage, it would be again the same stakeholders, but the role of implementing partners, CInI, ILRI and government would increase substantially. The role of government would then become critical in terms of extending the infrastructure and other support such as subsidy and linkages with different programmes

Mainstreaming stage would have the main player as government and support from ILRI, CInI and implementing partners would be important.



The schematic diagram tries to show the centre being the tribal community and goat and the revolving important stakeholders playing their different roles

3.1.12 Expected Outcomes Goat rearing has always been like an immediate cash income for the tribal households. Most of this resource is used during distress situation for the households. The comprehensive approach towards looking at breed promotion and management, improved health services, quality human resource and institutional strengthening would to a large extent help in stabilizing the model of goat promotion for livelihood enhancement. It is expected that goat rearing would provide the households an additional income of about Rs. 20,000/annum along with quality institutional support to get the backward-forward linkages. At the end of five years, there would be substantial outcomes in terms of income enhancement of tribal communities along with the strong institutional back up for sustainability of the programme.

The suggested process and other technical aspects of the proposed project are given in Annexure1.

3.2 Piggery development

3.2.1 Goal: To establish a viable piggery model as a livelihood option for small holders of Jharkhand

3.2.2 Specific objectives:

- Establish a low cost and viable piggery model for adoption by small holders of Jharkhand as an livelihood activity
- Increase the income of 1000 small holder households during the pilot phase
- Develop a replicable prototype across the state over a period of three years

3.2.3 Background information

India possesses one of the largest livestock populations in the world which place a crucial role in rural economy and livelihood. Even at low productivity and off- takes rates livestock contributes significantly to economic development. Among the different livestock's, Pigs are believed to be the most prolific. In India, pig raising and pork industry are run by traditional pig farmers belonging to the lowest social – economic stratum and Jharkhand is no exception.

There are three different genetic groups of pigs available in this state. They are:

- T and D Pig,
- Pure and Cross breeds of Large White Yorkshire and
- Non- descript pigs of Jharkhand.

In Jharkhand Piggery is one of the most preferred and common livelihood activities adopted by schedule castes and tribes. It provides an additional income to the household. Pig meat better known, as PORK is preferred meat for all tribal people of the state. Hence there is a good market exist in state and outside the state. Majority of tribes have a number of pigs, which accounts for their wealth and assets .and traditionally pigs are reared as backyard piggery and are generally fed with marua and rice as major feed and kitchen waste etc. Pigs are generally slaughtered during festival seasons in rural areas.

Given the preference, knowledge and skills required for piggery development, the potential for making pig farming as an important source of livelihoods for small holders can be exploited by creating awareness among farmers about the scientific pig rearing and management, which will ensure gainful income as well as nutritional security to in the state . Though Piggery is commonly practiced in this state, there is a great demand of basic and scientific management technique along with proper and sustainable veterinary services at rural areas.

3.2.4 Rationale: why promoting pig farming

The advantages of the pig farming are:

1. The pig has got highest feed conversion efficiency i.e. they produce more live weight gain from a given weight of feed than any other class of meat producing animals except broilers.
2. The pig can utilize wide variety of feed stuffs viz. grains, forages, damaged feeds and garbage and convert them into valuable nutritious meat. However, feeding of damaged grains, garbage and other unbalanced rations may result in lower feed efficiency.
3. They are prolific with shorter generation interval. A sow can be bred as early as 8-9 months of age and can farrow twice in a year. They produce 10-12 piglets in each farrowing.
4. Pig farming requires small investment on buildings and equipments

5. Pigs are known for their meat yield, which in terms of dressing percentage ranges from 65 - 80 in comparison to other livestock species whose dressing yields may not exceed 65%.
6. Pork is most nutritious with high fat and low water content and has got better energy value than that of other meats. It is rich in vitamins like thiamin, Niacin and riboflavin.
7. Pigs manure is widely used as fertilizer for agriculture farms and fish ponds.
8. Pigs store fat rapidly for which there is an increasing demand from poultry feed, soap, paints and other chemical industries.
9. Pig farming provides quick returns since the marketable weight of fatteners can be achieved with in a period of 6-8 months.
10. There is good demand from domestic as well as export market for pig products such as pork, bacon, ham, sausages, lard etc.
11. Pigs convert inedible feeds, forages, certain grain byproducts obtained from mills, meat by products, damaged feeds and garbage into valuable nutritious meat. Most of these feeds are either not edible or not very palatable to human beings
12. With a small investment on building and equipment, proper feeding and sound disease control programme the farmer can profitably utilize his time and labour in this subsidiary occupation

3.2.5 Scope and industry status

The pig population of the country is 12.79 million as per the 1992 livestock census and 13.291 million as per 1997 provisional result of census from states and constitutes around 1.30% of the total world's population. The pork production stands at 4.20 lakh tonnes (1995). During 2001-02 the production of pork and pork products were estimated to be 612550 MT with 3.03% growth rate in last decade. If comprised, over 38% of the total world meat product Indian share in piggery meat production moderately increased from 0.53% in 1981 to 0.63 in 2002. The contribution of pork products in terms of value works out to 0.80% of total livestock products and 4.32% of the meat and meat products.

The contribution of pigs to Indian exports is very poor. About 934 tonnes of pork and pork products were exported during 1995-96. The value of pork and pork products exported is Rs. 262 lakhs against the total value of Rs. 61604 lakhs on account of meat and meat products export. The pig farming constitutes the livelihood of rural poor belonging to the lowest socio-economic strata and they have no means to undertake scientific pig farming with improved foundation stock, proper housing, feeding and management. Therefore, suitable models to popularize the scientific pig breeding cum rearing of meat producing animals with adequate financial provisions are necessary to modernize the Indian pig industry and to improve the productivity of small sized rural pig farms. (Herd Size-3 Pigs)

In view of the importance of pig farming in terms of its contribution to rural poor and possible potentials for pig rearing in our country, Government of India has initiated measures to promote the pig farming on scientific lines under its five year plans. The first step towards this direction is establishment of eight bacon factories and organization of pig production in rural areas attached to bacon factories. In order to make available good foundation stock, regional pig breeding stations were established for each bacon factory. Further expansion of pig breeding programmes paved the way for establishment of 115 pig breeding farms (1992-93) through out the country. 8.2% of total pig population of India is in Jharkhand. Growth trend of PORK is increasing rapidly. It offered a tremendous scope for generating large numbers of livelihood for rural household.

3.2.6 Pig rearing practices in Jharkhand

Breeding Practices: The pigs are bred through natural services, either with indigenous boar or a cross breed. Due to unsystematic breeding practices, the crossbreed pigs are not of such as large black cross or large white cross, etc, Generally only about 8% of household keep pigs for breeding purpose the other purchase 2-3 months old piglets and rear them for meat. Rich HH having sufficient feed resources kept the boar. It is fee based, cost usually Rs 50-150 per service.

Feeding Practices: Mainly pig rears feed pigs with kitchen waste. Feeding of purchased feed to pig is not popular. (It is because the strata that are in pig rearing haven't the financial resource, they don't know the quantity and also pig feed is unavailable at market. A large section of tribal population feed with the residue of Hariya (Rice Beer). Because of gathering sufficient feed people limit their herd size to 1-3 pigs.

Management Practices: Do not follow systematic practices. Swine flue is the major disease of pig in Jharkhand, for which vaccination support is not adequately available. Piglets are highly diarrhea and pneumonia. Infestation of pigs by internal worms and external parasites are also reported to be common problem. Periodic de worming is not done. Pig keepers are not aware of all the systematic practices.

Other general issues: The major population of pig in the country including Jharkhand is of native type. (Only 1.6% of total pigs are of improved variety) The production performance of native pig is very poor as compared to other exotic and crossbreds. Their efficiency of feed utilization is also low. Insufficient availability of quality stock is great hindrance in boosting pig production in the country. Following are the major constraints in Pig rearing activity.

- ❑ Though people of Jharkhand are traditionally rearing Pig, they lack scientific way of Pig rearing.
- ❑ No proper knowledge of balanced and vitamins diet required for Pig during and after pregnancy.
- ❑ Non-availability of quality and basic veterinary services at village level.
- ❑ Poor hygienic environment susceptible to more disease.
- ❑ Returns of pig rearing are very low, as 90% are with indigenous variety.
- ❑ Lack of proper marketing channels for Pork in the state.

3.2.7 Targeting

- Small and landless tribal household
- Part time earning for educated youth having agriculture as occupation
- Uneducated youth and Farm women

Though traditional and backyard pig rearing is well established across the state, but given the objective to establish a viable piggery livelihood model by introducing better breed and scientific practices, we propose that the pilot should be under taken with 200 HH each in Khunti, Ranchi, Dumka and Jamtara. The field locations to be given priority are proximity to BAU (who will provide the technical support for the initial period) and where CINI partners have a strong presence.

3.2.8 Proposed models of intervention

As a pilot intervention, we should encourage various institutional arrangements and forms of intervention by various partner agencies based on their core competency and needs of the local situation, but with the following bottom lines:

- The pilot intervention should establish a viable and profitable model of piggery development
- The intervention should establish the system of scientific cultivation of T & D variety
- The intervention should aim at facilitating credit, insurance and technical know how by provision of training to farmers during the pilot phase.
- The pilot intervention should not be seen as a grant driven /subsidy driven programme either to the implementers not the community so as to establish it as a viable and bankable livelihood opportunity
- The pilot should be able to develop a cadre of resource persons who can provide services locally and in a sustainable manner

The pilot intervention besides ensuring training, viability of good breed, providing better scientific know how, feed management , veterinary services will also look after the institutional arrangement for input and output linkages where needed .

Three of the institutional models can be explored in different clusters:

1. Organizing piggery farmers in the form of producer cooperative to facilitate all services
2. Develop piggery as a commercial enterprise
3. Develop a revenue sharing model

Access to credit, vet care services, training can be done in the form of SHG, JLG, or to individual entrepreneurs.

3.2.9 Expected outputs

The outputs expected at the end of the pilot phase are:

- ❑ Increase production and productivity of meat per animal, hence increase in income.
- ❑ Reduce mortality rate, improved health, create hygienic environment and quality output.
- ❑ Access to quality veterinary services enabling more households to adopt these livelihood opportunities, where sustainable livelihood is hard to come in rural areas.
- ❑ Establish a bankable , viable and self sustainable livelihood model
- ❑ Development a resource pool of Para-vets, successful farmers and trainers over a period of 3 years.
- ❑ Establish few models of institutional arrangement

3.2.10 Strategy: To mobilize enterprising farmers with some available skills on pig rearing, ensuring full participation on the line of investment by themselves.

3.2.11 Collaboration: The whole project will be done in collaborations of Implementing Agencies, BAU, CiNI Cell, ILRI, NABARD, Commercial Banks, MFIs and other private partners.

3.2.12 Outcome intervention: Expected outcome from the intervention are:

- ❑ More numbers of household would be attracted to livestock rearing activity
- ❑ Creating additional livelihood in and around the various activity of Piggery.
- ❑ By providing quality veterinary services to 1000 households, there is a scope for encompassing more number of households in Ag/BDS.

A producer's company came into further scaling up of piggery intervention in Jharkhand.

3.3 Dairy development

3.3.1 Introduction

The state of Jharkhand has an inherent constraint of a large proportion of low yielding non-descript cattle population along with scarcity of appropriate feeding resources. Of the total milch cattle population, about 83% is non-descript milch cattle, with a lactation yield ranging between 200-350 kg per year. The Government of Jharkhand (GoJ) published district wise data for the State for 2004-05 shows that 39.25 lakh milk-yielding bovines in the state produce 36.44 LkgPD of milk (which works out to less than 1kg milk per animal per day). The State has an average milk production per village of 124 KgPD as against the National average of 442 KgPD. Also; the density of milk production is 49 kg per square km in the state of Jharkhand as compared to 83 kg per sq km for the country. Further, the share of this business currently seems to be heavily tilted towards non tribal community.

Strategically the most suitable livestock based programmes which need to be promoted required to be based upon the suitability of area, orientation and skills of the people. Thrust of the initiative is to be on creating the conditions that will develop the potential for dairying for tribal community. Improvement in infrastructure, credit facility, motivating the villagers, training for scientific rearing and management practices are the primary requirement for dairy development. More fodder cultivation for dairy apart from creation of other linkages will also be required.

3.3.2 Rationale

Dairy is an important sector, which is less explored for Enhancing Tribal Livelihoods at Jharkhand. In pastoral and agricultural subsistence tribal societies of the state, Cattle rearing are mostly treated as a necessary fallback system for poor families constituting a cash reserve at the time of distress. People keep mostly draught animals for bullock carts and ploughing. Given the critical linkages in place, cattle can efficiently survive on available natural resources that the tribal household of Jharkhand are gifted with. Dairying creates employment to the rural poor besides effectively utilizing unpaid family labor. Availability of Milk at household level can address nutritional requirement in a tribal household which has become a matter of concern for the whole state. Finally, Jharkhand is hugely milk deficient state and the gap is increasing since Urbanization has grown many folds abruptly after the creation of the state. There is a huge untapped market to capture and ample scope for value addition.

3.3.3 Targeting

The core target population would be the tribal communities (preferably with adequate natural resource base) to take up Cattle farming as livelihood activity. Analysis of the secondary data on district wise cattle census and milk production published by GoJ together with the existence of major milk markets in the State suggests the following three contiguous clusters of districts where milk production is little advanced compared to other district of Jharkhand. The district and geographic units are as follows:

Jharkhand Central: Ranchi, Lohardaga, Ramgarh and Hazaribaag

Jharkhand NE: Giridih, Deoghar, Godda, Dumka

Jharkhand NW: Latehar, Palamu, Chatra, Garhawa

Keeping this in view GoJ and NDDDB has jointly started a project called Jharkhand Dairy Project which will take care of milk procurement, processing and marketing of milk in the coming five years in these districts. Hence the activity may be taken up in the above mentioned clusters in a phased manner

3.3.4 Production related issues

Capacity Building: Tribals in Jharkhand are not associated with Milch animal rearing activities traditionally. In some tribal communities, there are specific beliefs that go against the conventional practices of dairying. Awareness building, changing traditional mindset, promoting entrepreneurship and developing activity specific skill set in the target community is the primary challenge.

Quality of Animal: Jharkhand is broadly characterized by a large-scale dominance of local indigenous cows having very low yield (around 200-350 kg of milk per lactation) and a moderate number of buffaloes. Induction of quality animal and appropriate breeding program is key to increase the productivity and establish diary as a livelihood supporting enterprise at household level.

Animal Health: Mortality and morbidity of cattle is high when reared in unattended condition (Cattle hygiene, preventive vaccinations and health attentions are missing) Cattle has been treated as animal to be fed under open grazing system; investments are not made because of high mortality rate under unattended condition.

Integration and convergence: Land and water are two basic requirements for Dairying. Specifically for hilly terrain of Jharkhand, culture of water conservation and green fodder cultivation are very limited. Convergence is required through planful integration of watershed and agriculture program to arrange for Pasture land, water and fodder for the animals

3.3.5 Marketing Related Issues

Marketing : Due to lack of infrastructural facility combined with poor productivity and limited skill set associated with the tribal household, the operation at village level is a buyers' market dominated by middlemen and intermediary. And as a result they are compelled to face a low return.

Infrastructure Development: Infrastructural facilities including Physical connectivity, electricity and storage facility are vital for success of any commodity business, specifically for a perishable commodity like Milk. Limited availability of Infrastructural facilities at tribal pockets/clusters limits the efficiency of business processes including input supply, vaccination, processing and output marketing

3.3.6 Institutional issues

Institutionalization: There are 12 milk unions covering twelve districts of the state, of which five are functional, though operational viability of even the functional one remains to be in question. In absence of formal Collectives/producer institution, there is very little provision of organized credit, banking, animal health care services, insurance, and marketing options left for the milk producers.

Support Services: As of now, there are very few technically competent agencies for input linkage and technical services. Though DDD through Unions is offering this support to the producers, it falls short of requirement.

3.3.7 Stakeholders

A. Government Sector

The Department of Animal Husbandry (DAH), GoJ: The department has a wide network of infrastructural units across 22 districts in the state comprising 22 veterinary hospitals, 11 mobile veterinary dispensaries and 371 veterinary dispensaries. In addition, the DAH has around 750 AI centres, including those established under ICDP and KVS.

Directorate of Dairy development: Under DAHF the major decision making and implementation body regarding Dairy in the state of Jharkhand. Works through 12 district milk union, 6 Government Dairies.

COMFED managed milk-marketing dairies: There are three COMFED managed milk-marketing dairies at Ranchi, Jamshedpur and Bokaro with installed capacities of 60 TLPD, 100TLPD and 50 TLPD respectively.

B. Private organized sector:

Currently around 7-8 dairies operating (viz. Shyam Dairy at Ranchi, Dairy Fresh at Ranchi, Shuddh Dairy and Radha Dairy at Bokaro and Dhanbad, and Amrit at Jamshedpur) and Jharkhand Dairy (Nand) with combined liquid milk sales of 50 TLPD approximately.

C. Private informal sector:

Consist of a number of intermediaries and traders of different capacity who holds more than 70% of the milk business currently in the target area.

D. Non Government Organization:

BAIF Development Research Foundation: started its operations in Jharkhand in October 2005. It has already established about 125 Cattle Development Centres (CDCs) across 16 districts in the state. The organization has been undertaking comprehensive breeding-related activities and addressing infertility-related problems in the 12 districts since its inception.

PRADAN, BASIX, KGVK and some other organizations are working with different aspect of animal induction, financing, institutionalization and livelihood promotion through dairying in different geographical patches of the state

E. Jharkhand Dairy Project:

Jharkhand Dairy Project (JDP) came into existence as an autonomous and independent project for the purpose of dairy development in the State through a MOU executed between GoJ and NDDDB. Under the MoU, the management of the JDP has been entrusted to the NDDDB for an initial period of five years. The project would systematically takeover the procurement, processing and marketing operation of government dairies in a phased manner and work towards enhance milk production in the state by adopting a multi-pronged strategy by increasing the base of productive animals, improving their productivity through appropriate breeding and nutrition based interventions and encouraging milk production by providing a year round market to augment the rural income through dairying, besides making available quality milk to the consumers

3.3.8 Operational Model¹

Animal induction: for the target community through a combined purchase committee comprised of representative of DDD, NDDDB, ILRI and implementing NGO through individual bank loan. Induct an appropriate mix of crossbreds, buffaloes and indigenous breeds of cows based on the resource availability and the beneficiaries to maintain the milch animals.

Milk Procurement and organized marketing: Testing and payment finalization for the producer within the reach by placement of Automatic Milk collection Unit (AMCU) at a central location ensuring minimum availability of 200 LPD of milk: Establishment of Bulk Milk Coolers in the block/taluka level locations that are at a distance of 50 KM or more from the Government Dairy and collect more than 2000 LPD of milk: Milk collected to be received by the nearest government dairy: Individual Payment to be released in a cycle of ten days directly to the producers account in the branch that has provided the credit for cattle induction. Government dairies under DDD and JDP would work together ensures a fare and competitive price for the producers through organized bulk and retail marketing of milk and milk products.

Institution Building: Organization of Milk producer institutions (MPI) in village level by NGOs or extension agencies. These may be registered under MBT/cooperative company act in future.

Animal Health and breeding: Preventive veterinary health care services in the Project Area to be provided by Govt. veterinary dispensaries and BAIF. BAIF is already present in the proposed project area for breeding service to enhance coverage of animals under quality AI service to improve the genetic potential of the available animals.

Capacity Building: Skill building/training/extensions for milk producers, village level functionaries and the staff engaged in the operation may be organized by the concerned extension agencies in consultation with the DDD officers.

¹ Animal induction prototypes and institution Building will be dealt separately.

4 Collaboration Matrix (to be discussed with CInI & other collaborators)

No	Activity component	Lead organisation	Supportive Org	Geographical area & coverage	Resource mobilisation
1	Goatery model:				
1.1	-Institutional set up				
1.2	-Breed improvement				
1.3	-Feed development				
1.4	-Training/extension				
1.5	-Market linkage				
1.6	-Policy advocacy				
2	Piggery				
2.1	-Setting up of 2-3 bankable, sustainable institutional models (PC, CE, RSM)				
2.2	-Support for breed development				
2.3	-Health service delivery (Govt.+paravets)				
2.4	-Credit, insurance				
2.5	-Marketing linkages				
3	Dairy				
3.1	-Study on existing dairy based projects /programmes in the state to identify suitable entry points for strengthening them				
3.2	-Cross learning from Himmatthan's LPG federation model to strengthen the informal channel				
3.3	-Developing Need based programmes based on the above				

Annexure 1

Process and other technical details of goat development in Jharkhand

Suggested Process: Goat promotion has to be in form of a group based intervention, which gets institutionalized in form of an institution (cooperative, company or any other form) to take the development process ahead. As in case with the poultry promotion (shown by PRADAN), this could be developed on similar model, wherein the producer (mainly SHG members) and their institutional structure get organically dovetailed within each other. This would ensure quality backward-forward linkages and promote a strong model for livelihood enhancement. Some of the aspects to be kept in mind are that one professional (veterinary with expertise in goat) is required for one cluster as full time basis. Apart from him one professional right from the project initiation to take up selection of area, beneficiaries, making training module etc would be needed. Resource support to the team would be required on regular basis and this could be roped in through support from technical institutions such as ILRI, BAU, etc.

For this activity the goat rearing members would form a group in each hamlet and village (similar to the SHG system or within the SHG itself). In a village or hamlet the goat rearing members sits weekly (dedicated time for discussion in SHG meetings). This is a weekly meeting where the following discussion takes place.

1. Review of rearing practices of individual member of last week.
2. Review of performance of their Paravets of last week by the members. Supervisor fills the weekly progress report and cross checks the medicine spending with the members.
3. Discussion on accounts.
4. Discussion about purchasing and sale of Goats.
5. Cross visit of farms. Mainly the purpose of this meeting to discuss more about the goat rearing, analysis their performance by themselves, helping others, to know vaccination-medication status etc. Here in each village and in each meeting all the members of the hamlet go to cross check the goat and farming condition of any one member. Every week they do lottery so that no body get prior information of visit of her farm. This process helping lots in terms of maintaining hygiene and sanitation of the farm timely and regular day basis.
6. Support from the mother institution for backward-forward linkages and inputs from governing board as well as technical officers.

To develop Goat rearing as livelihood system, the following are essential:

1. Stall feeding practices- behavior change in feeding practices of the community
2. Control grazing- guided grazing every day for 2 hours
3. Regular immunization- as per monthly schedule
4. Growth card of kids- growth monitoring [weekly] till 6 months age
5. GSP – 30 unit = one GSP [trained as paravet]
6. Identify one group to agree on breeding hybrid buck and rearing them for larger marketing
7. Developing modus operandi for the use of fodder from agro forestry model
8. Pregnant goat care schedule development and its feeding program designing- in next two days and share with me
9. INC preparation and PNC care model and guideline

S.No	Step	Process
1	Area Selection	Adjacent to forest or availability of pasture lands
2	SHG Selection	Based on health, accounts, group behaviour & ownership etc.
3	Concept Share Meeting in SHG	Why goat rearing How it impacts over the rural community It's viability
4	Exposure and Training of all SHG Families	Visit to old rearing area for focusing on motivating, visioning & technical aspects. Details about the project.
5	Family Selection	Small and marginal land holding, available of space, poorest of poor. SHG selected beneficiaries based on interest, no multiple benefits etc.
6	Paravet /LRP Selection	Educated (8-10th), motivated towards community & their acceptance, trustworthy, technical knowledge about livestock.
7	Exposure and training of LRPs	Seven days Residential Training with technical Know-how in partnership with KVK/BAU
8	Motivation Training to Rearing family	One day vision cum motivation training at office level (why they want to rear, how they will get benefited, how they want to see their programme after some years)
9	Shed Construction	Design and layout, input arrangement through community Technical training for construction at village level. Critical factors- shed, floor, steps, door & windows etc.
10	Vaccine Arrangement	Before purchasing the goats all major vaccines (PPR,FMD,HS&BQ) should be available. These should be available as stocks on regular basis
11	Rearing	Technical training to family about the goat selection and management Purchase of female goats & vaccination. Purchase of male goats & vaccination and insurance
12	Refreshment	Refreshment and seasonal training to the rearers Medication and vaccination Documentation
13	Institutionalization	Promotion of Peoples Institution to manage the scale and promote the same as business enterprise with strengthening backward-forward linkages

Probable cost per household

A shed of 150 SFT would cost 15,000

A buck of betel or shirohi would cost Rs.2200-3000

She goat from local hats would cost Rs.800 to 1200

A unit should be of 10+1 = 11

A rearer should have a minimum target to have a level of 40-60 goats to support good livelihood

Each farmers should gradually convert their bari land in to food and fodder model to support control grazing and stall feeding

Black Bengal: Black Bengal is the only recognized breed of goat available in Jharkhand. It is one of the best breed in India due to its high prolificacy (4 ova), better reproductive traits, good quality meat and hide. The number of kid born in a kidding (litter size) is more as compared to other breed of India. The age of maturity is significantly less in Black Bengal than the other breeds. These traits help doe to produce more kids in her life than the other breeds. But due to smaller size of body, the quantity of meat produced by males of this breed does not fetch a high economic return. To overcome this, improvement in body weight can be made by cross breeding followed by intrapopulation selection for utilizing additive genes and efficient management. Cross breeding can be done by using Black Bengal goat as female-line and Beetal and Sirohi as improver breed (male).

Conservation of native breeds

- Jharkhand has a good population of Bengal breed of goat, which needs to be conserved. Selection should be practiced for improvement. Inbreeding needs to be checked.
- Indiscriminate crossbreeding with other breeds should be resisted.
- State breeding policy on goat should be developed and breed improvement may be done following nucleus breeding policy in the villages.

Change of management practices

- Stall-feeding should be encouraged due to shrinkage of pastureland. Goats are often blamed of destroying natural resources which could be changed by adopting management practices.
- Fodder trees should be planted around the house. Scientific lopping practices should be practiced.
- Household available feed resources should be utilized for goat production.

Health care

- Anti-parasitic drug before and after monsoon should be administered specially in flood-affected areas.
- Vaccination of emerging and new diseases like PPR and FMD should be given.
- Kid mortality (0-3m age) should be reduced.

Marketing

- Slaughtering of young animal (before the age of 10 months) should be stopped.
- Organized marketing facilities should be developed.

Credit and insurance of landless and marginal farmers for goat farming should be started employing easy procedure. Awareness and training programme for scientific goat farming

Institutional Systems

Purchasing Committee: It involves two beneficiaries, supervisor and the SMS and looks after all the purchases made within the institution from material as well as goat purchase. Usually beneficiaries are told to buy two teeth goats as they are young and can add value to the farm and purchasing committee checks the goats once bought. Purchase is encouraged to be made from acquaintances and not from market. Also in purchases of farm related material this committee directly deals with the market or reviews the purchases made. SMS and Supervisor are there to assist technically. This equips the member to directly implement the project and also provides transparency. In purchases of Bucks too some of the community members are taken to the purchasing agency in Orissa to maintain direct linkage and transparency.

Selling Committee: Selling Committee has also been formed in first phase areas keeping future market relations in mind. The selling committee right now is not such an active group and just sees

the way transactions are being carried out right now. In future aim to make a committee of 22 members from phase I groups each having 2 representatives and a president will be chosen among them and that particular person will directly deal with the trader who comes to buy goats. This will be helpful in future as the number of goats will increase with scale of operation. This will provide negotiating power to get better prices for the beneficiaries.

In GAG discussion is done on farm management and health management. Also for each mating with Buck the GAG gets Rs 5 per mating as maintenance cost the Buck. Buck is usually looked after by the group as it is a joint property of the beneficiaries as money is not available for all members to purchase a buck. Every 5-7 families one buck is available. Also the purchase or sale of goat needs to be discussed in the GAG and only after discussion goats are sold by the beneficiary. This has been done to keep check on selling goats without any relevant reason and without good growth as it can harm farm strength in longer run.

Shed Promotion and Management: A goat shed recommended is of approx.150 sq.ft, having asbestos and transparent sheet for roof light. In the floor a bamboo machan (bamboo and wooden of 3-4 ft height), and a Windows covered with iron net, , Door, Concrete floor below machaan for ease in collecting urine and faeces, strings to tie goats, netted windows.

Farm Management

1. Cleaning the concrete floor everyday in the morning after disposal of goat for grazing.
2. Washing watering Tub everyday
3. Check the health status of each and every goat before release them for grazing. If problems occur inform the paravets within one hour.
4. Phenylation twice a week
5. White-washing inside walls every month
6. Grazing goats daily twice
7. Checking goats twice in morning and evening for diseases
8. Providing water 2 to 3 times daily
9. Collecting Excreta and Urine daily
10. For Sirohi and Beetal Buck at least few grams of maize being provided daily.
11. Keeping pregnant and sick goats separated from others.
12. Tying all goats with strings
13. Repairing farms annually

Health Management:

1. Clean and disinfect the goat shed.
2. Provide adequate ventilation in all season. In case of winter close the window in the evening.
3. De-worming goats at least thrice a year. (Before and after rain season most pertinent)
4. Vaccinate the goat in proper time (PPR and Enterotoxaemia along with Hemorrhagic Septicemia)
5. Take immediate care of sick goats.
6. Goat should not eat polybags.
7. Do not vaccinate goats during first two to three months of pregnancy.

Feed:

Generally goats eat various tree leaves like Mango, Ber, Bargad, Peepal, Pakar, Sakua etc. Fodder cultivation and feeding a mix with concentrate would help a lot in terms of production and management. Each hhs would need to be encouraged to go for fodder promotion and promote stall feeding of the goats.

Category	Feed	Provider
Buck and Goat	Barseem(Winter Season)	Agri-Horti Culture Self –Supporting Copperative(seed)
Buck and Goat	Subabul(All Season)	-----
Buck	Maize	Gumla Grameen Poultry Self-Supporting Cooperative Ltd.

Seasonal Management

Rainy Season:

- Do not graze openly in rain and apply stall feeding.
- Special focus on dry floor.
- Apply karanj and mustard oil on horns and hooves.
- If drenched in rain then dry up the goats.
- Special care on deworming (mostly whitish diarrhea occur after taking new grass in rainy season). This is one of the critical periods for goat.
- Burning something below the machan in the evening to get rid of mosquitoes.

Summer Season:

- Graze early in the morning and return by 11 am.
- Again graze around 2 pm.
- Keep windows open for fresh air.
- Goat should not eat dried Mahua. (if eaten then water should not be given).

Winter Season

- Cover windows to protect goats from cold.
- Do not leave goats for grazing early morning as moisture can be harmful.
- Apply karanj and mustard oil on horns and hooves.

The following Major Vaccines to Prevent Disease:

1. Pestedes Petits Ruminants (PPR)
2. Enterotoxaemia:
- 3.. Haemorrhagic Septisaemia:

Special attention during vaccination:

1. Avid vaccination during last trimester period (last 4 months of pregnancy)
2. No vaccination if animal is affected by any disease.
3. Kid below one month should not vaccinate.

De-worming of Kids:

Kids are more susceptible to endo parasites than adult animals.

Age	Drug	Dose
10 days	Binminth	½ tablet
1.5 month	Piperazine/ curaminth	250mg in 2 days
4.5 half months	Binminth	1 tablet
7.5 months	Phenovis	500mg in 2 days

It should be done once before and after rainy season.

Vaccination Chart:

No	Vaccine	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	De-worming	*				*				*			
2	HS & BQ				*								
3	PPR										*		
4	Enterotoxaemia	*				*			*			*	
5	FMD						*						

Age of Goat and dental Formula:

No. of Permanent incisor teeth present	Approximate Age
Nil	Under One Year
02	1 year 2 months to 2 year 2 months
04	2 years 2 months to 3 years
06	3 years to 4 years
08	Above 4 years

Special care Recommended:

1. Treat /disinfect the naval cord with tincture of iodine. This is not applicable always in our areas and with poor women. But members should know to provide heat to kid or use white clean cloth to rub the kid after parturition.
2. Care for giving mother milk as possible (Colostrums)
3. Providing heating facility in cold season.
4. Use of ectoparasiticide weekly or every 14 days interval to prevent from worm externally. This has to be taken seriously because only this causes brings anemia in kids which lead to death (common in all village condition)
5. Regular wash of floor.
6. Checking goats by hand before release for grazing. (Its very important for women to do this. Otherwise diseased animals get affected in sunlight or rain when free.)
7. Fodder cultivation for all families (lucern, Berseam or subabull etc)
8. Regular shed visit by paravet.
9. Different register at different level like producer book, weekly review book, monthly report book, medicine –vaccine register at village and office level.
10. Verification of performance of paravets by members weekly at GAG.
11. Weekly monitoring of paravets at office level by professional or SMS.
12. Castration age wise.
13. Management of buck by members.
14. Insurance.
15. Regular training to members at different aspects at village level.

Institutions organized around Beneficiaries:

Self –Help Group:

Usually the financial support for the beneficiaries is transferred in the account of the SHG and using minute book withdrawal is done as per requirement at the GLG. SHG also acts as an unit for identifying beneficiaries. SHGs also can be a GLG. The selection is done on various grounds such as interest of the family, availability of space, no other benefit under different scheme and social category.

Status at Gumla:

1. average body weight in 90 days-----9-10 kgs
2. average body weight in 12 months ----18-19 kgs
3. average body weight in 18 months-----24-27 kgs
4. Early Kids mortality-----less than 5%
5. Adult mortality-----2-3%

The advantages of goat rearing are:

- The initial investment for Goat farming is low comparatively.
- Due to small body size and docile nature, housing requirements and managerial problems with goats are less.
- Goats are friendly animals and enjoy being with the people.
- Goats are prolific breeders and achieve sexual maturity at the age of 9-11 months gestation period in goats is short and at the age of 15-16 months it starts giving milk. Twinning is very common and triplets and quadruplets are rare. However, tribal community of Jharkhand do not give much importance to goat milk, probably because of rearing in open grazing environment milk is insignificant. The importance of goat milk, however is known to these communities.
- In drought prone areas risk of goat farming is very less as compared to other livestock species, as goats adapt to such situation.
- Unlike large animals in commercial farm conditions both male and female goats have equal value.
- Goats are ideal for mixed species grazing. The animal can thrive well on wide variety of thorny bushes, weeds, crop residues, agricultural by-products unsuitable for human consumption.
- Under proper management, goats can improve and maintain grazing land and reduce bush encroachment (biological control) without causing harm to the environment.
- No religious taboo against goat slaughter and meat consumption prevalent.
- Slaughter and dressing operation and meat disposal can be carried without much environmental problems.
- The goat meat is more lean (low cholesterol) and relatively good for people who prefer low energy diet especially in summer and sometimes goat meat is preferred over mutton because of its "chewability"
- Goat milk is easy to digest than cow milk because of small fat globules and is naturally homogenised. Goat milk is said to play a role in improving appetite and digestive efficiency. Goat milk is non allergic as compared to cow milk and it has anti-fungal and anti bacterial properties and can be used for treating urogenital diseases of fungal origin.
- Goats are 2.5 times more economical than sheep on free range grazing under semi arid conditions.
- Goat creates employment to the rural poor besides effectively utilizing unpaid family labour. There is ample scope for establishing cottage industries based on goat meat and milk products and value addition to skin and fiber.
- Goat is termed as walking refrigerator for the storage of milk and can be milked number of times in a day; when goat is promoted as stall feeding/ controlled feeding conditions milking ability of Goat would be high and then goat milk can become a good source of child and maternal nutrition