



Pro-Poor  
Livestock  
Policy  
Initiative



Government of  
Andhra Pradesh



Proceedings of the workshops and consultations held at Mahboobnagar,  
Chittoor, Annavaram, Nalgonda and Rampachodavaram



Swiss Agency  
For Development  
and Cooperation



Capitalization of  
Livestock Program  
Experiences India

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This report is based on a series of workshops and consultations on livestock service delivery systems held in different districts and villages of Andhra Pradesh. The consultations and workshops were organized under the auspices of joint PPLPI-CALPI-AHD initiative to examine the effectiveness of livestock services delivery system in Andhra Pradesh by bringing together individual farmers, farmer groups, NGOs, students of Veterinary Colleges and functionaries of the Government by encouraging and facilitating an open dialogue. The project functioned under the overall guidance and supervision of a Steering Committee set-up by GoAP. Under the aegis of this project, five district and village level consultations were organized at various locations in Andhra Pradesh—Musapet in Mahbubnagar, Chittoor in Chittoor District, Annavaram and Rampachodavaram in East Godavari district and some selected villages in Nalgonda district. The purpose of these consultations was to bring together the farmer groups, NGOs, State and District level functionaries of the Government and encourage an open discussion on status of livestock services delivery and the need for reforms. The consultations were usually organized by District administration, facilitated by SMILDA, and guided and supervised by CEO, APLDA and Additional Director (AH), Production. The financial and technical backstopping support was provided by CALPI and PPLPI.

Drs MPG Kurup and NR Bhasin were Principal Consultants for the initiative. They, in partnership with SMILDA, prepared the draft reports on the workshops under the overall supervision and guidance of Dr. Vinod Ahuja, Associate Professor, Indian Institute of Management Ahmedabad, and PPLPI (South Asia) Team Leader. Dr. AK Joseph, Senior Program Coordinator, CALPI, Dr. Piedy Sreeramulu, Additional Director (Retd), Animal Husbandry, Dr. Ramalinga Raju, CEO (Retd), APLDA, and Dr. L Mohan, Director (Animal Husbandry Development and Fisheries) provided valuable inputs in the organization of meetings and by commenting on earlier drafts. Their observations significantly enhanced the conceptual and operational content of the report.

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## ABBREVIATIONS

AHC	Animal Health Centre
AH & VS	Animal Husbandry & Veterinary Services Department
AI	Artificial Insemination
AP	Andhra Pradesh
APLDA	Andhra Pradesh Livestock Development Agency
BQ	Black quarter
CALPI	Capitalization of Livestock Programme Experiences India
DIS	Disease Information Surveillance
DAH	Department of Animal Husbandry
DPU	District Project Unit
DVO	District Veterinary Officer
ET	Enterotoxaemia
FAO	Food & Agriculture Organization of the United Nations
GDP	Gross Domestic Product
HS	Hemorrhagic septicemia
IC	Inter Cooperation
ICAR	Indian Council of Agricultural Research
IVRI	Indian Veterinary Research Institute
PD_ADMAS	Project Directorate on Animal Disease Monitoring and Surveillance
PPR	Peste des Petits Ruminants
PPLPI	Pro-Poor Livestock Policy Initiative
NGO	Non Government Organisation
RD	Ranikhet Disease
SDC	Swiss Agency for Development and Cooperation
SMILDA	State Management Institute for Livestock Development Andhra Pradesh
VBRI	Veterinary Biologicals Research Institute



## BACKGROUND

Production and consumption of livestock products, the role of livestock, and the external and internal economic environment that affects the producers and the consumers across the globe are changing rapidly. In India, the livestock sector is emerging as one of the fastest growing sub-sectors within agriculture. The expectations are that this growth could further accelerate due to growing incomes and high income-elasticity of demand for livestock products. These developments open up new opportunities for enhancing rural incomes and accelerating the pace of poverty alleviation in India. But, successful capitalization of these opportunities requires a policy regime that facilitates growth in productivity at the farm level as well as in the processing sector. The productive potential of animals depends crucially on the quality of nutrition, genetic material and the animal health system, and, on all these counts, India has a poor record. Despite a number of initiatives since the early 1960s, the quality of animal health and breeding services remains poor. Public sector continues to be the main service provider with the services (intended) to be provided for free or with heavy subsidies. While the demand for these services is expanding rapidly, widening fiscal deficits and the increasing proportion of department budget spent on salaries, are contributing to the deterioration in availability and quality of publicly provided livestock services. It is increasingly becoming clear that the current model of service provision is not sustainable.

A series of studies by the Indian Institute of Management, Ahmedabad, recently examined the structure of demand and supply of livestock services in selected states—Gujarat, Rajasthan, Kerala and Orissa—and showed that subsidized services are not reaching the poor<sup>1</sup>. The studies further demonstrate that the poor are not passive recipients of these services. Instead, they are discernible consumers who demand quality services and are willing to pay for them. The studies produced convincing evidence to recommend a reorientation in the government's role in service delivery. These studies recommend:

1. pro-active involvement of non-government organizations and other stakeholders for sensitizing poor communities, training community based health workers for minor treatments, providing drugs and supplies on cost in areas where private distribution network is weak, providing extension advice related to animal husbandry including feeding practices and shelter innovations, etc.,
2. strengthening of public good services such as disease prevention and control, surveillance, sanitary control, food hygiene, monitoring and enforcement of food safety standards, and overall policy development.
3. creation of a conducive environment to facilitate the emergence of private veterinary practice in areas *where sufficient demand exists*, and

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<sup>1</sup> Ahuja, Vinod (Ed). 1999. *Workshop on Commercialization of Livestock Health and Breeding Services in India: Papers and Proceedings*, IIM, Ahmedabad; The World Bank, Washington DC; and SDC, Bern.

Ahuja, Vinod *et al.* 2000. *Agricultural Services and the Poor: Case of Livestock Health and Breeding Services in India*, IIM, Ahmedabad; The World Bank, Washington DC; and SDC, Bern.

Ahuja, Vinod and Arindam Sen. 2002. *Livestock Service Delivery and the Poor: Case of Rural Orissa*, IIM, Ahmedabad

more direct role for the government in relatively marginal areas with high poverty incidence, poor market access and generally low educational levels,

1. In addition, a number of alternative models have been tried in many parts of the country to provide animal health and breeding services to the poor farmers more effectively. Some of these include:
2. The milk producers cooperative societies, particularly those set up on 'Anand Pattern' provide animal health and breeding services at village level. The functionaries of cooperative-Secretary and helpers are trained in skill required for performing AI and Veterinary first aid. Veterinary graduates make periodic visits and attend to emergency calls.
3. In DANIDA assisted Livestock Development Project in Tamil Nadu, concept of 'Link Workers Couple' has been successful in providing veterinary first aid, vaccination, deworming of animals and fowls and deticking/delousing and popularization of no-cost/low-cost technologies like termite harvesting for poultry feed, pod feeding for small ruminants etc. These services are home delivered to farmers by LWC on service charge basis. LWC act link between farmers and veterinary surgeon/veterinary dispensary
4. 'Gopal' in Rajasthan and 'Gopal Mitra' in Andhra Pradesh have been employed to provide services. 'Gopal' a trained village youth in Rajasthan provides AI services at the door step of farmers on custom charge basis.

In the light of this background, CALPI (Capitilisation of Livestock Programme Experiences in India) Project of SDC, PPLPI (Pro-Poor Livestock Policy Initiative) of FAO and GoAP (Government of Andhra Pradesh) jointly modeled a project which initiated the process of reflection and assessment of the effectiveness of livestock services delivery system in Andhra Pradesh by bringing together individual farmers, farmer groups, NGOs, students of Veterinary Colleges and functionaries of the Government by encouraging and facilitating an open dialogue. The project functioned under the overall guidance and supervision of a Steering Committee set-up by GoAP. Under the aegis of this project, five district and village level consultations were organized at various locations in Andhra Pradesh—Musapet in Mahbubnagar, Chittoor in Chittoor District, Annavaram and Rampachodavaram in East Godavari district and some selected villages in Nalgonda district. The purpose of these consultations was to bring together the farmer groups, NGOs, State and District level functionaries of the Government and encourage an open discussion on status of livestock services delivery and the need for reforms.. The consultations were usually organized by District administration, facilitated by SMILDA, and guided and supervised by CEO, APLDA and Additional Director (AH), Production. The financial and technical backstopping support was provided by CALPI and PPLPI.

The consultations at Musapet, Chittoor and Annavaram, were structured in two parts: (a) a half-day participatory rapid appraisal in selected villages in the district by groups of professionals to study and review the present status of livestock production and services delivery and elicit farmers' perception on the types of reforms required and (b) a two-day series of interactive plenum and group discussions amongst the various stakeholders participating in the consultation to arrive at the consensus on recommendations. The consultations in Rampachodavaram and Nalgonda were of shorter duration and were focused on understanding the needs and problems of tribal households and sheep and goat rearers, respectively. Next section presents the proceedings of various consultations

## PROCEEDINGS OF CONSULTATIONS HELD AT VARIOUS LOCATIONS

### Musapet, Mahboobnagar

Preparations for village visits and subsequent discussions started one day ahead. A meeting of professionals from DAHD, APLDA, SMILDA, NRMPA, PPLPI, CALPI and the project consultants was held for this purpose. The meeting commenced with opening remarks from the CEO, APLDA and a briefing on the objectives, scope and layout of the Workshop by Team Leader PPLPI. (South Asia) Five Groups of the Officers of the Dept. of AHD, APLDA, SMILDA and PPLPI-CALPI Team were formed. The Group Leaders were provided with a Questionnaire for guiding their discussions during village visit. The questionnaire had two parts: part 1, dealing with basic statistics and attributes of the village; and part 2, dealing with livestock services delivery currently available to the village. Names of the selected villages and some village characteristics are given below:

Village	Mandal	Nearest Town	Distance from town (Km)	Category
Hajilapur	Deverkadra	Deverakadra	5	No Veterinary services except breeding bull
Nandipet	Addakula	Mahabubnagar	35	Gopalmitra
Kodgal	Jadcherla	Jadcherla	12	Veterinary Dispensary
Solipur	Khillaghanpur	Wanaparthi	19	Rural Livestock Unit
Konded	Jadcherla	Jadcherla	12	No Veterinary services provider

All Groups started village discussions on the early morning of the 17<sup>th</sup> and carried out the discussions over a five to six hour interaction with a cross section of the village communities comprising both men and women (dairy farmers, shepherds, backyard poultry farmers, women self help groups, velugu borrowers and land less labourers). All groups continued their separate internal discussions in the evening and prepared group reports and presentations for the plenum on the next day.

Five group presentations were made on the village visits in the plenum the next day. Each presentation contained a brief description of the attributes of the villages visited (Annex II, III, and IV). A summary of these attributes, the salient points of the presentations and the discussions each are presented in the following paragraphs.

All villages were accessible by motorable roads and had established schools (upper primary to High Schools). One village had a veterinary dispensary, one a rural livestock unit, one had a Gopal Mitra and two had Sangha Mitras (one of them had both: a Gopalmitra and a Sanghamitra). All five villages had telephone links and power supply. All villages had women's self help groups, often more than one (as high as 20 in one), functioning as thrift and saving societies and providing instant cash credit to their member households. The most critical issue for all villages was the scarcity of water for irrigation in varying degrees and therefore agriculture in all of them was rainfed. Three of the villages had Dairy Cooperative Societies, two had milk collection centres (unregistered societies) and all of them had milk traders operating in addition. Small ruminants were traded in the villages to visiting traders and to a lesser extent in the nearby Mandal Markets when local supply exceeded the demand. Sale in Mandal Markets was often a distress measure as traders operating in such markets often colluded among

themselves to keep the prices low. Three of the villages had sheep breeders' cooperative societies although none of these societies were involved in marketing aspects.

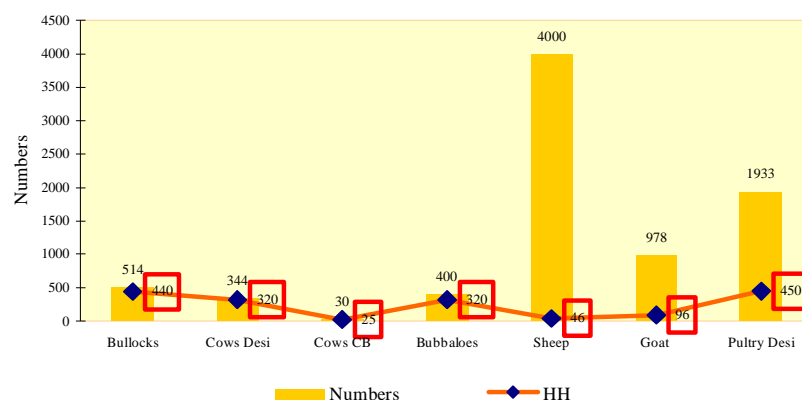
All five villages were well endowed with livestock of almost all economically important species. Sheep were the most preponderant species in all villages with widely varying individual holding size—smaller holdings of 10-20 head by marginal farmers and larger holdings of 100-250 by medium and large farmers. But, less than 10 per cent of the total households accounted for all sheep in the village. Backyard poultry made up entirely of desi fowls were the next in terms of population size, widely held by over 50-90 per cent of the households in the different villages. Average holding size of poultry varied between 2 and 15 birds. Milk production was the most important income generating activity in all villages: over 40-60 per cent of all households owning one milch animal (two rarely)—cows or buffaloes, or both—in some cases. There were also a small number of high yielding crossbred cows in the villages.

Work animals, predominantly male cattle and some male buffaloes, are owned by over 50 per cent of all households, average holding being one bullock and rarely two. Goats are few but widely held by a large number of households in all villages; even though goat farming is generally discouraged by the state government as well as the village communities, as they believe that goats degrade the ecosystem. The sole exception to this view was village Hazilapur, where the community resented the government imposed restrictions on goat farming as they were convinced that goat farming is far superior to sheep farming as a means of livelihood for them. Pigs were few and were owned almost exclusively by the socially weaker sections in all villages. A sample of the livestock numbers and households owning them specie wise in one of the villages is shown in Fig 1.

Except Lingampet-Kodgal no other village had a veterinary dispensary. Village Nandipet had a rural livestock unit. In case of the remaining three villages veterinary institutions were at distances varying from 3 - 10 Km. Livestock owners in villages which had veterinary dispensary or rural livestock unit had access to veterinary services, but animals had to be taken to the institution for availing of the services: veterinary as well as artificial insemination. Even in villages with veterinary institutions there were serious problems in the area of preventive veterinary care. Small ruminants and backyard poultry require vaccinations at frequent intervals, but even in villages with veterinary institutions vaccinations were usually confined to a single round in a year. Heavy loss of sheep and poultry to diseases were reported as a major problem in all villages. There were serious complaints about the poor success rate of artificial insemination in all villages. Even in Lingampet-Kodgal where there is a veterinary dispensary and where AI Services were available for the last 15 years, the total number of crossbred cows was only 30 out of a total cow population of 374.

Fodder availability in all villages was acutely scarce. Farmers tend to ration their home grown crop residues for optimum use: large ruminants receive priority for crop residues and milking animals in addition receive some supplementary feeding made up of a combination of home grown crop by-products like bran and purchased raw feed ingredients like oil cakes or solvent extraction meals. Work bullocks too receive crop residues regularly and some supplementary feeding (bran, solvent extraction meals) during the working season. Work animals are used only for a few days in a year (60-100) together for tilling as well as for transport. Arrival of tractors and tractor drawn farm implements in villages has gradually started to reduce dependence on work animals in all five villages. There is no cultivation of fodder crops in any of the five villages on account of water scarcity even though farmers are aware of the importance of feeding green fodder and also of the existence of high yielding fodder crop varieties.

Fig 1: Livestock Numbers & Holding: Villages: Kodgal - Lingampet



Source: Village PRA on 17.12.200

Livestock farmers in all villages were keen on acquiring skills and technologies for improving incomes from their household livestock enterprises. There was high demand for village level skill training as well as for off village exposure visits and classroom training for knowledge acquisition. Door delivery of livestock services, particularly AI was an often repeated demand of livestock farmers in all villages. In addition, farmers were keen to have sustainable village based mechanisms for home delivery of basic livestock services (like veterinary first aid, deworming, deticking etc.) which they need constantly for the day to day management of their livestock and backyard poultry enterprises. They were willing to participate in setting up such mechanisms as community driven operations. All five village communities were willing to pay for such services.

The plenary session also enabled Farmer Leaders and Farmer Organisations to share their experiences with the workshop participants on issues related to collective action for marketing of livestock produce, product quality standards, pricing of products, technology transfers and services delivery. President of the Mehbubnagar Sheep Breeders' Association emphasised the need for sheep breeding societies entering live animal marketing for meat in order to ensure fairer terms of trade and quality based price setting for meat animals. He also suggested initiation of capacity building programmes for sheep breeders (breeding and management of sheep) with the help of the state department of animal husbandry. The need for preserving/improving common grazing lands for small ruminants in villages through joint forest management was considered by him an essential requirement to support livelihoods of the sheep breeders. The chairman of the Mehbubnagar Milk Union advised the milk producers to directly deal with dairy cooperative societies instead of through middle men in the matter of milk supply to the society, in order to safeguard the original quality of the milk supplied by them. The chairman also wanted greater participation of members in the day-to-day management of their societies to ensure things like daily quality testing of every sample of milk poured in the society. The milk producers were however agitated by the extremely low prices paid by the cooperative societies, compared to the private trade.

Both the Milk Union Chairman and the President of the District Sheep Breeders' Association wanted their organisations to initiate independent livestock service delivery mechanisms outside of the government as support to production by their members.

This session also witnessed a presentation on the origin and evolution of livestock services, their economic classification and their delivery by Prof. Vinod Ahuja, Team Leader PPLPI (South Asia).

Farmer representatives intervening in the discussion asserted that there is total neglect of desi fowls in the backyard units even though a single hen has the potential to give the farmer an annual return of Rs.1000 without any out of pocket expenses, provided basic services like first aid and timely vaccinations can be made available. There were also complaints from the participating farmers that because of the lack of preventive veterinary care heavy mortality among the backyard poultry in all villages is a common feature.

Following the plenary session, participants were again regrouped into five new groups to discuss issues identified during the village visits and plenary presentations and discussions. Each group was assigned a separate theme for group discussion as shown below

1. Animal Health Services Delivery;
2. Breeding Services Delivery;
3. Improving Feed and Fodder Availability;
4. Improving Access to Credit, and
5. Marketing of Livestock and Livestock Products.

The Groups met and deliberated on the themes entrusted to them and presented their reports in the plenary next morning. A summary of presentations and subsequent discussions are summarised below.

### **Animal Health Services**

While access to livestock services in villages where veterinary institutions exist was assured, farmers resented the need to take their animals to the institution for availing of the services as it costs them money and time. Farmer representatives participating in the Workshop pointed out that veterinary institutions in villages often did not receive supplies of medicines and consumable for treatments, except for a token supply annually. Therefore they recommended that government employed veterinarians and livestock assistants should be allowed to home deliver veterinary and AI Services along with all required medicines and consumable. A large majority of farmers expressed their willingness to pay for the medicines and services.

As basic services like first aid, vaccinations and deworming are constantly needed in the day to day management of their livestock enterprises, it was emphasized that there is need to set up community driven, village based livestock service delivery systems outside of the government (like Gopal Mitras). Farmers are willing to pay for the services of the community service provider.

The Workshop recommended that as the institution of Gopal Mitra has already been introduced in Andhra Pradesh Villages and as they are found to be effective in home delivering minor veterinary services and AI, establishing Gopal Mitras for a cluster of adjoining villages would be a good solution to livestock services delivery at the grass roots level. However, there is need to streamline the concept of community livestock services provider to one single model. As Gopal Mitra has emerged as a successful model, all agencies and projects in Andhra Pradesh should draw lessons from this approach.

As a measure for the sustainability of the Gopal Mitras and for their integration in the village communities, it was recommended that Gopal Mitras should themselves be livestock farmers and as far as possible should be selected from among young livestock farmers (both men and women). They will then have independent incomes as livestock farmers and additional incomes from their services delivery. It will also ensure complete integration of the arrangement with the village community.

As there was considerable variation in the performance, output and earnings among existing Gopal Mitras, it was recommended that a comprehensive study be carried out on the technical, social and economic dimensions of the system to help redesign the approach, structure and training of Gopal Mitras. It was also recommended that CALPI-PPLPI should take up this study in consultation with the APLDA and the State Government.

Farmer representatives in the workshop emphasised the need for well planned and comprehensive preventive veterinary care in villages for loss reduction and risk minimisation and recommended a participatory preventive veterinary care programme in AP villages, with cost sharing between the state and the livestock farmers. They also emphasized the need for strengthening regulation to ensure the quality of medicines in the market.

The group assigned this theme also discussed the issue of responsibility and financing of various types of health services. The recommendations emerging from that analysis are given below

#### Roles and responsibilities for delivery of animal health services

Type of service	Who should provide	Who should pay
First Aid	Community/link Worker	Farmer
Special Treatment	Private (Government in marginal areas)	Farmer (some cost sharing may be required for marginalized groups and areas)
Vaccination	Community/link worker/Private	Farmer (except in case of contagious diseases)
Medicine Supply	Private	Farmer
Deworming	Community Worker/Farmer	Farmer
Quality Control	Government	Government
Quarantine, Disease Control & Public Health	Government	Government
Sanitation and Disinfection	Farmer/Community	Farmer/Community
Training Programmes	Government/NGOs	Government/Farmer/Community
Extension Programmes	Government/NGOs	Government/NGOs
Disease Diagnosis	Government/Private	Government/Farmer
Disease Surveillance	Government	Government

#### Breeding Services

Farmer representatives participating in the workshop confirmed that door delivery of AI has considerably improved AI success rates (pregnancies) and therefore recommended that door delivery of AI should become the standard practice for AI Services in AP. They appreciated the services of the Gopal Mitras and recommended that incentives to Gopal Mitras for quality output should be considered to encourage them in their practice.

There was concern about the absence of breeding services in poorly endowed areas where AI is normally not promoted by APLDA/DAH and the Group therefore suggested introduction of good quality breeding bulls for natural service in such areas.

As a pre-requisite for door delivery of AI in villages, it was recommended that Service Crates for restraining animals for AI should be established in all villages as part of the infrastructure build up for AI with financial help from the DRDA / DPAP etc (Department of Rural Development). It was recognised that there was a need to initiate a series of

awareness building measures since there was low awareness among the farmers on heat detection, postpartum care, nutrition, and overall management of crossbred cows and bulls. With respect to small ruminants it was pointed out that genetic improvement among these animals cannot be confined to supply of a small number of Rams and Bucks by the AH Department as the need for these would be much larger in an effective breeding programme. The workshop therefore recommended the initiation of a massive capacity building programme by the department of animal husbandry among the small ruminant breeders through their cooperative societies/NGOs to enable them to select Rams and Bucks from their own flocks and use them for improvement of their flocks. Further, the Sheep/Goat Breeders' Societies should identify progressive breeders from among themselves and specially train them with the help of the Agriculture University as "Breeders of Seed Stock" for supply to other breeders as a commercial activity.

#### **Promotion of Feed and Fodder Availability**

Acute scarcity of water for irrigation in all villages in the area and in Andhra Pradesh in general except in the coastal region, was recognised as a practical reality and the group therefore recommended promotion of innovative approaches for enhancing feed and fodder supply that are now available to the farming community and the state for ameliorating the fodder crisis in the state. The Group felt that to begin with, the state should review the options and choices available in fodder varieties best suited for the state like drought tolerant grasses, shrubs and fodder trees, for large scale introduction and promotion in the state.

As crops wherever cultivated receive water from some source or other, the Group recommended the promotion of "crop border plantation" of suitable varieties of perennial grasses and legumes in the crop fields. As a chronic drought prone state, the Group also recommended that the state should conserve and enrich all available dry fodder (crop residues) in the state through Industrial scale technology application for enrichment and pelletisation/briquetisation (straws/stovers/crop thrush) for making inexpensive complete feeds.

The Group recommended that the state should also access, enrich, pelletise and store as a measure for combating drought and ameliorating the feed/fodder crisis, crop residues available even in neighbouring states like Madhya Pradesh, where millions of tons of wheat straw are not normally fed to ruminants, but are burned in situ as a means of disposal.

The group felt that a massive campaign for building awareness and empowerment of livestock farmers in the state needs to be initiated for adopting these innovative measures (promotion of fodder trees, crop border plantations and complete feed) for increasing feed/fodder availability. Such a program can be initiated by identifying and promoting credible NGOs to spearhead such a capacity building and empowerment programme with the department of animal husbandry functioning as the nodal agency.

#### **Marketing**

Milk marketing in many villages is through Dairy Cooperative Societies/Milk Collection Centres affiliated to their District Cooperative Milk Unions and the APDDCF. However there were many complaints from the member producers on the manner in which these Societies/Centres are functioning and of the producer price paid by the societies to the members. Generally, the price offered by cooperative societies was somewhat lower than that offered by private traders. There were also several irregularities in the testing procedures which, in turn, affected the price received by the farmers.

Significant discussion took place on the issue of milk marketing. It was evident that this was one of the most important issues on the minds of farmers. After much discussion, the group recommended that member participation in the day to day management of

the DCSs should improve and that members should have a say in the testing of milk. Many of the farmers claim that unadulterated buffalo milk they pour in the society often tests very low Fat and SNF, leading to the very low prices they receive (Rs. 7-8 per litre of buffalo milk).

There is no organized market mechanism for sheep and goats. The entire trade takes place through informal channels and there are wide fluctuations in the prices offered to the farmers. After much discussion, the group recommended that the existing Sheep Breeders' Cooperatives and their district association should expand their activities to serve the sheep breeders better, particularly in areas of marketing of live animals, supply of inputs and breeding for genetic improvements. These activities will also enhance the societies' ability to generate larger incomes leading to viability of the societies.

The workshop identified control and prevention of diseases as the most critical input required by the backyard poultry farmers: prevention and control of diseases will reduce mortality, generate marketable surpluses of table birds, and enhance household incomes from backyard poultry. The workshop therefore recommended that comprehensive control and prevention of poultry diseases through community managed, village based, paid service providers should be a priority activity to be promoted in all villages.

#### *Credit Service for Livestock Enterprises*

The Workshop recognised that in the smallholder production system, credit is another very critical input. It was noted that institutional credit available to the livestock sector is all short or medium term loans and that access to institutional credit involves procedural wrangles and inordinate delays.

Farmer perception on credit made it clear that livestock farmers need more of cash credit/micro credit for the day to day management of their household enterprises (working capital) and that no institutional mechanism exists for giving them cash/micro credit. It was pointed out that even Kisan Credit Cards deny livestock farmers access to cash credit while as a mixed crop-livestock farmer the same farmer has access to cash credit through Kisan credit card for crop production inputs.

The Workshop noted that women's self help groups have emerged as effective institutions for providing instant cash credit for livestock production and that they have very good track record on credit supply and timely recovery. The Workshop therefore recommended that immediate action should be taken by the state government to include cash credit for livestock production inputs under the Kisan Credit Card Scheme. In addition, promotion of women's self help groups in all villages as institutions for instant cash/micro credit for livestock production should be promoted as part of all livestock schemes and programmes under the animal husbandry Department, rural development department and other government schemes and programmes with a livestock component.

## Chittoor

Participants for the second workshop in the series at Chittoor met in the Chittoor Multipurpose Social Service Society (CMSSS) Centre in Durganagar Colony on the evening of 27<sup>th</sup> February, 2004 for preliminary interaction on the following day's visit to selected villages. The six villages chosen for this purpose by the local organisers are listed in the table below. After mutual introductions, a brief welcome address by Dr. Ramalinga Raju, CEO APLDA and a brief presentation of the workshop background and objectives by Prof. Vinod Ahuja, six groups were formed for village visits from among the participants made up of officers of the state Department of AH, APLDA,

SMILDA and the PPLPI-CALPI Team. The local organisers had in advance collected basic statistics in the agreed questionnaire for each of the six selected villages and these were handed over to the respective group leaders.

Village	Mandal	Nearest Town / Distance Km	Services Delivery Institutions
L.B.Puram	Bangarupalem	6	Rural Livestock Unit of AHD
Vanadurgapuram	Palasamudram	51	No Institution
Vepulabailu	Peeleru	5	No Institution
Reddivaripally	Peeleru	4	No Institution
Budithireddipally	Yadamarri	13	Gopal Mitra (APLDB)
Jarawaripally	Palamaner	7	JK Trust Gopal
Chindepally	Yerpedu	20	RASS Centre

Village visits started early on the 28<sup>th</sup> morning and continued till late in the day for all groups. Groups saved some time in the villages as the local organisers had already collected statistics for all villages. All Groups spent sufficient time meeting with a cross section of the village communities (dairy farmers, shepherds, backyard poultry farmers, women self help groups, velugu borrowers and landless labourers) and discussed issues with them over a four to five hour period. All groups continued their separate internal discussions in the evening and prepared group reports and presentations for the plenum next morning.

#### **Group and Plenary Discussions:**

The first plenum of the workshop started with opening remarks by Prof.Vinod Ahuja, followed by a briefing for the participants by Dr. Piedy Sreeramulu Adl.Dir.AH and welcome address by Dr.Ramalinga Raju. The Participants were made up of farmers both men and women, representatives of Non-governmental Organisations, JK Trust, RASS, Women Self Help Groups, Gopals, Gopal Mitras, Officers of the Department of AH, APLDA and the PPLPI-CALPI Team. Each of the six groups presented their village findings. A summary of these presentations and the discussions that followed, appear in the following paragraphs.

All villages were accessible by motorable roads and had established schools (primary and upper primary). Only one village had a departmental institution—Rural Livestock Unit (RLU), three villages had services delivery by one of the following: a Gopal Mitra (APLDA), or a JK Trust Gopal, or by the RASS (Local NGO) and two had no services delivery institution at all. All Six villages had telephone links and power supply. All villages had women's self help groups, often more than one, most of them functioning as thrift and saving societies and providing instant cash credit to their member households.

The most critical issue for all villages was the scarcity of water for irrigation in varying degrees. Agriculture in all of them was rainfed, but rainfall scanty and irregular. The main source of irrigation was bore wells in all villages, but the limiting factor was irregular and inadequate power supply. The main crops however were sugarcane and mulberry for sericulture: both crops needing very high intensity irrigation. Modernisation of agriculture and opening up of the farmer's options of alternate high value crops like ground nut and fodder for milk /mutton/chevon production with the available water are yet to reach these villages.

All villages were well endowed with livestock. Cattle were the most preponderant species. Among cattle the overwhelming majority was improved, high yielding, cross bred cows. Over 90 per cent of the households own crossbred cows (except in Chindepally) and dairying is the major source of livelihood in all six villages. In

Chindepally Buffalo was the main dairy animal. Backyard poultry made up entirely of desi fowls were the next in terms of population size, widely held by over 90 per cent of the households (except in village LB Puram), but the villagers themselves are yet to realise the livelihood potential of the backyard poultry system based entirely on Desi Fowls. The birds are big, yield 60 eggs per year and the average holding size varied between 2 and 15 birds. The village communities use the birds and their eggs mostly for home consumption. Sheep and goat exist in very small numbers and are confined to an extremely small number of households among the landless and marginal holders (exception: village Vepulabailu with 1200 sheep: sheep husbandry second major livelihood activity after Dairying). Buffaloes were few in these villages except in Chindepally.

Three of the villages had Dairy Cooperative Societies, but all of them defunct now. One village had milk collection centres (five in all and owned by five different private dairy companies) and all of them had milk traders operating in addition. Milk prices are low: Rs.7- 8 per litre: artificially kept low by vested interests. Small ruminants were traded to middle men visiting the villages or in the nearby Mandal Markets. One village had a sheep breeders' cooperative society although the society was not involved in marketing of live animals.

As livestock is the major source of livelihood and agriculture operations limited due to scarcity of water, work animals exist only in small numbers in these villages. Work animals are predominantly male cattle and are owned by a small number of households in the village (some 15 per cent of households), average holding being one bullock and rarely two. Pigs were few and were owned almost exclusively by the socially weaker sections in all villages. A sample of the livestock numbers and households owning them specie wise in one of the villages is given in Figure 2. Figure 3 presents the holding pattern of livestock by the different land holding categories in the same village.

Livestock services delivery in all six villages focused on large ruminants exclusively. High mortality among small ruminants and desi fowls due to epidemics (PPR/RD) is a recurring feature even in villages where resident Gopals, Gopal Mitras, RASS Centre and RLUs of AHD exist. Farmers reported such heavy annual losses as one of the major reasons why they have not ventured on to backyard poultry production as a livelihood support mechanism. Minor veterinary services to large ruminants like first aid, deworming, deticking / delousing and castrations as well as AI are home delivered by the Gopal Mitras, Gopals and RLUs.

Figure 2: Livestock Numbers & Households owning them Species wise: Village Jarawaripally

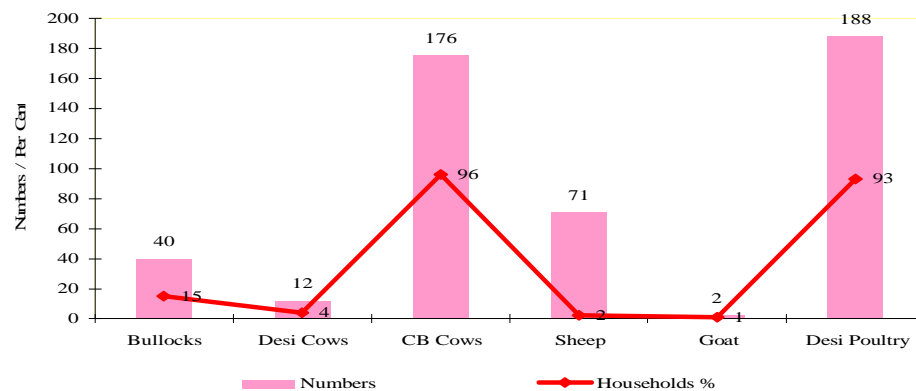
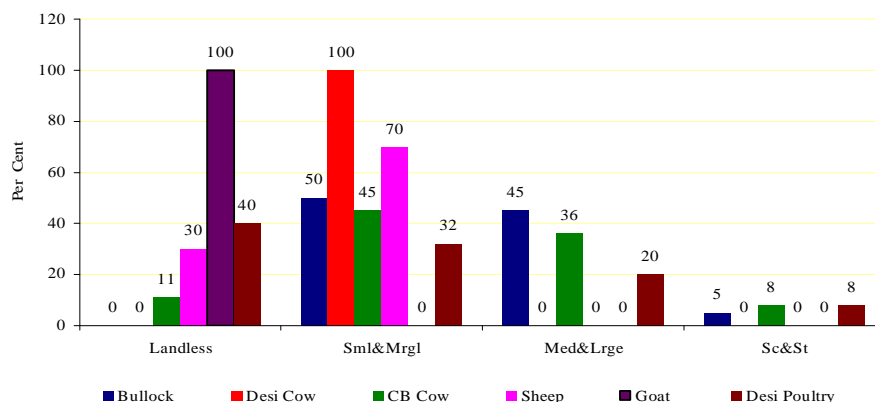


Figure 3: Distribution of Livestock Land Holding Category wise: Village Jarawaripally



While Gopal Mitras and Gopals charge for the services they deliver and the farmers appreciate the access to, quality and effectiveness of, these services, they were unhappy about the need to pay for the services. RLUs of the AH Department (farmers have to pay for medicines and consumable) and the RASS in Chindepally provide free services to village communities. Under Janmabhoomi program farmers receive preventive vaccinations for their livestock in all villages. However, this does not impact the endemicity of diseases since the vaccinations are not according to the frequency requirements, particularly in case of poultry diseases.

Veterinary hospitals and dispensaries under the Department of Animal Husbandry are far away from the villages visited. A few of the village communities reported that it is quite expensive to get a veterinary doctor or livestock assistant from the faraway AHD institution to the village for an emergency. The villages are therefore happy with the village based mechanism for services basic delivery like the Gopal Mitra that the APLDA/GoAP are promoting. However it was quite clear that while the farmers would welcome delivery of minor veterinary dispensations by the village based paraprofessionals, they insist on the services of a qualified Veterinary Doctor at their door-step for major veterinary services, as they cannot afford to leave their costly high yielding animals (crossbred cows) to the tender mercies of paravets of any kind. All of them were willing to pay for veterinary services home delivered by qualified Veterinary Doctors.

The plenum then devoted some time to identify major issues that emerged during the village visit presentation and identified the following as the key issues for further discussion:

- (i) Breeding Services
- (ii) Credit and Insurance
- (iii) Animal Health Services
- (iv) Marketing
- (v) Feeds and Fodder
- (vi) Other Issues not covered in the above

Six Groups were formed from among the participants and each given one issue for focussed discussion during the afternoon. The leader of each group presented the group findings in the Plenary Session next morning.

### Group 1: Breeding Services

Breeding services for cattle and buffalo comes from several agencies: APLDA, AHD, JK Trust, Heritage Group and RASS. These services are all home delivered except in the case of the AHD where services are provided at the AI centre. The services are charged by all providers and charges for AI range from Rs.20 to Rs.35. The Group identified the following salient points about the present status of breeding services in the area:

- Nearly 60 per cent of the breedable cows are covered under AI
- The exotic blood level of local crossbred cows have crossed 70 per cent because of forward crossing with the exotic parent
- There are many misconceptions among farmers about AI
- The concept of self-help insurance groups have started in the area

### **Suggestions/Recommendations by the Group**

- Organisation of monthly gynaecological camps with the help of experts for treating problem breeders and to reduce infertility.
- Awareness camps/training of farmers with the help of Agricultural Technology Management Agency (ATMA), DRDA, AHD, and APLDA.
- Use of half-bred bulls with high pedigree (progeny tested if available) for AI to stabilise exotic inheritance in the population.
- Home delivery of AI to improve conception rates.
- Improved communication facilities (telephones) to Gopal Mitras.

### Group 2: Credit and Insurance

The Group recognized credit as the most critical input for livestock production in Andhra Pradesh. Inadequate credit has circumscribed the smallholder's potential for viable livestock production. Access to good quality credit can enable half the subsistence farmers access to technologies/skills and would enable them to cross the poverty line and become viable farmers. The group also recognized women's self help groups in villages as the best institutional set up to provide credit to livestock farmers: both cash credit and term loans. The Group realised that concessional premium rates are now applicable only to government supported scheme animals and that farmers have to pay much higher premiums for insuring their private animals. The Group after discussions arrived at the following suggestions / recommendations.

- Livestock farmers need access to working capital from time to time for running their household livestock enterprises and therefore the Group recommended that Kisan Credit Cards should include credit for livestock production inputs as well.
- WSHGs should be enabled to handle the term loans for livestock purchase as this is the simplest solution for accessing loans and repaying them. Also, they should simplify the procedures for term loans for animal purchase, enabling speedy loan sanctions and release.

- The Group recommended that commercial banks should limit the level of collaterals for term loans for animal purchase to the value of the loan.
- The Group appreciated the existing schemes for credit for common interest groups, rythu clubs etc and recommended that the farmers and their services agents like Gopalmitras (for mobility) should make use of such facilities for the common benefit of the rural communities.
- To take advantage of lower premiums and to distribute the risk of fraudulent practices across the community, the group recommended the introduction of group insurance of cattle in villages as practiced in Gujarat milk shed areas.
- The Group recommend the popularisation of the package insurance scheme offered by the public sector insurance companies for the benefit of the livestock farmers in Chittoor.
- To reduce malpractices in cattle insurance the Group recommended that insurance companies should introduce animal identification systems using smart chips as permanent and unchangeable identification numbers for insured animals.

### Group 3: Animal Health Services

The Group identified the issues for discussion as follows: (i) Preventive Veterinary Care, (ii) Curative Veterinary Care /Treatment of Ailments, and (iii) Public Health. The group discussed the roles of various stakeholders in delivering these services. These are summarized below.

Service	Who should do	Who should pay
<b>I. Public Health</b>		
Clean Milk Production	Farmer	Farmers
Sanitation & Disinfection	Farmer	Farmers
Disposal of Carcass	Gram panchayat	Panchayat
<b>II. Health services</b>		
Training of unemployed youth	Animal Husbandry Dept.	Gram Panchayat/NGOs
Training of Farmers	Animal Husbandry Dept.	
Supply of Medicines	Private sector	Farmers
<b>III. Preventive Health Care</b>		
Vaccination	Trained youth	Farmers
Deworming	Trained youth	farmers
Deticking	Farmers	Farmers
Supply of Clean Water	Gram Panchayat	
Supply of Feed & Fodder	Animal Husbandry Dept.	Farmers
Animal health camps	Animal Husbandry Dept.	
Clean shed	Farmers	Farmers
Growing fodder trees in fallow lands	Gram Panchayat/ NGOs	GP/NGOs
Disease Diagnostic Labs at Mandal/District level		

### Recommendations and Suggestions

- Farmers were unhappy that annual large scale mortality among small ruminants and desi poultry are a common feature even in villages where Gopalmitras, JK

Trust Gopals and AHD Institutions exist, as all of them ignore these species for preventive health care. The farmers demanded that all village services providers, should regularly and at the appropriate intervals, vaccinate desi poultry and small ruminants in all villages they cover.

- As Gopalmitras have emerged as the most effective solution for decentralised low cost services in villages, farmers wanted the system to be established in clusters of villages all over the state for home delivery of AI and minor veterinary dispensations.
- Farmers however expressed preference for qualified veterinary doctors *for relatively complicated treatments*. This was because they perceived it somewhat risky to let poorly trained para-veterinarians or those with short term training treat their high yielding and costly crossbred cows.
- Farmers are willing to pay for good quality veterinary services both minor and major, by qualified veterinary doctors. (Four out of the six villages visited were willing to pay while two had some reservations even as they demand home delivery).
- Farmers from all villages wanted the Government to restructure their AI and Veterinary services from institution based services to home delivered inputs.

#### Group 4: Marketing

The Group first made a thorough analysis of the prevailing situation for the marketing of livestock products in the area and identified as major issues the absence among the farmer producers the willingness to cooperate and the unrestricted manipulations of vested interests as the major issues. The case of milk marketing was the classical example. Chittoor was one of the top milk producing districts in the state. Growing volumes of marketable surplus enabled the Cooperative dairy plant in Chittoor to reach daily collection volumes of over 300000 litres. The highly successful Milk Cooperative Movement in the District was undermined and destroyed by the private dairy companies for their benefits. The direct impact was on the milk prices: the private dairy companies manipulated milk prices to stay within a very low and narrow band: Rs.7 - 8 per litre: the lowest price paid anywhere in India. The group therefore proposed the following suggestions and recommendations.

- To approach the NDDB, Anand for reviving the village dairy cooperative societies systematically and to revive the district milk producers union and Chittoor dairy plant once owned by it.
- All farmers/villages to supply milk only to the dairy cooperative society owned by the farmers in villages.
- To collectively decide in the cooperative system a dynamic and reasonable milk pricing policy and mechanism, so that farmers receive a remunerative price and can earn a livelihood from dairy farming.
- To restructure the sheep / goat breeders cooperative societies in villages where small ruminants are important livelihood support systems and to enable and equip them to engage in marketing of live animals for meat and as breeding stock.
- To promote meat from small ruminants as a high value crop in irrigated land as an alternative to sugar cane and mulberry. (less water intensive crops with higher monetary returns)

- To train farmers in dairy and small ruminant farming and fodder production skills.

#### Group 5: Feeds and Fodder

The Group recognised fodder and feed scarcity as the single most critical impediment to livestock production in the area and focussed on innovative solutions for the problem. The Group made following suggestions and recommendations.

- Revamping the cropping policy of the region to gradually phase out extra water intensive crops like sugarcane and mulberry and to replace them with high value but less water dependent crops like ground nut and high yielding perennial fodder and legume crops (Guinea Grass, Napier Grass, Desmanthes etc.) for milk / meat production.
- Modify government policy to enable increasing availability of fodder from forests for conservation and enrichment as pellets (help storage, transport and avoid wastage).
- Conversion of paddy / wheat straw in the state and in neighbouring states along with small quantities of other nutrients into low cost complete feed pellets for supply to farmers as a private sector effort on industrial / commercial scale.
- Promote High Value concentrate pellets containing Bypass Protein, Bypass Starch and Bypass Fat as “Top Feeds” (small quantities to be fed over and above complete feeds)

#### Group 6: Other Issues

This Group discussed issues not covered by the other 5 Groups as many critically important issues were out of the purview of these 5 Groups. The Group made the following suggestions and recommendations.

- Promote women’s self help groups in villages as the most suitable institutional set up for cash credit and term loans to livestock farmers.
- Promote producers’ cooperatives / revive where existing ones are defunct, in all villages where marketable supply volumes are large enough to support a cooperative.
- Milk cooperatives and small ruminant cooperatives to engage in marketing of livestock, production inputs and in managing the state/district Union’s Breeding Policy for the Species of Animal involved.
- Encourage producers to build up awareness of hygiene and quality of products (eg. clean milk production)
- Put together a package of trainings for farmers to improve their farming skills and exposing them to modern technologies and change through NGOs/Development Bodies.
- Encourage village services providers to equip themselves with mobility and communication facilities.

## Annaram

Participants for the second workshop in the series at Annaram met in Ratnagiri Resort in Annaram on the evening of 21<sup>st</sup> July, 2004 for preliminary interaction on the following day's visit to selected villages. The five villages chosen for this purpose were identified by CEAD. After mutual introductions, a brief welcome address by District Joint Director (Animal Husbandry), CEO CEAD and a brief presentation of the workshop background and objectives by PPLPI (South Asia) team leader, five groups were formed for village visits from among the participants made up of officers of the state Department of AH, APLDA, SMILDA, CEAD and the PPLPI-CALPI Team. All villages identified were in Nakkappalli Mandal. The Villages visited are listed in the table below:

Village	Nearest Town / Distance (Km)	Services Delivery Institutions
Godicharla	Tuni 10 km	Rural Livestock Unit in the Village
Mukundarajupetta	Tuni 15 km	Nil, Village dispensary 1 km away
Donkada	Tuni 13 km	Nil, Rural Livestock Unit 5 km away
Dosalapadu	Tuni 12 km	Nil, Rural Livestock Unit 2 km away
Vempadu	Nakkappalli 8 km	Nil, Village Dispensary 4 km away

Village visits and PRAs started early on the 22<sup>nd</sup> morning and continued till mid day for all groups. All Groups had sufficient time to meet with a cross section of the village communities comprising both men and women (dairy farmers, shepherds, backyard poultry farmers, women self help groups, velugu borrowers and landless labourers) and to discuss issues with them over a three to four hour period. All groups continued their separate internal discussions in the evening and prepared group reports and presentations for the plenum on the 23<sup>rd</sup> morning.

On the afternoon of 22<sup>nd</sup> the participants in the workshop had a meeting with traditional animal healers, arranged by CEAD. Over 40 of them, both men and women shared with the participants their experiences and the type of ailments for which they could provide healing. They exhibited a fair degree of confidence in their capabilities to provide healing although they were unwilling to divulge any specifics of their trade. There were also some of the lady livestock health workers trained by Anthra/CEAD, who reported their inability to earn a living on the skills they acquired with the training. On discussion with them it appeared that they were trained only in vaccinations and use of Herbal Medicines/Homeopathy Remedies. No training had been given to them on the use of modern veterinary medicine and remedies.

### Group and Plenary Discussions

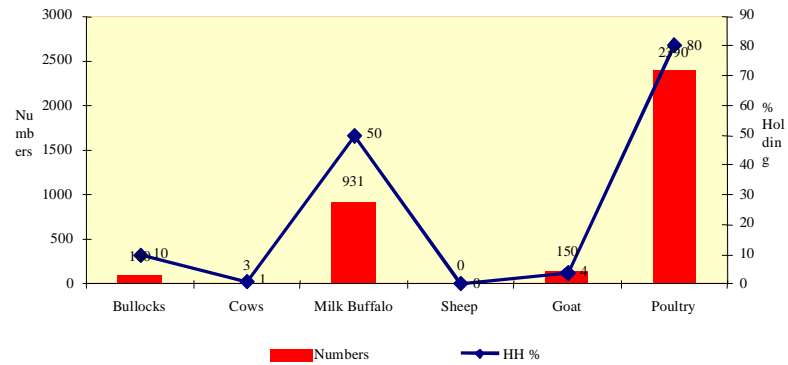
Workshop proceedings started on the 23<sup>rd</sup> morning with a welcome address by Dr. Jayaprakash (SMILDA), followed by brief introductions on various aspects of the workshop by Dr. Peidy Sreeramulu, Prof. Vinod Ahuja (PPLPI-FAO), Ms. Vijayalakshmi of CEAD, Director VLDA and Chairman Vishakha Milk Union. This was followed by five group presentations on village visits. A summary of these presentations and the discussions that followed, appear in the following paragraphs.

All villages were accessible by motorable roads, most of them black top and had established schools (primary and upper primary). Only one village had a departmental institution (RLU), the other four had to depend on services by veterinary institutions 1 to 8 km away from the village. Services provided by these institutions were mostly rated as unsatisfactory by the village communities. Villages had telephone links and

power supply. All villages had women's self help groups, often more than one, most of them functioning as thrift and saving societies and providing instant cash credit to their member households. Two of the villages had dairy cooperatives affiliated to the Vishakha Milk Union (one of them unregistered). In Dairy Cooperative Villages, provision for services delivery had been made by the Milk Union: mobile veterinary clinic visiting villages at regular intervals, AI services in milk societies and balanced cattle feed produced by the Union's Feed Mill sold at milk societies at Rs. 5 per kilo. The Union also provides balanced feed for small ruminants on demand.

The main crop was paddy, with milk production as an income support activity. Cultivation of fodder crops was not uncommon in these villages. The presence of the Vishakha Milk Union in the district has

**Livestock Numbers & Households owning them Species wise: Village Donkada**



helped the promotion of dairy farming and milking buffaloes were the most popular livestock in all villages visited.

All villages were well endowed with livestock: buffalo was the most preponderant species. Milch cattle were few and most of them local breeds. While dairying was a major source of livelihood in some of the villages, in some other villages, farmers raised cows until advanced stage of pregnancy and then sold them to farmers in other villages with relatively better access to milk markets. This practice was mostly attributed to poor market access for liquid milk. Backyard poultry made up entirely of desi fowls were the second in terms of popularity, widely held by over 70 per cent of the households. But village communities themselves are yet to realise the livelihood potential of the backyard poultry system based entirely on Desi Fowls. The birds are big, yield 60 eggs per year and the holding size varied between 2 and 15 birds. The village communities use the birds and their eggs mostly for home consumption.

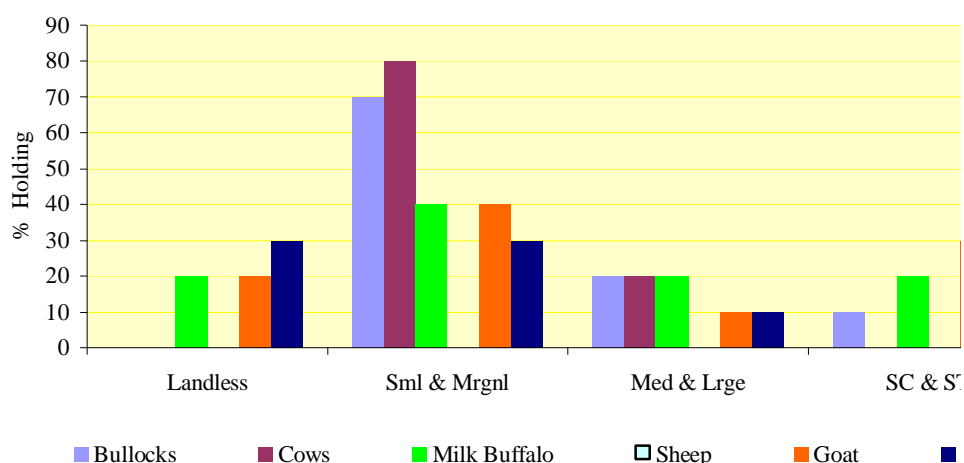
Sheep and goat exist in very small numbers and are confined to an extremely small number of households among the landless and marginal holders (exception: village Dosalapadu with 3500 sheep and 2500 goats: small ruminants were the second major livelihood option after Dairying, in Dosalapadu). Two of the villages had Dairy Cooperative Societies, but all villages had milk traders doing good business. Large numbers of milking buffaloes are present in the villages and sizable quantities of milk are traded from almost all of them. Under the influence of the Milk Union and its pricing policy, milk prices in the area were uniform and remunerative.

Agriculture is the major source of livelihood and yet work animals exist only in small numbers in these villages. Work animals are predominantly male cattle and are owned by a small number of households in the village (some 15 per cent of households), average holding being one bullock and rarely two. Farm machinery and pump sets have largely replaced work animals as the principal source of farm power. A sample of the livestock numbers and households owning them species wise in one of the villages is shown in the chart above; and the chart below presents the holding pattern of livestock by the different land holding categories in the same village. Marginal and small farmers own the bulk of all species of livestock. Desi poultry & goat are major livelihood support to the rural poor—SC & ST and the landless.

Access to livestock services is poor in some villages. In the villages covered by Vishakha Dairy Union, however, service access is far better but the focus is on large ruminants. Mortality among small ruminants and desi poultry remains high. Farmers reported heavy losses as one of the major reasons why they have not ventured on to backyard poultry production as a livelihood support mechanism. Minor Veterinary Services to large ruminants like first aid, deworming, deticking / delousing and castrations as well as AI are home delivered by the Gopal Mitras and the Milk Union.

While Gopalmitras charge for the services they door deliver and the farmers appreciate the access, quality and effectiveness of these services, they were unhappy about the need to pay for the services. RLUs of the Animal Husbandry Department provide free services to village communities, at the Centre. However, due to inadequate supplies of medicines and consumables, farmers are often required to purchase medicines from the market. In villages with milk societies the Milk Union delivers veterinary and AI services at subsidised rates on farmer doorsteps.

**Distribution of Livestock: Land Holding Category wise: Village Donkada**



### Group Discussions on Issues Identified by the Plenum

The plenum then devoted some time to identify major issues that emerged during the village visit presentations and the discussions that followed them. The Plenum identified the following as the key issues for further discussion during the previous afternoon:

- (i) Animal Health Services
- (ii) Breeding Services
- (iii) Extension Support and Training of Farmers
- (iv) Farm Level Credit and Insurance
- (v) Marketing
- (vi) Feeds and Fodder

Six Groups were formed from among the participants and each given one issue for focussed discussion during the afternoon. The Leader of each Group was to present the

Group Findings in the Plenary Session on 24<sup>th</sup> morning. The recommendations of the group are summarised below:

#### Group 1: Animal Health Services

The Group recognised that existing veterinary institutions are usually 5-8 km away from most villages and that the services provided by them are not satisfactory. The institutions are also unable to provide timely services. The institutions receive only a small allotment of medicines from the department and invariably farmers who approach the institutions receive only a prescription and they have to procure the medicines from the market. The institutions do not receive adequate vaccine supply and so provide only sporadic vaccinations. Small ruminants and back yard poultry receive no vaccinations at all. In addition to formal modern veterinary service providers, a number of traditional medicine practitioners are also providing services. The Group appreciated the effectiveness of the Gopal Mitras, but emphasised the need to extend their services to small ruminants and the desi fowls in the back yard as an essential requirement. The Group arrived at the following recommendations:

1. Door delivery of veterinary services by qualified veterinary doctors. However, the farmers insisted that the services should be provided by the government at no cost to them.
2. Provision for door delivery of artificial insemination and minor veterinary services by Gopalmitras.
3. Regular and timely vaccinations for all species, particularly for small ruminants and back yard poultry (Farmers desire supply of subsidised vaccines, particularly for small ruminants and backyard poultry).
4. Make full use of the DWACRA trained village women for poultry vaccination and to train one woman in every village for poultry vaccination, along with providing them access to poultry vaccines.

#### Group 2: Breeding Services

Breeding services for cattle and buffalo comes from the VLDA, AHD and the Vishakha Milk Union. These services are home delivered except in the case of the AHD where services are provided at the AI centre. The services are charged by all providers and charges for AI range from Rs.20 to Rs.35. The group felt that there is no policy or plan for the breeding and genetic improvement of small ruminants and desi poultry. The group therefore arrived at the following recommendations:

1. Gopal Mitras to be trained and positioned in every panchayat / cluster of villages, ensuring widest possible coverage of breeding bovines
2. Regular veterinary Camps in all Mandals to attend to and reduce, infertility among breeding cattle and buffaloes.
3. Introduction of Murrah Buffalo Semen from selected bulls for improving the milking buffaloes in Vizag district.
4. Capacity building of small ruminant farmers to improve their skills and to enable them to participate in a genetic improvement programme for sheep and goat with the help of the AH Department and the Agricultural University.

5. Starting through Sheep / Goat Breeders' Associations, a campaign for selection and multiplication of superior Rams and Bucks by the farmers themselves and provide the associations technical and financial support for implementing the genetic improvement plan.

### Group 3: Extension Support and Training of Farmers

Livestock farmers do not receive any extension support from any sources and therefore they had neither recognised the potential of their livestock for livelihood support nor have they realised the full potential of their livestock in terms of their output. Large yield gaps exist as farmers lack the awareness and skills for exploiting their full potential. The Group understood that this is the current situation across all species of livestock and all farming systems. The Group arrived at the following recommendations to build capacity and to transfer skills to farmers for improving the viability of their household livestock enterprises and enhance household incomes.

1. Launch through the Department of AH, APLDA/VLDA, Vishakha Milk Union and NGOs in the region a capacity building and empowerment programme for livestock farmers through Village Based Training (VBT)
2. Persuade the Government of Andhra Pradesh to structure a livestock extension cell in the AH Department to promote decentralised, independent, village based farmer to farmer livestock extension networks, out side of the Government, involving skilled farmers in the village, women's self help groups, Gopal Mitras and grass root level local NGOs.
3. Mobilise grass root level local NGOs to build training teams and organise VBTs and skill transfers in all villages/Panchayats falling within their areas of operation and to generate large numbers of skilled farmers to act as the extension constituency for the village and link them to the government departments and rural financial institutions for networking through Mandal Veterinary Officers (AHEOs) and Gopal Mitras.
4. Create in every village at least one skilled lady animal health worker (LAHW) exclusively committed to vaccination of small ruminants and poultry; and provide them constant access through local trade to poultry / small ruminant vaccines. These trained LAHWs will door deliver timely vaccinations for small ruminants and poultry in their respective villages as paid inputs.

### Group 4: Farm Level Credit and Insurance

The Group identified farm level cash Credit as the most critical input for livestock production in AP. Inadequate credit has circumscribed the smallholder's potential for viable livestock production. Access to good quality credit can enable half the subsistence farmers access to technologies/skills and would enable them to cross the poverty line and become viable farmers. The group also recognised women's self help groups in villages as the best institutional set up to provide farm level credit to livestock farmers: both cash credit and term loans. The Group realised that concessional premium rates are now applicable only to government supported scheme animals and that farmers have to pay much higher premiums for insuring their private animals. The Group after discussions arrived at the following suggestions/recommendations.

1. Livestock farmers need access to working capital from time to time for running their household livestock enterprises and therefore the Group recommended that Kisan Credit Cards should include credit for livestock production inputs as well.
2. The Group recommended that WSHGs should be enabled to handle both cash credit and term loans for livestock purchase as this is the simplest and most responsible solution for accessing loans and recovering loans.
3. The Group recommended that commercial banks should simplify the procedures for term loans for animal purchase, enabling speedy loan sanctions and release.
4. The Group recommended that commercial banks should limit the level of collaterals for term loans for animal purchase to the value of the loan.
5. The Group appreciated the existing schemes for credit for common interest groups, rythu clubs etc and recommended that the farmers and their services providers like Gopalmitras (for mobility) should make use of such facilities for the common benefit of the rural communities.
6. To take advantage of lower premiums and to distribute the risk of fraudulent practices across the community, the Group recommend the introduction of group insurance of cattle in villages as practiced in Gujarat milk shed areas.
7. The Group recommend the popularisation of the package insurance scheme offered by the public sector insurance companies for the benefit of the livestock farmers
8. To reduce malpractices in cattle insurance the Group recommended that Public Sector Insurance companies should introduce animal identification systems using smart chips as permanent and unchangeable identification numbers for insured animals.

#### Group 5: Marketing

Major organised trading activity in Vizag district covers only milk: Vishakha Milk Union covering nearly 70 per cent of the villages and the remaining 30 per cent villages are left to private Dairy Companies (Horlicks, Dolphin and Heritage). While the milk Union pays a remunerative price based on milk quality (Rs.15 per litre), the private companies pay much less (Rs.10 per litre) and farmers are helpless as the procurement areas are notified separately for each dairy by the state government leaving the farmers no alternative for milk sale. Live animal trade (small ruminants and desi fowls from the back yard units) takes place mainly in villages and the prices are fair (Rs.100 per kg live weight for small ruminants and Rs.80 per bird desi fowls). The Group recommended the following measures to streamline marketing and to ensure fair trade terms.

1. Strengthen the Sheep/Goat Breeders Associations and promote formation of Association where it does not exist.
2. Encourage Breeders Associations to actively participate in input supply and market facilitation (streamlining marketing): setting up trading norms and price setting based on live weight of animals, without disturbing the existing private marketing channels.

#### Group 6: Feeds and Fodder

Vizag district is a paddy cultivation area and produces large quantities of paddy straw which forms the mainstay for milk production in the district. Presence of major rivers in

the district assures high biomass production in the area, the milk union promotes fodder production and supplies balanced cattle feed at reasonable prices: all these make sure that there is reasonable supply of feeds and fodder for large ruminants in the area. Fodder scarcity however exists for small ruminants as there are grazing restrictions both private and government imposed on grazing lands as well as rapid shrinking of grazing lands. The Group made the following recommendations:

1. Launch a fodder promotion campaign through the Vishakha Milk Union in collaboration with VLDA, Department of AH and the private Dairy Companies in the district, encouraging dairy farmers to actively engage in “on-farm” fodder production to support their milk production enterprises.
2. Improve access to fodder and grass seeds / cultivars by encouraging specialisation on fodder seed production by farmers and expanding trade channels for marketing of seeds/ cultivars.
3. Seek relaxation of government restrictions on common grazing land particularly in the hill areas and forests; and encourage feeding of cut and carry grasses rather than grazing in common lands.
4. Skill train and encourage sheep / goat owners to stall feed small ruminants and provide them a package of assistance for stall feeding like: financial support for animal shelters, feeding mangers, chaff cutters, biogas generators and door delivery of animal health services.

## Consultation with tribal communities in Rampachodavaram

The LSRI Core Group at its meeting in Hyderabad on June 16, 2004 suggested among other things that the LSRI Consultation Process should include consultations with tribal communities on their perceptions and needs related to livestock production in general and on livestock services delivery in particular. Rajamundhry area was chosen for tribal consultation. The CALPI-PPLPI Team along with the Officials of the AH Department, SMILDA and APLDA visited Rajamundhry and the Rampachodavaram Integrated Tribal Development Project and spent a day with the tribal community visiting one tribal Village and then sitting down with a cross section of the community for detailed discussions. The village visit and the meetings with the tribal households were arranged by Adivasi Akya Vedika (a tribal network group).

The village visited was “Thilammamidi” near Rampachodavaram. The village was small and had only some 139 households and a human population of 540. The visiting team split into smaller groups and visited different areas of the village and had discussions with small groups of tribal families. The village community though entirely of tribal origin had over the years moved away from tribal culture and life style to mainstream community life. The dwellings were small and were built with ITDP Support. Many among the tribals, both men and women were wage earners, some on regular jobs with the government, quasi government, and private institutions or households. Most of the households owned livestock: cattle (3-4 male mostly for work / manure and rarely a cow), small flocks of goat. Desi fowl was the most popular species and most households owned them in flocks of 5-10 hens and a couple of cocks.

After the village visit, the visiting team participated in a meeting with tribal communities in Rampachodavaram. Most of the participants were from the local area (East Godavari District), and some from Vizag and Adilabad. Several women’s self help group members and officers bearers were also part of the gathering. After brief talks explaining the background and purpose of the Team’s visit, Tribal Spokesmen among the gathering briefed the visiting group about the state of the livestock services delivery arrangements in the area. It was then agreed that there is need for detailed discussions on the issues and it was decided to break the participants into 3 groups for

in depth discussions. The Groups met separately and discussed the issues for over two hours. Group Representatives then presented the summary of the discussions to the plenum later in the afternoon. A summary of the group presentations is presented in the following paragraphs.

Almost 80 per cent of the village communities were made up of marginal land holders, 10 per cent landless and the rest small holders. A vast majority of them subsisted on the combined earnings from their land, wages earned through manual labour, sale of livestock and trading in minor forest produces. During the seasons when they are not tied down by agriculture almost all families in the villages go for manual labour. Wages in and around their villages are very low: Rs.20-25 per day. During the cropping season the households help each other in the cropping chores and also share their work animals for farm power (the practice is known as "putti"). Work animals are also hired out for work and this fetches a rent of two bags of rice for the season. Many households give out their cows for freshening and take them back after calving (the practice is called "paliki"). Family size was 5-7 members per household and usually with more than one wage earner in a household. Agriculture was the prime occupation along with livestock. The average household income is sufficient only for subsistence and during emergencies they take loans from the WSHGs where they exist or depend on the village money lenders. Many keep livestock as cash reserves and sell them during times of need. Tribal villages usually have several local institutions and people's bodies in them to help in development: Tribal division societies, Girijan Societies and self help groups are some of them. Education of children often puts the families in great distress and sometimes under great debt burden. In summary, tribal households subsist on a shoe string income and budget, and they cannot afford any extra commitment on their incomes, including payments for livestock services.

Many of the young men and women trained for six months on livestock services by Anthra and CEAD find it difficult to earn incomes out of their skills and services, as the users are not in a position to pay. Almost all trained persons present were idling, unable to practise. Sale of livestock is often to traders visiting villages: prices are approximately Rs.4500 per pair of bullocks, Rs.1200 for a cow, 800 for goat at 1 year of age and Rs.80 per table desi fowl. All households own desi fowls and use eggs and table birds home produced primarily for home consumption. Diseases and heavy mortality of stock: particularly among small ruminants and poultry; and among calves in the case of large ruminants.

Access to veterinary services is poor since there are no veterinary institutions in any of the tribal villages or in nearby areas. At the same time no initiative is taken by the communities or the tribal development authorities for finding a way of using the trained animal health workers available in many villages and compensating them for their services. The tribal Division in Rampachodavaram had in all some 8 veterinary dispensaries, of which only 4 were functional. The other four had no professional staff because of the general staff shortage in that area. In addition there were 3 RLUs in the Division. The institutions were far away from most of the tribal villages and services delivery to tribal villages was very poor. Home delivery of services by the institutional staff was a very expensive proposition for the tribals. Most households therefore make do without veterinary services, the consequences notwithstanding! Village based basic services delivery mechanisms and timely home delivery of services alone can help enhance household incomes from livestock.

## Conclusions

1. Tribal households in the ITDP Area are extremely poor and follow livelihood practices that enable them to barely manage food and subsistence. They have no elasticity for experimenting with new practices, however good they are in

the long term. Special support packages for helping them to outgrow their subsistence livelihood systems are essential to help them become productive livestock farmers.

2. A village based livestock service delivery mechanism, community driven but initially paid for by public funds (under ITDP), would be the first step in any development effort: timely availability of vaccinations, minor veterinary services will reduce production losses, drastically cut down mortality of livestock, increase output, protect farmer investments and will help to appreciably increase household incomes.
3. A massive campaign by the ITDP/AHD involving grass root level local NGOs to promote women's self help movement will provide the households instant access to farm level cash credit, the prime input for small holder livestock production and will lead to progressively viable household livestock enterprises.
4. A massive campaign by the ITDP/AHD involving grass root level local NGOs to launch capacity building and empowerment of the village communities will act as the harbinger of change and technology adoption and to establish the foundation for a farmer to farmer livestock extension mechanism, village based, independent and outside of the government.
5. As tribal villages are inaccessible many of the minor services like vaccination of day old chicks and timely protection against poultry diseases: several rounds of vaccinations of fowls during the year can be possible only if such skills are available among farmers themselves, so that they can access it constantly. It would therefore be essential to impart skill trainings to farmers to promote self help and self reliance for individual and community benefit.

## Consultation with Sheep Breeders Association, Nalgonda

In one of the task force meetings of the project some concerns were expressed on the existing bias in the livestock sector in favour of large ruminants in matters related to development investments, input supply and services delivery; and desired some fine tuning of the project to encourage the balanced growth of the livestock sector enabling all economically important species of livestock to develop according to their livelihood intensity.

The task force members pointed out that small ruminants in Andhra Pradesh are extremely livelihood intensive, supporting over 2 million households who depend exclusively on small ruminants for a living. The consensus of the Group was therefore to arrange special consultations with shepherds, sheep breeders' associations and people's organisations/NGOs focussing on small ruminant farmers, on the specific problems and special needs of households depending on small ruminants as the prime source of livelihood.

Consultations and interactions accordingly were arranged with groups of shepherds and sheep breeders' associations in Nalgonda district. The PPLPI-CALPI Team, the Officers of the AH Department, Representatives of the SMILDA and the Officers of the APLDA were exposed to an extremely sensitive street play enacted by members (shepherd community) of the district sheep breeders' union, on the life and travails of the shepherds, on one evening. Early morning next day, the visiting Teams and Officers met in Jenkareddygudam village in Nalgonda District for interaction with a group of shepherds from a cluster of nearby villages, all members of the respective village Sheep Breeders' Associations and their District Union. Later in the forenoon of the 4<sup>th</sup>, the visiting Teams and Officers had a meeting with the Board Members of the District Sheep Breeders' Union in the Union's Office in Nalgonda. The gist of the discussions and

findings of the Teams on the problems and needs of the sheep / goat farming communities are summarised below:

**General Information:** Small ruminant farming is a major livelihood source for over a million farming households in Andhra Pradesh. Their numbers and distribution vary widely in the different districts, with heavy concentration in some districts like Nalgonda and Mehbubnagar. Even though village sheep breeders' associations, their district unions and state federation exist, these institutions play only marginal roles in the welfare and development of the shepherd communities and their flocks.

The Village Associations, District Unions and State Federation are all incorporated under the Andhra Pradesh Cooperative Societies Act, with Officers of the AH Department as Managing Directors under their Byelaws. The Nalgonda District Sheep Breeders Union has 315 Villages Associations affiliated to it. The district unions are affiliated to the State Sheep Breeders' Cooperative Federation, where an Additional Director AH is the MD.

The Federation has a corpus fund of over Rs.30 Lakhs in their Bank Account, all of it deposited by the District Unions. The Federation has not initiated any activity nor is it allowed to appropriate the funds it has in the bank as the MD and the Department of AH are in no mood to let the Federation function. Though Cooperatives in legal terms, these institutions virtually have no autonomy and are merely appendages of the Department of Animal Husbandry, inactive in most cases.

**Land Holding:** Shepherds are invariably marginal farmers and own up to 2 acres of land, 1-2 acres is the most common holding size. The land the shepherds own is used for cultivating paddy crop in years with normal rainfall (for home consumption) and alternatively with dry land crops like castor. Very few among them are landless.

**Flock Holding:** Flock holding size varies from 10-70 sheep and always a few goats, usually some 10 per cent of the sheep numbers. The most common holding size is however 40-50 sheep and some 5 goats. Goats produce twins, freshen twice a year and therefore can add 2-4 kids every year to the flock, while sheep do not twin and produce just one lamb per year. However sheep is the preferred animal as far as the shepherds are concerned, because grazing for them is available almost round the year, although never in adequate measure. During summers goats need bought out fodder as tree loppings are not available in summer. State Policy too is in good measure responsible for the pro-sheep bias and inhibits considerably the normal and natural growth of the goat population.

**Daily routine of the shepherds:** Shepherds start their day with a thorough inspection of the flock in the morning to check for foot / hoof injuries, thorns and other illness. Often thorns from *Procepos Juriflora* (Dwarf Babul) are a menace, causing sores and injuries to the skin of sheep and goat. They then let the ewes nurse the suckling lambs and water all animals in the flock. The shepherds then move out in search of grazing along with their flock. If the grazing is nearby, their wives can bring them lunch and they return home for the night halt. Animals are watered thrice a day - once in the morning at home and then at mid day and in the evening. Access to drinking water for animals is however one of the major constraints shepherds face in their day to day flock management.

**Grazing:** Grazing is always scarce, confined to common property resources (common grazing land in villages where available), current fallows and way side green herbage. Shepherds have no grazing rights in forests and in fact are prohibited from using forests as a source of fodder. Shepherds often lease for the season fallows from private owners in their own and neighbouring villages for Rs.500 per 6 acre lots per season as reserve grazing areas. In summer (towards the end of March) the shepherds start their migration to Nagarjuna Sagar area and return in July (when the rainy season starts) for cultivating their own land.

Often shepherds have to face grazing restrictions imposed by farmers in their villages. Bickering and quarrels with village community on account of grazing is almost a daily routine. Post harvest, farmers normally allow shepherds to graze the fallows and to bed down on the land for getting the benefit of urine and manure and even pay the shepherds a small fee per night of stay.

**Household Incomes:** Selling of sheep and goat is the main source of income. Traders come to villages all through the year, but major season for sale is June-July every year. Terms of trade are fair for village sale and shepherds seldom sell stock in mandis/hats. Male lambs and kids around 4 month of age with average body weight of 10 kg are the most common age for sale and fetches Rs.1000 per lamb/kid. The shepherds claim difficulties in migration with kids and lambs as the reason for the early sale of stock, though this is not sufficient justification for such utterly uneconomic practices.

Female among the breeding stock are sold only at culling age of six years and fetch Rs.600 per animal. Average income for a typical shepherd household owning 40-50 sheep and 5-6 goats, from their flocks is about Rs.9000, a year. In addition they earn from their land Rs. 3000 - 5000 over and above food grains for the home consumption, in years with normal rainfall.

The preferred age for slaughter of sheep in Andhra Pradesh is 12-14 months, when shepherds can get some Rs.2000-2500 per head of animal depending on growth and body weight of individual animals. The inability of the shepherds to hold on to lambs till they are prime meat animals undermines his viability long term.

Allowed to develop normally, sheep flock size will double in three years, if there is no stock removal for slaughter at 40 per cent of the flock size, every year (60 per cent in the case of goats). In Nalgonda a shepherd with 40-50 sheep is hardly able to sell 9 or 10 male lambs annually and holds on to all ewes in the flock, adult as well as new born, as reported by them, in order to maintain his flock size. This clearly indicates large scale, recurring lamb / kid mortality, condemning the shepherds to subsistence.

Another reason for stagnant flock size in Nalgonda is the inability / unwillingness of shepherds to carry adequate numbers of Rams in the flock for breeding. The ideal ratio is 1 Ram for 10 ewes, but the current proportion in most flocks is 1:35 or even less, some times as low as just one Ram in a flock of 70. This too leads to stagnation of flock size as many ewes are unable to freshen every year and contribute one lamb per year.

**Veterinary Services:** Shepherds seldom are served routinely by the state veterinary institutional network in the district: they have to call the Doctors and / or Livestock Inspectors for veterinary services, except for the ritual and inadequate vaccinations during Janmabhoomi visits by the AH departmental Staff. Often these specific calls for service delivery are expensive and cost the shepherds over Rs.200 per call.

Small ruminants have routine health problems like ecto/endo parasites, foot rot, entero toxemia and pox; and epidemics like PPR and Blue Tongue. Deworming and spraying are seldom practiced as a standard management measure by shepherds. Vaccines against PPR is now available at Rs.1.50 per dose (50 per cent subsidy from AHD), but seldom in adequate quantities and in time; there are no vaccines for Blue Tongue and treatment with Antibiotics though successful is extremely expensive (up to Rs.250 for a full course per affected animal).

Shepherds consider access to veterinary services as an essential pre-requisite for success in small ruminant farming. The shepherds themselves are willing to promote a village based, decentralised, community managed sustainable service delivery mechanism with the help of their District Union/State Federation and the State Department of Animal Husbandry: young shepherds from among themselves trained as small ruminant health workers and home delivering minor veterinary services and vaccinations, one in each village cluster. On time vaccinations, periodic deworming and spraying for ecto parasites will cut down avoidable loss of stock, increase the growth rate / weight gain and reduce finishing time for the market.

### **Discussions with Sheep Breeders' District Union:**

During the discussions with the Board Members of the Sheep Breeders' District Union, the Union agreed that shepherds will promote village based small ruminant health workers and to ensure prompt and inexpensive but effective veterinary health care (preventive as well as curative) to sheep and goat flocks.

1. The Union agreed to discourage the practice of approaching the medical shops for medicines, by shepherds. They realised that the medical shops often deceive them by giving substandard/spurious/wrong medications and that the practise had in many cases resulted in considerable economic losses to shepherds.
2. The Union Board Members wanted the Government to help sheep / goat breeders through subsidised vaccine supply for major sheep / goat epidemics. They however decided to make their own arrangements for timely vaccine supply in case of emergencies.
3. The Union agreed to propose a thorough reorganisation of the sheep breeders' cooperative movement through revision of byelaws at all levels, enhancing the scope of the movement to provide essential support and services to members and making them autonomous, farmer managed institutions.
4. The Union agreed to work with the AH Department and NGOs to launch a Village Based Training Programme for Skill Transfers to shepherds and for Technology Adoption, for improving flock management, increasing out put and for higher income from their small ruminant enterprises.
5. The Union agreed to seek the help of the AH Department and the AP Agricultural University to mobilise a massive capacity building programme among the breeders to help the sheep / goat breeders select Rams / Bucks for sustainable genetic improvement and higher productivity among their flocks.

## ANNEX 1: LIST OF PARTICIPANTS—MUSPAET, MAHBOOBNAGAR WORKSHOP

Sl.No	Name of the participant	Association
1.	Dr.S. Rama Linga Raju	CEO, APLDA,A.P., Hyderabad
2.	Dr.Peidy Sreeramulu	Additional Director (Prod), O/o DAH, Hyderabad
3.	Dr.I.Jaya Prakasa Rao	Joint Director (AH), SMILDA, Hyderabad
4.	Dr.Muddu Rama Krishna	Joint Director (AH),Mahabubnagar District
5.	Dr.M.Srinivasa Rao	Deputy Director (AH),SLBP,Mahabubnagar
6.	Dr.V.Lakshma Reddy	Deputy Director (AH), Mahabubnagar
7.	Dr.Vinod Ahuja	Associate Professor, IIMA and Coordinator PPLPI (South Asia)
8.	Dr.M.P.G.Kurup	Consultant (PPLPI - CALPI)
9.	Dr.N.R.Bhasin	Consultant (PPLPI - CALPI)
10.	Ms. Anjali Sarangi	Research Associate, PPLPI
11.	Padma Kumar	CALPI
12.	Dr. P.A.Hamza	Professor, ANGRAU,hyderabad
13.	Dr.B.Ekambaram	Scientist L.R.S., ANGRAU, Mahabubnagar
14.	Dr.Ayodhya	Scientist DAT Center, ANGRAU, Mahabubnagar
15.	Dr.B.Jagan Mohan Reddy	Assistant Director (AH) ( C.D. O.), Mahabubnagar
16.	Dr.Vijay Raj	Assistant Director (AH), Mahabubnagar
17.	Dr.N.Ramlinga Reddy	Assistant Director (AH), VH, Wanaparthly
18.	Dr. P. Diwakar Reddy	Assistant Director (AH), SMILDA, Hyderabad
19.	Dr.G.R.Vaijyanath	Assistant Director (AH), SMILDA ,Hyderabad
20.	Dr.A.Anjaiah	Assistant Director (AH), ISNRMPA, Hyderabad
21.	Dr.Sachin Deshpande	Veterinary Assistant Surgeon, SMILDA, Hyderabad
22.	Dr.Venkataiah Goud	Veterinary Assistant Surgeon, SMILDA, Hyderabad
23.	Dr.K.Srinivasa Rao	Veterinary Assistant Surgeon SMILDA, Hyderabad
24.	Dr.G.Sivananda Swamy	Veterinary Assistant Surgeon, V.D., Mahabubnagar
25.	Dr.Abdul Rasheed	Veterinary Assistant Surgeon, V.P.C., Mahabubnagar
26.	Dr.D.P.Jayakar	Veterinary Assistant Surgeon, RAHTC, Karimnagar
27.	Dr.K.Babu Rao	Veterinary Assistant Surgeon, (MAHO), Addakal
28.	Dr.D.Chakradhar Rao	Veterinary Assistant Surgeon, V.D., Kowrampet
29.	Dr.K.Raja Sekhar	Veterinary Assistant Surgeon, V.P.C., Kurnool
30.	Dr.B.Eashwar Reddy	Veterinary Assistant Surgeon, V.D., Bhoothpur
31.	Dr.P.Bhasker Reddy	Veterinary Assistant Surgeon, V.D., Khilla Ghanpur
32.	Dr.B.Gnana Sekhar	Veterinary Assistant Surgeon, V.D., Ramapad,
33.	Dr.N.Geetha	Veterinary Assistant Surgeon, Nandigam,
34.	Dr.P.Prasanna	Veterinary Assistant Surgeon, V.D., Addakal,
35.	Dr.B.V Bhaskar Reddy	Veterinary Assistant Surgeon, AHC, Mahabubnagar
36.	Dr.M.Vijay Kumar	Veterinary Assistant Surgeon, VD, Narayanpet
37.	Dr.V.Venkateswarlu	Veterinary Assistant Surgeon, O/oJD (AH), Mahabubnagar
38.	Sri Y.Bhasker	L.S.A., RLU, Pedda Adipola
39.	Sri Md.Rafiudin	L.S.A., V.D., Kodgal
40.	Sri R.Narsimlu	L.S.A., RLU, Boyapalli
41.	Sri C.Chandraiah	L.S.A., RLU, Janampet
42.	Sri Yadagiri	Veterinary Assistant, VD, Vemula
43.	Sri H.Jaipal Reddy	APRLP, Mahabubnagar
44.	Sri M.Ravinder Reddy	Enumerator O/o JD (AH),Mahabubnager

45.	Ms.Satyawathi	ISNRMPA
46.	Sri Goverdhan Yadav	President, Sheep Breeder's Co-operative Union, MBNR
47.	Kalavathamma	Dairy Cooperate Society, Addakal
48.	Mahesh	Paid Scretary, Nandipet Cooperate Society
49.	R.Punyamma	Dairy farmer, Nandipet Cooperate Society
50.	M.Chennamma	Dairy farmer, Nandipet Cooperate Society
51.	B.Shivarudrappa	Joint Programme Coordinator, BAIF, Jadcherla
52.	A.Mohipal Reddy	A.I.Supervisor, DLBA, Jadcharla
53.	G.Krishna Reddy	AWS, Mahabubnagar Cooperate
54.	Dhanalakshmi	Raghavebndra Mahila Sangam, Aristhapur
55.	Anasuya	Raghavebndra Mahila Sangam, Aristhapur
56.	Yashoda	Raghavebndra Mahila Sangam, Aristhapur
57.	Boguramma	Raghavebndra Mahila Sangam, Aristhapur
58.	Venkatamma	Raghavebndra Mahila Sangam, Aristhapur
59.	R.Yadi Reddy	Gopalmitra, Nandhipet
60.	P.Chennaiah	Sangamitra, Yelakacherla
61.	R.Aliavelamma	Dairy President
62.	G.Venkat Rama Reddy	AWS
63.	T.Koteswar Reddy	Dairy Secretary, Dhasar Pally
64.	S.Ravinder Reddy	Solipur Farmer
65.	S.Janala Ram Reddy	Solipur Agriculturist
66.	K.Hanumanth Reddy	Kanapur
67.	Narsimha Reddy	Bhoompally
68.	Dr.K.E.Surya Kantham,	Retired V.A.S., Gangaram
69.	M.Sai Baba Yadav	V.H.W., Tellarla Pally
70.	B.Balaiah	V.H.W., Narsai Pally
71.	G.Muralidhar Reddy	Gopalmitra, Palshetti Pally
72.	G.Srinivasulu	Gopalmitra, Yedutla
73.	P.Burranna	Ex.M.P.T.C., Vemula
74.	S.Padmamma	
75.	K.Venkateshwaramma	Komireddy pally
76.	Chandrakala	President, Dairy Coperate, Ponnakal
77.	Kotha Chandrakala	Anjaneya Mahila Group, Konded
78.	H.Jayamma	Adarsha Mahila Sangam, Konded
79.	Chandrakala	Paid Scretary, Mahila Dairy Cooperative, Janampet
80.	Kondanna	President, Dairy Coperative, Janampet
81.	Vimalamma	Shanthi Sangam, Janampet
82.	Sharada	Vidya Sangam, Janampet
83.	G.Balachandraiah	Sangamitra, Rachala
84.	T.Vijaya Bhaskar Reddy	Sangamitra, Dasarpally

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## ANNEX 2: DEMOGRAPHIC INFORMATION OF THE VILLAGES VISITED BY WORKSHOP PARTICIPANTS

ITEM	HAJILAPUR	NANDIPET	KODGA	SOLIPUR	KONDED
Households	293	320	1255	650	300
<b>Human Population</b>					
Male	648	529	2628	1619	523
Female	681	536	2575	1511	536
Total	1329	1065	5203	3110	1059
SC	181	239	950	474	164
ST	-	-	-	370	198
Total	181	239	950	844	362
<b>Migration of families since 1990</b>					
Arrivals	-	6	-	15	-
Departures	25	-	-	-	-
No. of hamlets	1	-	7	1	1

### ANNEX 3: LIVESTOCK POPULATION AND DISTRIBUTION OF THE VILLAGES BY WORKSHOP PARTICIPANTS

S.No	Species	Population	No. of households holding Livestock	Proportion Owned by			
				Landless	Small and marginal farmers	Medium and Large farmers	SC, ST households
Village: Hajilapur							
1.	Bullocks	84	40	-	55	45	5
2.	Cows (Local)	163	50	-	55	45	1
3.	Cows (Crossbred)	2	1	-	-	-	-
4.	Calves	42	40	-	55	45	5
5.	Buffaloes	230	65	10	50	40	5
6.	Buffalo calves	52	10	5	55	40	5
7.	Sheep	3500	28	-	100	-	-
8.	Goats	192	10	-	100	-	-
9.	Poultry	1148	90	15	40	45	15
10.	Pigs	34	1	100	-	-	-
11.	Others (Dogs)	28	28	95	-	5	25
<b>TOTAL</b>		<b>5475</b>	<b>363</b>	<b>210</b>	<b>400</b>	<b>5</b>	<b>25</b>
Village: Nadipet							
1.	Bullocks	86	26	0	43	57	3
2.	Cows (Local)	110	34	0	64	36	0
3.	Cows (Crossbred)	0	0	0	0	0	0
4.	Calves	57	17	0	32	68	0
5.	Buffaloes	82	25	0	44	66	0
6.	Buffalo calves	86	26	0	54	46	0
7.	Sheep	3183	99	0	15	85	0
8.	Goats	460	14	0	60	40	4
9.	Poultry	1450	45	42	38	20	21
10.	<b>Pigs</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
11.	Others (Dogs)	168	15	0	15	85	2
<b>TOTAL</b>		<b>5682</b>	<b>301</b>	<b>42</b>	<b>365</b>	<b>503</b>	<b>30</b>
Village: Kodgal							
1.	Bullocks	514	84	34	54	12	10
2.	Cows (Local)	344	31	0	14	86	-
3.	Cows (Crossbred)	30	7	0	7	93	0
4.	Calves	204	56	0	34	66	0
5.	Buffaloes	400	134	0	56	44	12
6.	Buffalo calves	224	187	14	14	72	12
7.	Sheep	4000	58	0	24	76	0
8.	Goats	978	34	0	23	77	0
9.	Poultry	1933	1201	0	54	46	14
10.	Pigs	11	5	0	0	0	0
11.	Others (Dogs)	0	0	0	12	88	10
<b>TOTAL</b>		<b>8638</b>	<b>1797</b>	<b>48</b>	<b>292</b>	<b>660</b>	<b>48</b>

Contd...

**ANNEXURE IV Contd...**

S. No.	Species	Population	No. of households holding Livestock	Proportion owned by			
				Landless	Small & marginal farmers	Medium & Large farmers	SC, ST households
Village: Solipur							
1.	Bullocks	170	42	18	62	20	15
2.	Cows (Local)	123	37	6	46	48	4
3.	Cows (Crossbred)	12	4	1	65	34	0
4.	Calves	51	38	12	60	28	6
5.	<b>Buffaloes</b>	171	54	21	72	17	5
6.	Buffalo calves	50	43	19	69	12	0
7.	Sheep	5548	28	22	44	34	0
8.	Goats	405	24	20	36	44	0
9.	Poultry	7086	580	15	48	38	0
10.	Pigs	0	0	0	0	0	0
11.	Others (Dogs)	0	0	0	0	0	0
<b>TOTAL</b>		13616	850	134	502	275	30
Village: Konded							
1.	Bullocks	108	45	24	45	31	5
2.	Cows (Local)	31	25	18	64	18	0
3.	Cows (Crossbred)	10	8	0	47	43	0
4.	Calves	38	12	10	47	43	0
5.	Buffaloes	119	42	24	56	20	0
6.	Buffalo calves	67	25	0	34	66	0
7.	Sheep	814	21	0	66	34	4
8.	Goats	62	5	0	45	55	0
9.	Poultry	1290	294	48	35	17	0
10.	Pigs	0	0	0	0	0	0
11.	Others (Dogs)	0	0	0	0	0	0
<b>TOTAL</b>		2539	477	124	439	327	9

## ANNEX 4: MARKETING INFRASTRUCTURE IN THE VILLAGES VISITED BY WORKSHOP PARTICIPANTS

Item	Hajilapur	Nandipet	Kodgal	Solipur	Konded
Milk Co-operative Society	No	Yes	No	Yes	Yes
No.of members	-	70	-	40	60
Milk collection (Lit./day)	-	220	-	150	150-200
Price paid (Rs./Lit.)	-	8-11/-	-	7-10/-	8-10/-
Milk sold to private vendors (Lit/day)	65	110	600	80	100
Price paid (Rs./Lit.)	10/-	8-12/-	10/-	10-12/-	12/-
Sheep Breeders Co-op.Society	Yes	Yes	Yes	Yes	Yes
No.of members	45	42	52	45	65
No.of sheep sold/year	70	200	800-1600	300	350
Amount paid/sheep (Rs.)	1500/-	500-800/-	1000/-	500-700/-	500-800/-
Marketing channel for sheep	Butchers	Butchers	Butchers	Butchers	Butchers
Kind of poultry	Desi	Desi	Desi	<b>Desi</b>	Desi
Usual holding size	2-8	5-10	3-15	3-5	5-10
Egg production/bird/yr.	40	40	30	40-50	60
Eggs marketed	-	-	-	--	-
Eggs used for hatching	20	20	25	25	40
Birds sold/yr.	350	600	400	350	200
Rate of bird (Rs.)	100/-	80-100/-	50/-	80/-	90-100/-

## ANNEX 5: LIST OF PARTICIPANTS FOR CHITTOOR WORKSHOP

Name of the participant	Association
Dr. S.Ramalinga Raju	CEO, APLDA, AP., Hyderabad
Dr. Piedy Sreeramulu	Addl. Director (Production), Hyderabad
Dr. I. Jayaprakasa Rao	Joint Director (AH), SMILDA, Hyderabad
Dr. K. Shivaiah	Associate Dean, College of Veterinary Science, Tirupathi.
Dr. Somasekharam	Joint Director(AH), Chittoor
Dr.D. Srihari Rao	DD(AH), SLBP, Chittoor
Dr. T. Jagannath Reddy	DD(AH), MC, APLDA
Dr. M.Srinivasa Rao	DD(AH), LPP, Mahabubnagar
Prof. Vinod Ahuja	Coordinator, PPLPI (South Asia)
Dr. M. P.G.Kurup	Consultant ( CALPI-PPLPI)
Dr. N.R. Bhasin	Consultant ( CALPI-PPLPI)
Ms. Rebecca Kattecaran	Programme Coordinator, NRMPA, Hyderabad
Ms. Anjali Sarangi	Research Associate PPLPI
Dr. B.Vivenkananda	AD(AH), Chittoor
Dr. G.Laxmi Reddy	AD(AH), Madanapally Chittoor
Dr. Y.S.Reddy	AD(AH), Tirupathi
Dr. C.Narayan Reddy	AD(AH), Puttur
Dr. M.S. Subba Reddy	AD(AH), CSCC, Tirupathi
Dr. J. Srinivasa Rao	AD (AH), VH, Punganoor Chittoor
Dr. P. Gopinath	AD(AH), VH, Puttur Chittoor
Dr. P. Balarajeshwar Reddy	AD(AH), AHC, Chittoor
Dr. B. Sriramulu	AD(AH), VPC, Chittoor
Dr. Basha Moinuddin	AD(AH), CDO, Chittoor
Dr. Ch. Venkateswara Rao	AD(AH), Retired Chittoor
Dr. P. Diwakar Reddy	AD(AH), SMILDA
Dr. Y. Saisekher	AD(AH), SMILDA
Dr. L. Sudhakar Rao	NRMPA, Hyderabad.
Dr. K. Gangaiah	Project Director, RASS, Tirupathi
Dr. D. Ramana Reddy	District Project Manager, DPIIP, Chittoor
Dr. B.C.Subba Reddy	District Programme Officer, JKT, Chittoor.
Dr. R.Vijayakumar	District Project Manager, VELUGU., Chittoor
Dr. Nagaraj Pillai	Programme Officer, VELUGU, Chittoor
A. Jayaram Sarma,	AGM, NABARD, Chittoor
B.K.Vittal Rao	Chairman, IRDP, Chittoor
Dr. J.R.Madhusudan	RDO, Chittoor
C.G.Prasad	Senior Branch Manager, Chittoor
Dr. Sachin Deshpande	Veterinary Assistant Surgeon, SMILDA, Hyderabad
Dr. Venkataiah Goud	Veterinary Assistant Surgeon, SMILDA, Hyderabad
Dr. K. Srinivasa Rao	Veterinary Assistant Surgeon, SMILDA, Hyderabad
Dr. K. Raj Sekhar	Veterinary Assistant Surgeon, VPC, Kurnool
Dr. M. Koteswara Rao	Veterinary Assistant Surgeon, RAHTC, Karimnagar
Dr. Gunasekhara Pillai	Veterinary Assistant Surgeon, VD, Kalikiri, Chittoor.
Dr. G. Suman Kumar	Veterinary Assistant Surgeon, VD.Chinnagottigallu,
Dr. A.Geeta Reddy	Veterinary Assistant Surgeon, PTP. Chittoor.
Dr. A. Varaprasad	Veterinary Assistant Surgeon, PTP, Chittoor.
Dr. K.Ravikumar	Veterinary Assistant Surgeon, VD, Narayanavanam
Dr. S.Narayana Murthy	Veterinary Assistant Surgeon, VD, Irala, Chittoor
Dr. S. Reddappa Reddy	Veterinary Assistant Surgeon, VD, Palasamudram
Dr. C.Chandra Sekhar	Veterinary Assistant Surgeon, VD, Mapakshi, Chittoor
Dr. N.Raja Sekhar Reddy	Veterinary Assistant Surgeon, VD, Palamaner, Chittoor.
Dr. P.Vijaya Mohan	Veterinary Assistant Surgeon, VD, Puthalapattu, Chittoor.
Dr. J. Naraiah	Veterinary Assistant Surgeon, VD, GD, Nellore. Chittoor
Dr. P. Girija	Veterinary Assistant Surgeon, VD, Bomma Samudram

Dr. N. Rajani	Veterinary Assistant Surgeon, VD, Yadamarri Chittoor
Dr. R. Amarnath	Veterinary Assistant Surgeon, Satham Bakam Chittoor
Dr. A. Ravikumar	Veterinary Assistant Surgeon, VD, Yerpedu Chittoor
Dr. N.A. Kumar	Veterinary Assistant Surgeon, VD, S.R. Puram Chittoor
V. Jagannatham	LSA, RLU, Madireddypalli Chittoor
S. Rajendran	LSA, RLU, L.V Puram. Chittoor
S. Ibrahim Saheb	VA, RLU, Yanampalli. Chittoor
K. Ramesh	VA, VD, Yadamarri Chittoor
G. Muniswara Raju	VA, VH, Palamaner Chittoor
A. Hemadri,	VA, VD, Palamaner Chittoor
G. Nirmala	VA, VD, MD Puttur Chittoorv
M. Jhansi Laxmi	VVG, RASSI, Indiranagar Chittoor
P. Nagaveni	VVG, RASS, Yerpedu Chittoorv
M. Sarangapani	Gopalmitra, Budithireddipalli Chittoor
D. Vasudeva chetty	Gopalmitra, Venkatapuram Chittoor
S. Devendran	M. Bandapalli, Farmer Chittoor
A. Garuda Reddy	Digavur Chittoor
R. Jaganmohan Reddy	Kummaripally Chittoor
K. Krishnama Raju	Papichetty Palli Chittoor
B. Munirajulu	Marrimakula Palli Chittoor
M. Govinda Reddy	Gangadu Palli Chittoor
B. Krishna Reddy	Gangadu Palli Chittoor
G. Rama Ratna	Chinna Reddipalli Chittoor
M. Hemalatha	BMV, Palli Chittoor
S. Bibijah	Muthalacheruvu Chittoor
J. Prasada Reddy	Vengampalli Chittoor
R. Kavitha	Vavilathota Chittoor
M. Rakeswara Naidu	S.R. Pura, Chittoor
J. Venkata Subbaiah	Chindepalli Chittoor
G. Srinivasa Reddy	Chindepalli Chittoor
K. Chenchukrishnama Naidu	Kotala Chittoor
K. Madhavareddy	Gudlakattamanchi Chittoor
M. Raghuram Reddy	Palamaner Chittoor
V. Ravindranath	Baireddypalli Chittoor
N. Reddisarvareddy	Madanapalli Chittoor
B. Narasimlu Naidu	LB Puram Chittoor
B. Subramanya Naidu	LB Puram Chittoor
N. Usharani	Sanaganapalli Chittoor
V. Sumalatha	Gudisettipalli Chittoor
M. Girija	Govindapalli Chittoor
S. Gowri Devi	Gutturu Chittoor
B. Sivappa	Kuppanapalli Chittoor
C. Sulochana	V. Kotta Chittoor
A..V. Radhika	Shantipuram, Chittoor
P. Sumathi	M. Laxmipuram Chittoor
N. Nageswar	M.V. Giri Chittoor
S. Padmamma	Jellipeta Chittoor
M. Vijayakumari	Jellipeta Chittoor
A. Yashoda	L.B. Puram Chittoor
G. Sujatha	L.B Puram Chittoor
C. Annapurna	L.B. Puram Chittoor
K. Parameswari	Kurmaipalli Chittoor
A. Balajinaidu	SR Puram, Chittoor
R. govinda Swamt	Irala Chittoor
Revathi	Maranpalli Chittoor
P. Damodar Reddy	Poldala Chittoor
P. Surender Reddy	Gudlamalli Chittoor

## ANNEX 6: DEMOGRAPHIC INFORMATION OF SIX VILLAGES

Item	LB Puram	Vanadurg apuram	Vepulab ailu	Budithire ddipally	Jarawari pally	Chindepally
Households	178	253	101	121	135	80
Human population						
Male	286	510	228	270	273	155
Female	154	489	220	282	280	111
Total	440	999	448	552	553	266
SC	493	154	45	137	21	469
ST	-	19	-	-	-	-
Total	493	173	45	137	21	469
Migration of families since 1990						
Arrivals	-	0	-	-	-	-
Departures	0	0	-	8	-	5
No.of hamlets	9	6	-	2	-	3

## ANNEX 7: LIVESTOCK POPULATION AND DISTRIBUTION

S.No	Species	Population	No. of households holding livestock	Proportion owned by			
				Landless	Small, marginal farmers	Medium and Large farmers	SC, ST households
<b>Village: LB Puram</b>							
1.	Bullocks	16	4.49	-	100	-	-
2.	Cows (Local)	2	1.12	-	100	-	-
3.	Cows (Crossbred)	127	47.5	3.14	72.46	3.14	21.26
4.	Calves	117	45.5	2.36	79.48	3.14	15.02
5.	Buffaloes	1	0.56	-	100	-	-
6.	Buffalo calves	2	0.56	-	100	-	-
7.	Sheep	20	2.24	-	100	-	-
8.	Goats	55	2.24	-	100	-	-
9.	Poultry	12662	34.83	-	99.51	0.04	0.45
<b>Total</b>		<b>13002</b>	<b>139.04</b>				
<b>Village: VANADURGAPURAM</b>							
1.	Bullocks	20	4	65	20	-	15
2.	Cows (Local)	59	11	35	28	15	22
3.	Cows (Crossbred)	246	65	16	24	48	12
4.	Calves	44	43	19	25	41	15
5.	Buffaloes	6	3	45	40	15	-
6.	Buffalo calves	4	2	42	44	14	-
7.	Sheep	51	0.2	-	10	-	-
8.	Goats	269	4	25	30	-	45
9.	Poultry	632	43	41	28	8	23
<b>Total</b>		<b>1331</b>	<b>175.25</b>				
<b>Village: VEPULABAILU</b>							
1.	Bullocks	23	15	8.6	56.5	34.7	-
2.	Cows (Local)	10	6.6	-	30	20	50
3.	Cows (Crossbred)	96	63	5.2	72.9	11.44	10.4
4.	Calves	111	73	2.7	74.7	14.4	8.1
5.	Buffaloes	2	1.3	-	100	-	-
6.	Buffalo calves	2	1.3	-	100	-	-
7.	Sheep	401	2.64	18.7	72.8	-	8.47
8.	Goats	314	2.07	5.7	49	-	45.22
9.	Poultry	405	26.7	2.46	48.64	14.56	34.32
<b>Total</b>		<b>1364</b>	<b>191.61</b>				
<b>Village: BUDITHIREDDIPALLY</b>							
1.	Bullocks	4	2.73	-	100	-	-
2.	Cows (Local)	1	0.68	-	100	-	-
3.	Cows (Crossbred)	107	73.28	6.54	83.17	3.73	6.56
4.	Calves	67	45.89	4.47	73.13	13.43	8.97
5.	Buffaloes	-	-	-	-	-	-
7.	Sheep	2	1.36	-	100	-	-
8.	Goats	8	5.47	50	50	-	-
9.	Poultry	56	38.35	-	100	-	-
<b>Total</b>		<b>245</b>	<b>167.76</b>				
<b>Village: JARAWARIPALLY</b>							
1.	Bullocks	40	20	-	20	10	2
2.	Cows (Local)	12	6	-	12	-	-
3.	Cows (Crossbred)	176	129	20	80	64	12
4.	Calves	46	40	10	15	15	6
5.	Buffaloes	2	1	-	2	-	-

6.	Buffalo calves	2	1	-	1	-	-
7.	Sheep	71	2	21	50	-	-
8.	Goats	2	1	2	-	-	-
9.	Poultry	188	125	75	60	38	15
<b>Total</b>		<b>539</b>	<b>305</b>				

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Village: CHINDEPALLY

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1.	Bullocks	62	53	-	32	-	19
2.	Cows (Local)	20	27	-	41	-	27.5
3.	Cows (Crossbred)	5	9	-	7	-	3.5
4.	Calves	30	24	-	48	-	31
5.	Buffaloes	99	42	-	46	-	10.3
6.	Buffalo calves	82	4	-	46	-	10.5
7.	Sheep	122	6	-	3.4	-	3.5
8.	Goats	38	4	-	-	-	5.17
9.	Poultry	392	62	-	34	-	29.3
<b>Total</b>		<b>850</b>	<b>231</b>				

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## ANNEX 8: MARKETING AND COOPERATIVES OF SIX VILLAGES

Item	L. B. Puram	Vepulabailu	Budithire-ddypally	Jarawaripally	Chinde pally
Milk Co-operative Society	No	No	No	No	No
Number of members	-	-	-	-	-
Milk Collection (Lit./day)	-	-	-	-	-
Price paid (Rs./Lit.)	-	-	-	-	-
Milk sold to private vendors (Lit./day)	280	240	200	250	200
Price paid (Rs./Lit.)	7=50	7=00	7=50	7=50	7=50
Sheep Breeders Co-op. Society	No	No	No	No	No
Number of members	-	-	-	-	-
Number of sheep sold/year	20	20	25	20	25
Amount paid/sheep (Rs.)	2500/-	2000/-	2000/-	2000/-	2000/-
Marketing channel for sheep	Butchers	Butchers	Butchers	Butchers	Butchers
Kind of poultry	Broilers	Desi	Desi	Desi	Desi
Usual holding size	-	5-10	5-10	1-5	3-5
Egg production /bird/yr.	-	60	65	60	35
Eggs marketed	-	-	-	-	-
Eggs used for hatching	-	-	-	-	-
Birds sold/yr.	-	100	120	100	120
Price (Rs. Per bird)	-	60/-	60/-	60/-	65/-