ANIMAL HUSBANDRY COMPONENT

IAMWARM PROJECT

PENNAIYAR SUB BASIN

Directorate of Animal Husbandry & Veterinary Services,
Chennai 600 006

7. ANIMAL HUSBANDRY

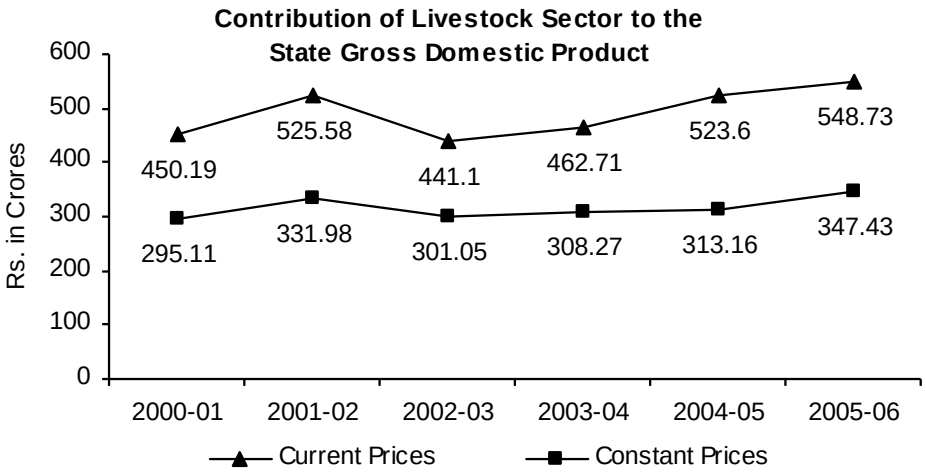
7.1 INTRODUCTION

Our State being an agricultural based economy with more than 60% of the people engaged in animal husbandry, agriculture and allied activities, it forms the backbone of the rural economy. Animal husbandry contributes significantly in supplementing the income of small, marginal farmers and landless labourers many of whom are women who play a major role in the care and management of livestock. Livestock is not only an important source of income to the rural poor but also helps them sustain their livelihood in times of drought and famine. Livestock provide a diverse range of output varying from draught power and organic manure for agriculture, self employment throughout the year especially for women as well as direct production of milk, meat and eggs for human food.

The contribution of livestock sector to the food basket in the form of milk, eggs and meat to the State has been impressive in fulfilling the animal protein requirement of ever growing human population. The estimated milk production which was 37.91 lakh MT during 1995-96 has increased to 54.74 lakhs MT during 2005-06. Similarly the egg production during the same period has increased from 3,048 million numbers to 6,223 million numbers. During the same period, the per capita availability of milk per day went up from 185 gms to 234 gms and eggs per annum from 54 numbers to 97 numbers respectively. The average growth rate of milk and egg during the last decade is 4.4% and 10.4% respectively. According to advance estimates (provisional), the contribution of livestock sector to the Gross State Domestic Product has increased from Rs.523.60 crores during 2004-05 to Rs.548.73 crores during 2005-06, an increase of 4.8%.

Year	Current Prices (In crores)						Constant Prices (In crores)					
	Gross State Domestic Product	GSDP for Agriculture & Allied Activities	GSDP for Livestock Sector	%age Share of Agriculture & Allied Activities to GSDP	%age Share of Livestock Sector to GSDP	%age Share of Livestock Sector to Agriculture	Gross State Domestic Product	GSDP for Agriculture & Allied Activities	GSDP for Livestock Sector	%age Share of Agriculture & Allied Activities to GSDP	%age Share of Livestock Sector to GSDP	%age Share of Livestock Sector to Agriculture
2000-01	14109.98	2042.56	450.19	14.48	3.19	22.04	9101.07	1457.73	295.11	16.02	3.24	20.24
2001-02	14355.54	2056.09	525.58	14.32	3.66	25.56	8901.06	1457.22	331.98	16.37	3.73	22.78
2002-03	15509.93	1646.51	441.10	10.62	2.84	26.79	9170.32	1111.75	301.05	12.12	3.28	27.08
2003-04	16845.72	1700.21	462.71	10.09	2.75	27.21	9495.10	1081.96	308.27	11.39	3.25	28.49
2004-05	18892.11	2025.73	523.60	10.72	2.77	25.85	10324.84	1252.74	313.16	12.13	3.03	25.00
2005-06	20750.28	2097.25	548.73	10.11	2.64	26.16	11198.15	1305.98	347.43	11.66	3.10	26.60

2003-04 : Quick estimates *2004-05 : Advance estimates* *2005-06 : Advance estimates(provisional)*



Animal husbandry having a high potential for growth, its hidden potential needs to be explored as this can provide the much needed gainful employment opportunities to the weaker sections of the society and can contribute significantly in regeneration of the rural economy. Animal husbandry can ensure a better quality of life for the rural farmer by not only providing sustainable employment at their location itself but can also act as assets or rural currencies. Animal husbandry thus can act as a powerful instrument for the comprehensive socio-economic transformation of the rural people and can act as an engine for growth and trigger the economy by its multiplying effects.

7.2 PRESENT STATE SCENARIO

Tamil Nadu is home to 91.41 lakhs head of cattle, 16.58 lakhs buffaloes, 55.93 lakhs sheep, 81.77 lakhs goats besides 3.21 lakhs pigs and 865.91 lakhs poultry as per the 17th livestock and poultry census. The livestock ownership is more evenly distributed among landless labourers, small and marginal farmers and livestock production systems are based on low cost agro-by-products as nutritional inputs.

Veterinary assistance, health cover and breeding support to the livestock and poultry in the State is provided by 1,374 Government graduate veterinary institutions. The National Commission on Agriculture has suggested one veterinarian for every 5000 cattle units by the year 2000 A.D. whereas the present scenario is one veterinarian for every 10,000 cattle units. In addition 1,829 subcentres provide first aid and breeding support. Feed and fodder are the major limiting factors in enhancing farm animal productivity. But in the State a huge gap of around 42% exists between the requirement and availability of green fodder. Though farmers are well aware of the artificial insemination programme, their awareness level on best and latest animal husbandry practices, know-how on emerging new diseases and their control are not up to the excepted level. More over with changing global scenario, the knowledge level of the veterinarians and para-veterinarians needs to be updated frequently to take the technology instantaneously to the end users- the farmers.

Though the State is endowed with large livestock population, the breedable age females covered through artificial insemination is only 30-35%. The conception rate under field conditions ranges from 35-40%. This is due to a mixture of various factors like low nutritional status, improper time of insemination and stress due to walking the animals for long distances to the institutions for artificial insemination, shortage of feed and fodder, prevalence of endemic livestock diseases. In the State, the per day average productivity of a non-descript and crossbred cattle is 2.73 kgs.. and 6.27 kgs. respectively and that of a buffalo is 4.16 kgs. which is much below the expected yield.

The productivity can be enhanced by adopting good management practices, feeding practices, bio security measures, effective disease prevention measures, etc.

7.3. SCENARIO IN THE PENNAIYAR SUB BASIN

Table 1 - Livestock Population

Cattle	Buffalo	Sheep	Goat	Poultry
38690	2047	24317	8671	355271

Table 2 - Breedable age Female Cattle Population

Crossbred Cattle	Non Descriptive cattle	Buffalo	Total
5249	11346	842	17437

Table 3 - Infrastructure and Man power in Government Veterinary Institutions

No. of Veterinary Institutions		Veterinary institutions filled up	
Graduate Institutions	Subcentres	Graduate Institutions	Subcentres
7	4	4	3

Table 4 - Average Per Day Milk Yield per animal

Crossbred Cattle	Non Descriptive cattle	Buffalo
5.5	2.75	3.8

Table 5 - Milk Procurement

Milk cooperative societies	Present milk procurement (LPD)	Milk Procured by Aavin (LPD)	Milk Procured by Private agencies (LPD)
18	31000	1600	29400

Average AI done per year: 6,150

Conception Rate: 37%

Calving Rate: 35%

Calf mortality: 5%

7.4. Constraints, Challenges and Counter measures proposed:

S. No.	Constraints & Challenges	Countermeasures Proposed
1.	Remote villages and villages situated far away from the Government Veterinary Institutions are not getting sufficient veterinary services like veterinary health cover and artificial insemination facilities	The establishment of sub basin veterinary unit will ensure delivery of veterinary services at the farmer's door steps or nearest to the farmer's in remote villages and unserviced villages of the sub basin area. Provision of veterinary health cover and artificial insemination are the main works at the farmer's door steps. The unemployed veterinary graduate will disseminate best animal husbandry practices for his earnings and to upgrade animal husbandry practices of farmers in the sub basin area.
2.	Lack of weight gain in sheep and goats due to irregular deworming	The sheep and goats in the sub basin will be dewormed periodically (once in 3 months) and weight gain will be ensured. (details enclosed vide para 7.6.5)
3.	There is a wide gap between the requirement and availability of green fodder needed for the livestock in the sub basin.	To reduce the gap between the requirement and availability of green fodder in the sub basin, it is proposed to cultivate Co3 fodder in 100 ha.(details enclosed vide para 7.6.3.(d).) as a part of cropping plan. In addition during IEC campaigns, awareness will be created for utilization of unconventional feeds like tree fodder.
4.	Main problem affecting the fertility in cross bred cattle is infertility leading to loss of milk production days, ultimately leading to loss to the farmers.	To overcome the infertility problems, infertility cum health care camps (details enclosed vide para 7.6.4.(b)) are proposed. The animals having infertility problems will be identified and treated. In addition, mineral mixture supplement (details enclosed vide para 7.6.4.(c) will be given to rectify the defects.

S. No.	Constraints & Challenges	Countermeasures Proposed
5	Lack of adequate know-how about the livestock management practices like feeding, breeding, health care and deworming activities.	The farmers in the sub basin will be given training (details enclosed vide para 7.6.6.a.) on best livestock management practices in livestock breeding activities like signs of oestrum, correct time of artificial insemination, deworming, feeding schedule and other health care measures. In addition, IEC materials will be distributed to farmers in the sub basin. More over hoardings and wall paintings depicting signs of commonly affecting diseases will be erected in places where people congregate in large numbers. Apart from this, quarterly interactive meetings will be conducted to disseminate information to the farmers in the sub basin. (details enclosed vide para 7.6.4.(d3)
6	Lack of update knowledge and skills of the veterinarians in the project area.	Veterinarians in the project area will be given trainers training (details enclosed vide para 7.6.6.(b) at Veterinary Colleges to update and refresh their skills and knowledge.

7.5. OBJECTIVES OF THE PROJECT

With this background, the main objective of the Animal Husbandry Department will be to intervene in all possible ways utilising the resources to the maximum to improve the production potentialities of the livestock in the sub basin through multi disciplinary approach.

The main interventions will be:

- Productivity enhancement by improving delivery of veterinary services in the project area at the Government and private level.
- Increasing availability of green fodder and other fodder for sustenance.
- Conducting various out reach programmes to enhance productivity.
- Enhancing the knowledge level of human resource in the project area.

With the above interventions, not only the crossbred population in the sub basin is expected to rise but also the disease outbreaks will be kept under control. Moreover systematic and periodical deworming of sheep and goat in the sub basin area will lead to a 10% increase in weight gain, thereby increasing the total meat yield per animal. More over the various out reach programmes and enhancing the knowledge level in the sub basin area will lead to better animal husbandry practices. Thus ultimately, the per animal milk yield is expected to increase from 5.50 lts to 8 litres in crossbred, from 2.75 lts to 3.6 litres in indigenous and from 3.70 lts to 6 litres in buffaloes, leading to increased total farm income.

7.6. Productivity enhancement by improving delivery of veterinary services in the project area at the Government and private level.

7.6.1 Establishment of Cluster Sub basin Veterinary Unit.

(a) Though there are 7 graduate veterinary institutions and 4 subcentres operating in the project area, there is still livestock population uncovered which is mainly due to the geographical terrain and distance these villages are located from the institutions. In this project, the main aim will be to provide effective veterinary cover and breeding support to these villages at their door steps by establishing Cluster Sub basin Veterinary Unit. The main criteria for establishing the unit will be livestock population in the unserviced area. Hence to provide effective services in these unserved areas, it is planned to establish a Cluster Sub basin Veterinary Unit in the Project area.

(b)The details of Cluster Sub basin Veterinary Unit to be established, their coverage villages with distance and nearest Government Veterinary institution is furnished below.

Total number units in Ponnaiyar subbasin :			1	
Name of the Sub basin Veterinary Unit :			Kathirapalli	
Sl. No.	Name of Villages to be Covered	Distance from the Unit (In Kms.)	Nearest Govt. Institution	Distance from the village to Govt. inst. (In Kms)
1.	Kathirapalli	0	V.D., Bagalur	10
2.	Thathikanapalli	15	V.D., Bagalur	12
3.	Kalavarapalli	9	V.D., Bagalur	11
4.	Bothanatham	10	V.D., Kamanthotti	12
5.	P. Muthali	14	V.D., Berigai	10
6.	Maranapalli	14	V.D., Kamanthotti	8
7.	Thinnur	6	V.D., Kamanthoti	8
8.	Alur	5	V.D., Kamanthoti	9
9.	Marasanthirum	3	V.D., Kamanthoti	5
10.	Thiruchipalli	4	V.D., Kamanthoti	7
11.	Chinnakullu	9	V.D., Kamanthoti	12
12.	Pethakullar	10	V.D., Kamanthoti	11
13.	Samanapalli	8	V.D., Kamanthoti	9
14.	Chennathur	7	V.D., Kamanthoti	17
15.	Ullati	12	V.D., Kamanthoti	10
16.	Seebam	15	V.D., Kamanthoti	12
17	Bandapalli	16	V.D., Kamanthoti	13
18.	Ulagam	18	V.D., Kamanthoti	14

Villages 1 to 3	Monday
Villages 4 to 6	Tuesday
Villages 7 to 9	Wednesday
Villages 10 to 12	Thursday
Villages 13 to 15	Friday
Villages 16 to 18	Saturday

Kathirapalli village is about 10 kms from the nearest Veterinary institution namely Veterinary Dispensary, Bagalur. There are about 18 villages situated in and around Kathirapalli that are not covered by the Government Veterinary Institution. Further the breedable female population in and around Kathirapalli that is untapped by the Government veterinary institution is around 4,276. Hence Kathirapalli village is fixed as the headquarters of the Cluster Sub basin Veterinary Unit.

(c) An unemployed Veterinary Graduate who will be designated as Cluster Sub basin Veterinary Extension Officer will mann each Unit. Animal Husbandry Department will give him 5 days orientation training in the nearest veterinary institution @ Rs.1,500/- per Cluster Sub basin Veterinary Extension Officer. The Cluster Sub basin Veterinary Extension Officer will be given a training incentive of Rs.200/day during the training period. To motivate the trainer, a trainer honorarium of Rs.500/- will be provided. The orientation training will be an over view of the departmental organisation and structure, duties and role of officers, disease endemicity and farmers know-how in the area.

(d) The Cluster Sub basin Veterinary Extension Officer will prepare a weekly route map in consultation with Animal Husbandry Department, Water Users Association and local village panchayats for providing veterinary services. He will be located in the Water Users Association building, which will be his headquarters. He will visit the villages as per the scheduled programme and provide veterinary services like vaccination, deworming, castration and treatment and breeding support like artificial insemination and pregnancy diagnosis. The route will be reviewed and assessed for intake of the veterinary services by the end users once in 3 months and suitable alterations if necessary will be made. Flexibility will be given to change the tour programme based on need. The unit will be under the technical control of the Animal Husbandry Department. The Cluster Sub basin Veterinary Extension Officer will maintain all records regarding artificial insemination like date of artificial insemination done, straw used, sire yield, date of follow up for conception, etc.

(e) To provide breeding support by artificial insemination necessary inputs like LN2 containers (a 35 lit. and 3 lit.), artificial insemination guns, thawing flasks and straw cutters (one set) will be provided. The funds for the above inputs (LN2 containers, artificial insemination guns, thawing flasks and straw cutters) will be sourced from Tamilnadu Livestock Development Agency (TNLDA). The unit will also be provided with other equipments like scalpel, scissors etc. Other inputs for breeding like LN2 and frozen semen straws will also be provided for carrying out services at the farmers door step. The unit will also be provided with dewormers, essential surgical items like cotton, gauge, catguts, intra-uterine infusions, etc., which will be procured from Tamilnadu Medical Services Corporation (TNMSC) for providing veterinary services. In addition a one time revolving fund of Rs.5,000/- will be provided to the Water Users Association. The above fund will be utilised for stocking of medicines and injectables as per the requirement of the Cluster Sub basin Veterinary Extension Officer. The fund for the above will be sourced from the project. The Animal Husbandry Department will ensure supply of vaccines like Hemorrhagic septicemia, Black quarter, Anthrax, Enterotoxaemia and Sheep pox free of cost for carrying out vaccination in the unit's service area. The Sub basin Nodal officer for Animal Husbandry (Regional Joint Director of Animal Husbandry, Dharmapuri) with nodal procurement officer will ensure purchase of the above items from TNMSC and prompt supply.

(f) The veterinarian will be paid an assured professional charge of Rs.5,000/- per month. For the assured professional charge, he will carry out deworming and vaccination free of cost to the farmers. Also his services will be utilized for conducting infertility cum health care camps and farmers interactive meetings. He will be permitted to collect Rs.50/- for each artificial insemination from the farmers to meet his mobility cost like fuel charges and vehicle maintenance cost. In addition, he can collect a nominal fee of Rs.50/- for minor treatments and Rs.100/- for major treatments as professional charges for himself. The cost of medicines utilised for treatment will be borne by the farmer. However if the farmer prefers, the cluster sub basin veterinary extension officer can utilise the medicines and injectables available with the Implementing officer (Assistant Director of Animal Husbandry)/Water Users Association and collect additional charges for medicines utilised which will be remitted back. The above amount remitted will be used as revolving fund for purchase of medicines.

(g) To ensure a wider coverage with increased conception rate, a performance linked incentive for every calf born out of inseminations done by the Unit will be factored, wherein a sum of Rs.50/- will be given during first year, Rs.40/- for second year and Rs.30/- for third year. In addition, the veterinarian will be given a per artificial insemination incentive of Rs.20/- for first year, Rs.15/- for second year and Rs.10/- for third year. A proper proforma for checking the incentive to be given to the Sub basin Veterinary Extension Officer will be developed, which will contain all details like name of the farmer, address, date of artificial insemination, initials of the farmer, veterinarian, Water User's Association. A random check will be done by the Sub basin Animal Husbandry Nodal Officer/Implementing Officer before disbursement of incentives.

(h) The unit will be established at a total cost of Rs. 675600//- for 3 years in which Rs.0.215 lakhs will be non-recurring and Rs. 654100/- will be recurring cost. The financial detail is furnished below.

Financial cost for Establishment of Cluster Sub basin Veterinary Unit - Krishnapuram (Sub basin – Swethanadhi) In Rs.					
	NON-RECURRING EXPENDITURE/UNIT	I Year	II Year	III Year	Total cost
1	Cost of one 35 lts and 3 lts LN2 container Rs.18,000/- (will be sourced from TNLDA)	0			0
2	Cost of A.I. Gun, thawing flask and straw cutter Rs.1000/- (will be sourced from TNLDA)	0			0
3.	Equipments like scalpel & scissors etc.	5000			5000
4	Purchase of furniture, etc	10000			10000
5	One time revolving fund for purchase of medicines	5000			5000
6	Orientation Training	1500			1500
	Total	21500			21500
	RECURRING EXPENDITURE/UNIT				

1	Assured Professional charges for the Sub basin Veterinary Extension Officer @ Rs.5,000/month	60000	60000	60000	180000
2	Cost of straws @ Rs.20/straw at the rate of 2400/1st yr, 2700/2nd yr, and 3000/3rd yr.	48000	54000	60000	162000
3	LN2 @ 300 Lit/year @ Rs.26/lit	7800	7800	7800	23400
4	Cost of basic medicines, infusions and surgical items @ Rs.20,000/annum	20000	20000	20000	60000
5	Incentive for the veterinarian for artificial insemination @ Rs.20/- for 1st yr, Rs.15/- for 2nd yr, & Rs.10/- for 3rd yr	48000	40500	30000	118500
6	Incentive for the veterinarian for each calf born @ Rs.50/- for 1st yr, Rs.40/- for 2nd yr, and Rs.30/- for 3rd yr,	8000	39200	33000	80200
7	Charges for chemicals, glasswares, etc.	8000	8000	8000	24000
8	Contingencies charges	2000	2000	2000	6000
	Total	201800	231500	220800	654100
	Recurring Expenditure for 3 years			654100	
	Total (Recurring + Non-recurring)			675600	

(i) The above endeavor will ensure that areas hitherto unserviced are covered qualitatively by increased breeding cover via artificial insemination coverage, health cover by timely vaccination, deworming and treatment. This will ensure proper disease control and livestock with better genetic potentialities which will lead to increased productivity per animal thereby ultimately leading to better profits between farmers in the project area.

7.6.2 Improving the essential infrastructure in the Government institutions in the project area.

(a).1 Strengthening Storage Input Facilities for Breeding in the Sub-basin: To ensure timely supply of frozen semen to all Sub basin Veterinary Units functioning in the sub basin, it is imperative to have bulk storage facilities for frozen semen and LN2. Hence, jumbo 55 lts. frozen semen storage containers and 55 lts. transport containers are essential. Frozen semen containers are needed for storage of frozen semen while transport containers are needed for transport of frozen semen from production centre to the end user i.e. the Cluster Sub basin Veterinary Unit. More over, as frozen semen is a highly fragile biological product, the transport container will be additionally utilised for not only topping LN2 whenever needed but will also be utilized for toping LN2 to the Cluster Sub Basin Veterinary Unit in case of shortfall in supply of LN2. Considering the total number of Sub basin Veterinary Units, one jumbo 55 lts. frozen semen storage container and one 55 lts. transport container is essential in the above sub basin The above containers will be placed in the Cattle Breeding and Fodder Development Unit, Dharmapuri under the control of the

Department. One set of jumbo 55 lts. frozen semen storage container and 55 lts. transport container will be provided from the project at a cost of Rs.70,000/- per set.

(a).2 In addition a set of jumbo 55 lts. frozen semen storage container and 55 lts. transport container would require 2500 litres of LN2 per year for storage and transport of semen. The cost per litre of frozen semen would be Rs.26/-. Totally, Rs.2.65 lakhs would be required for this component of work which includes two jumbo LN2 containers & LN2.

7.6.3. Increasing availability of green fodder.

(a) Feed and fodder are the major limiting factors in enhancing farm animal productivity. In our country, fodder production is still deemed ancillary to agricultural production. The green fodder resources for livestock are mainly derived from grazing in grasslands and pastures, fodder crops from cropped lands, weeds, bund grasses, tree leaves and mixed forages. Crop residues mainly sorghum and paddy straws which are poor in nutritive value constitute the major fodder for livestock. The economic viability of livestock husbandry depends on sources of feed and fodder, as feeding cost constitutes 65-70% of the total cost of livestock farming. The availability of green fodder is restricted to selected areas and seasons. Green fodder should be fed throughout the year not only to maintain milk production but also for improving the conception rate. Moreover adequate availability of green fodder will reduce the dependence of farmers on concentrates.

(b) Generally small ruminants like sheep and goats are not stall-fed. They are allowed for grazing. Hence for calculation of green fodder, only the bovines are taken into account. In the project area a considerable gap exists between requirement and availability of green fodder.

(c) The requirement, availability and shortage of green fodder for the bovine population in the project area is furnished below.

Bovine Population	Requirement (In MT)	Availability (In MT)	Shortage (In MT)	%age of Shortage
39737	122787	28282	94505	77

To meet the shortage of green fodder for the bovine population in the sub basin, around 378 ha. of land has to be brought under Co3 cultivation (avg. Co3 yield per ha. per year is 250 tonnes). At the field level, it is difficult to bring 378 ha. under fodder cultivation.

Hence to meet the green fodder requirement of the sub basin the following strategy will be followed.

- To propagate green fodder cultivation in the sub basin, around 100 hectares of private land will be brought under fodder cultivation as demo plots in the sub basin area.
- Emphasis will be given to create awareness among the farmers on feeding unconventional feeds like sugar cane tops available in the sub basin.
- Feeding of tree fodder will be propagated.

(d) Around 100 hectares of land earmarked for fodder cultivation in the private lands in the project area will be taken up for cultivation of Co3 as demo plots. The farmers will be supplied fodder inputs free of cost. The cost of cultivation will be borne by the farmer. The Animal Husbandry Department will ensure supply of quality slips. The yield rate and cost of inputs is furnished below.

Sl. No.	Name of fodder	Avg. Yield per ha per year (In tonnes)	Cost of inputs Per Hectare (In Rs.)
1.	Co3	250	6,000

The needy villages where farmers are interested in fodder cultivation will selected for raising 100 hectares of Co3.

(e) The new area to be brought under fodder cultivation and the status of green fodder in the sub basin after implementation of the project is as follows.

Fodder Availability Status after the end of project:

	Co3 fodder @ yield rate of 250 tonnes/ha for 100 ha @ 50 ha for 1yr and 30 ha for 2nd yr.& 20 ha for 3rd yr. (In MT)	Total fodder available during the end of the year (In MT)	shortage of fodder (In MT)	Cost of cultivation @ Rs.6000/ha for Co3 .
I Year	12500	40782	82005	300000
II Year	7500	48282	74505	180000
III Year	5000	53282	69505	120000

(f) For supplying Co3 inputs for 100 hectares of land, Rs.6.00/- lakhs would be required. In addition, a lump sum amount of Rs.700/- per hectare would be required for transportation of Co3 slips from the supply point to the consumer point (farmers). Rs.6.70/- lakhs would be required for bringing 30 ha. land under Co3 cultivation. Totally, Rs.6.70/- lakhs would be required for this component of work.

(g) By the above cropping pattern in the sub basin, the green fodder availability will be increased to 53,282 MT. The shortage will be 69,505 MT. To reduce the shortage, 8,122 MT of ragi crop residues available from cultivation of 1805 ha. of ragi as per the cropping pattern will be utilized for green fodder. Ultimately the shortage will be 61,383 MT. The shortage will be met by allowing the animals to graze in the tank bunds, Common Property Resources, etc. In addition, feeding of unconventional feeds and tree fodder will be encouraged by creating awareness in the IEC campaigns.

7.6.4 Improving the knowledge level of the farmers by various out reach programmes.

(a) The success of the project depends on effective dissemination of information to the field in improving the knowledge level of the farmers on best and latest animal husbandry practices, emerging new diseases and their control and optimum utilisation of fodder resources by various out reach programmes.

The out reach programmes planned in the project area are:

1. Infertility cum Total Veterinary Health Care camps.
2. Distribution of mineral mixture
3. Information, education and communications campaigns.

(b) ***Infertility cum Total Veterinary Health Care camps.***

(b).1. Under this programme, infertility cum total health cover both preventive and curative will be provided to all livestock and poultry by conducting special camps in each Cluster Sub-basin Veterinary Unit service area at the rate of one camp per unit per month for 3 years. In these camps, various activities like health care, disease prevention vaccination against endemic diseases, deworming, castration, artificial insemination, pregnancy verification, infertility treatment, etc. will be carried out free of cost. An exhibition depicting various livestock diseases and preventive measures, fodder development measures, calf rally along with demonstration will also be conducted for creating awareness among the farmers.

(b).2. Prior wide publicity will be given regarding the village where the camp is to be conducted in the village and near by villages. In addition, the day and place where the camp is to be conducted will be displayed in the Water Users Association building. The services of the veterinarians and para-veterinarians working in the Animal Husbandry Department in the sub basin area will be utilised for conducting the camps. In addition, the services of Tamilnadu Co-operative Milk Producers Union and Tamilnadu Veterinary University will be utilized. A calf rally will be organised in the camp and best calf / calves will be given prizes which will act as motivation for other farmers. During the camps, pamphlets and leaflets on best and latest animal husbandry practices, emerging new diseases and their control and optimum utilisation of fodder will be distributed.

(b).3. Each camp will be conducted at a cost of Rs.6,000/-.

Sl. No.	Component	Cost in Rs.
1.	Medicines	4,000
2.	Cost of 25 straws for artificial insemination	500
3.	Publicity and Propaganda	500
4.	Distribution of prizes in calf rally	500
5.	Miscellaneous charges like erection of shamina, etc., for conducting the camp	500
	Total	**6,000**

(b).4. Apart from total health cover the camp is expected to achieve, it will help in identifying animals affected by infertility due to mineral deficiency. The total financial cost for this component for 3 years is Rs.2.16/- lakhs.

(c). Distribution *of mineral mixture.*

(c).1. One of the major problems affecting conception is infertility. The major causative factor for infertility in the field is mineral deficiency. Mineral deficiency may be due to many factors, in which the important factor is sub basin soil nutritional status. The soil status in the sub basin will be assessed with the help of the local Soil Testing Centre under the control of Agricultural Department. Hence to correct this deficiency, which is the vital factor affecting conception and calving, it is proposed to distribute mineral mixtures to needy animals in the project area incorporating the nutrient deficient in the soil.

(c).2. The sub basin veterinary extension officer visiting the villages on the scheduled programme will select the eligible animals during the visit. In addition animals will also be identified during the infertility cum total health cover camps. The eligible animals will be given mineral mixture @ 25 gms per day for 365 days. The sub basin veterinary extension officer will maintain the data of eligible animals covered under this programme and ensure examining the animals regularly for growth parameters. The sub basin wise cost required for distribution of 25 gms. of mineral mixture for 365 days to 100 animals at a cost of Rs.40/- kg per sub basin veterinary extension officer for 3 years is 1.10 lakhs.

(c).3. By this the animals will come to oestrum early and lead to better conception and calving rates. Moreover this will lead to reduction in inter-calving period there by increasing the productive life of the animal.

(d). Information, education and communications campaigns

(d).1. Printing of Pamphlets and leaflets.

Pamphlets and leaflets on best practices in animal husbandry, biosecurity measures to be taken to prevent diseases, economic diseases affecting livestock and their prevention and control measures, optimum utilisation of fodder resources with emphasis on inclusion level of non conventional feeds, etc. will be printed in Tamil for distribution to the farmers in the project area for the first two years. In addition, health card for livestock will be printed under this component. For the above component at the rate of Rs.2,000/- per Cluster Sub basin Veterinary Unit and Graduate institution for 2 years, Rs.0.32 lakhs would be required.

(d).2. Erection of hoardings and wall paintings in the project area.

Posters, hoardings and banners carrying the activities undertaken in the project area will be displayed in all Cluster Sub basin Veterinary Unit for the first two years. The same will also be displayed in all Government institutions functioning in the project area. In addition wall paintings depicting signs of commonly affecting diseases will be painted on walls where people congregate in large numbers. For the above component at the rate of Rs.2,000/- per Cluster Sub basin Veterinary Unit and Graduate institution for 2 years, Rs.0.32 lakhs would be required. In addition, advertisement in Local Cable TV will be done on promotion of Animal Husbandry activities at a cost of RS 20000/- for two years.

(d).3. Conducting Farmers interactive meetings

(d).1.a. Farmers interactive meetings will be conducted involving the Water Users Association, Animal Husbandry Department and Cluster Sub basin veterinary Extension Officer at a common place in the sub basin on a suitable day in each Cluster Sub basin Veterinary Unit and Graduate institution area at the rate of one per half year for the first two years. The meeting not only enables participation of all the farmers in the sub basin but also acts as a source of information to other farmers.

(d).1.b. During the farmers interactive meetings, village people will be enlightened on benefits of rearing livestock and will be motivated to take up livestock rearing. Pamphlets and leaflets will be distributed to the farmers. A small exhibition and method demonstration will be organised for the benefit of the farmers. The services of link agencies like Tamilnadu Veterinary and Animal Sciences University and Tamilnadu Milk Producers Cooperatives Union will be utilised where ever necessary. In the farmers interactive meetings successful animal husbandry entrepreneurs in the village and neighboring villages will be requested to share their views on their methodology followed for their success. For the above component at the rate of Rs.1,000/- per Cluster Sub basin Veterinary Unit and Graduate institution per meeting per half year for 2 years, Rs.0.32 lakhs would be required.

In addition, under IEC miscellaneous cost a lump sum amount of Rs.3.00 lakhs would be required towards strengthening the implementing offices, documentation charges, vehicle hiring charges, contingency charges etc., cost on stationeries, preparation of progress report, evaluation report and unforeseen expenditure.

(d).1.c. Totally Information, education and communications campaigns will be conducted in the sub basin at a total cost of Rs.4.166 lakhs. (See Annexure 1)

7.6.5 Deworming of sheep and goats.

a. Sheep and goats are reared mainly by grazing and they are highly vulnerable to parasitic infestations. These infestations causes many health problems in them like weight loss, delayed maturity, high mortality rate, low fertility rate, etc., apart from making them susceptible to other infections. This also affects the quality of meat, skin and carcass yield.

b. To overcome all the deleterious impact due to parasites, sheep and goat have to be dewormed periodically. At present, the farmers are not periodically deworming their sheep and goats. Thus they are not able to attain the full production potential. Hence it is proposed to bring the practice of deworming all sheep and goats by the farmers in the project area once in three months by carrying out deworming free of cost for the first year. A cost of Rs.6/- would be required to deworm an animal four times per year. The cost is inclusive of dewormers, drenchers and syringes. As around 30,000 sheep and goats are available in the sub basin, Rs.1.80/- lakhs would be required for this component of work.

7.6.6. Enhancing the knowledge level of human resource in the project area.

Continuing education is the touchstone of success. The project envisages capacity building at all levels like farmer, veterinarian, operating in the sub basin to achieve the desired results of increased sustainable productivity at the end of the project.

(a). ***Training of Farmers***

(a).1. Farmers generally have a traditional knowledge of breeding and management of livestock. The existing awareness, knowledge level and skill in profitable rearing of livestock with latest animal husbandry techniques among majority of farmers are minimum in the project area. Hence it is essential to impart training to upgrade the skills and knowledge level for profitable animal husbandry rearing.

(a).2. Under this programme, elite farmers interested in animal husbandry activities will be selected and given training on best practices in livestock rearing. They will also be enlightened on importance of feeding and cultivation of fodder crops. Emphasis will be given to enlighten the farmers on feeding of unconventional feeds and their inclusion level. Moreover they will be briefed about the diseases generally affecting the livestock in the basin and their symptoms and control measures. In addition they will be enlightened on the importance of deworming, vaccination and clean milk production. The farmers trained will be utilised for dissemination of the above information to their counterparts in the villages.

(a).3. For the above purpose, progressive farmers @ 200 per year interested in animal husbandry activities in the sub basin will be selected for 3 day training. They will be divided into batches of 25 per batch. Training will be provided in the nearest veterinary institution. They will be given a training incentive of Rs.100/day as they will have to attend the training programme foregoing their normal daily earning. During the training, each trainee will be given training material (note pad, pen and manual) worth Rs.50/-. To motivate the trainer, a trainer honorarium of Rs.250/- per day will be provided. In addition miscellaneous charges of Rs.500/- will be provided for each batch. A total cost of Rs.10,000/- will be required for training each batch. During the project period of 5 years, a total of 600 farmers (24 batches of 25 farmers per batch) @ 200 farmers per year for 3 years in the sub basin will be trained at a cost of Rs.2.40 lakhs.

(b). In-service Training for 7 Veterinarians

(b).1. Veterinarians have an overall knowledge of breeding, management, diagnosis and treatment of livestock. With advancing science and technology, the techniques followed may have become obsolete. Moreover, new and simple techniques have evolved in animal husbandry management, breeding, diagnosis and treatment. Hence it is essential to update the knowledge and skills of the veterinarians in Government institutions in the project area.

(b).2. The 7 veterinarians working in the Government institutions in the sub-basin will be given in-service training at Madras Veterinary College / Namakkal Veterinary College / Central Frozen Semen Production & Training Institute, Hasserghatta / Kerala Livestock Development Board, Mattupatti at a cost of Rs.10,000/- per individual. The total cost for training the 7 veterinarians in the sub-basin would be Rs.0.70/- lakhs. (See Annexure 1)

7.7. Identification of breedable cattle and buffaloes in the sub basin.

Accurate identification of livestock is essential in systemic breeding and disease control. At present, identification of animals is mainly done only during insurance of animals. Hence it is proposed to give impetus to identification of animals in the sub basin area. Initially for identification of breedable cattle and buffaloes, plastic tags will be utilized. The possibilities of utilizing microchips will be explored in the project. For identification of the breedable cattle and buffaloes in the sub basin by utilizing plastic tags, Rs.1.75 lakhs would be required which includes cost for applicator and plastic tags for 17,000 animals.

7.8. Ensuring marketing tie up for the products.

With the rapid urbanisation, changing life styles and increasing purchasing power of the people, the demand for livestock and livestock products is expected to rise steadily. Moreover there is a well established Milk Producers Co-operative Union in the district and also many private dairies are functioning in the district, marketing of milk will not be a problem. Hence marketing the livestock and livestock products in the sub basin will not be a major problem.

ESTIMATE FOR ANIMAL HUSBANDRY COMPONENT TO BE INCLUDED IN IAMWARM PROJECT REPORT – PENNAIYAR SUB BASIN

Sl. No.	Name of the Component	Phase II Sub basins DPR Abstract - Animal Husbandry									
		Unit	Unit cost	PENNAIYAR (In lakhs)							
				Year I		Year II		Year III		Total	
				Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
A	**Sub basin Veterinary Unit**										
1	Furniture	No.	0.100	1	0.100	0		0		**1**	**0.100**
2	Equipments like minor basic equipments like scissors, forceps, scalpel, etc.,	No.	0.050	1	0.050	0		0		**1**	**0.050**
3	Basic medicines, infusions & surgical items	No.	0.200	1	0.200	1	0.200	1	0.200	**3**	**0.600**
4	Frozen Semen Straws	No.	0.0002	2400	0.480	2700	0.540	3000	0.600	**8100**	**1.620**
5	Liquid Nitrogen	1 lt.	0.00026	300	0.078	300	0.078	300	0.078	**900**	**0.234**
6	Chemicals, Glasswares & contigencies	No.	0.100	1	0.100	1	0.100	1	0.100		**0.300**
7	Incentive for A.I.*	No.		2400	0.480	2700	0.405	3000	0.300	**8100**	**1.185**
8	Incentive for Calves born**	No.		160	0.080	980	0.392	1100	0.330	**2240**	**0.802**
9	Revolving fund for purchase of medicines	No.	0.050	1	0.050	0		0		**1**	**0.050**
10	Orientation training to Sub basin veterinary unit officers	No.	0.015	1	0.015	0		0		**1**	**0.015**
11	Professional charges to unemployed veterinary graduate @ Rs.5,000/month	No.	0.600	1	0.600	1	0.600	1	0.600		**1.800**
	Sub total (A)				**2.233**		**2.315**		**2.208**		**6.756**
B	**Infrastructure in Institutions**										
1	Jumbo LN2 Containers	Set	0.700	1	0.700	0		0		**1**	**0.700**
2	LN2 @ Rs.26/ lt. for Jumbo LN2 containers	2500 lts.	0.650	1	0.650	1	0.650	1	0.650	**3**	**1.950**
	Sub total (B)				**1.350**		**0.650**		**0.650**		**2.650**
C	**Fodder Development**										
1	Co3 Slips	Ha.	0.060	60	3.600	40	2.400	0	0.000	**100**	**6.000**
2	Fodder Cholam seeds	Ha.	0.010	0	0.000	0	0.000	0	0.000	**0**	**0.000**
3	Kolukkattai/stylo seeds	Ha.	0.030	0	0.000	0	0.000	0	0.000	**0**	**0.000**
4	Fodder Maize seeds	Ha.	0.035	0	0.000	0	0.000	0	0.000	**0**	**0.000**
5	Transport charges	Ha.	0.007	60	0.420	40	0.280	0	0.000	**100**	**0.700**
6	Azolla inputs	No.	0.00125	0	0.000	0	0.000	0	0.000	**0**	**0.000**
7	Azolla training	No.	0.0125	0	0.000	0	0.000	0	0.000	**0**	**0.000**
	Sub total (C)				**4.020**		**2.680**		**0.000**		**6.700**
D	**Infertility Cum Health Care Camps**										
1	Frozen Semen Straws (25 straws)	1 camp	0.005	12	0.060	12	0.060	12	0.060	**36**	**0.180**
2	Medicine	1 camp	0.040	12	0.480	12	0.480	12	0.480	**36**	**1.440**
3	Publicity & propaganda	1 camp	0.005	12	0.060	12	0.060	12	0.060	**36**	**0.180**

4	Prizes in Calf rally	1 camp	0.005	12	0.060	12	0.060	12	0.060	**36**	**0.180**
5	Miscellaneous charges for camps	1 camp	0.005	12	0.060	12	0.060	12	0.060	**36**	**0.180**
	Sub total (D)		**0.060**		**0.720**		**0.720**		**0.720**		**2.160**
E	Mineral Mixture @ 100 animals per year`	**per year**	**0.365**	**100**	**0.365**	**100**	**0.365**	**100**	**0.365**	**300**	**1.095**
F	**IEC Campaigns**										
1	Printing pamphlets & leaflets @ Rs.2,000/- unit	1 No.	0.020	8	0.160	8	0.160	0	0	**24**	**0.320**
2	Hoarding & Wall paintings @ Rs.2,000/- unit	1 No.	0.020	8	0.160	8	0.160	0	0	**24**	**0.320**
3	Half yearly farmers interactive meetings @ Rs.1,000/- meeting	1 No.	0.020	8	0.160	8	0.160	0	0	**24**	**0.320**
4	Hiring charges @ Rs.700 per follow up visit for 3 visits per camp (Rs.2,100/-)	1 No.	0.021	12	0.252	12	0.252	12	0.252	**36**	**0.756**
5	Cable TV	1 No.	0.100	1	0.100	1	0.100		0.000	**2**	**0.200**
6	Other IEC works				0.750		0.750		0.750	**0**	**2.250**
	Sub total (F)				**1.582**		**1.582**		**1.002**		**4.166**
G	**Deworming of sheep & goats**										
1	Dewormers	1 No.	0.00004	30000	1.200		0.000		0.000	**30000**	**1.200**
2	Incentives	1 No.	0.00002	30000	0.600		0.000		0.000	**30000**	**0.600**
	Sub total (G)		**0.00006**		**1.800**		**0.000**		**0.000**		**1.800**
H	**Identification of breedable bovines**										
1	**Tags and accessories**			**17000**	**1.750**					**17000**	**1.750**
I	**Training**										
1	Farmers	25 per batch	0.100	200	0.800	200	0.800	200	0.800	**600**	**2.400**
2	Inservice training to Veterinarians	1 No.	0.100	4	0.400	3	0.300			**7**	**0.700**
	Sub total (I)			**204**	**1.200**	**203**	**1.100**	**200**	**0.800**	**607**	**3.100**
	Total				**15.020**		**9.412**		**5.745**		**30.177**

ESTIMATE FOR ANIMAL HUSBANDRY COMPONENT TO BE INCLUDED IN IAMWARM PROJECT REPORT – PENNAIYAR SUB BASIN

	Components	Physical	Financial (Rs. In Lakhs)
1	**Productivity enhancement by improving delivery of veterinary services**		
	a. Establishment of Cluster Sub basin Veterinary Unit (CSBVU) @ Rs.6,75,600/- per unit	1	6.756
	b. Strengthening Storage Input Facilities for Breeding in the Sub-Basin @ Rs.2,65,000/-per unit	1	2.650
2	**Fodder Development**		
	a. Increasing availability of green fodder in private lands (in hac) C03 - 100 hac.	100	6.700
3	**Out reach programmes.**		
	a. Infertility cum Total Veterinary Health Care camps @ Rs.6,000 per camp per month for each CSBVU	36	2.160
	b. Distribution of mineral mixture @ Rs.1,09,500/- for 3 years	1	1.095
4	**Information, education and communication campaigns**		4.166
5	***Deworming of sheep and goats @ Rs.6/animal/year for 1 year***	30,000	1.800
6	**Identification of breedable cattle and buffaloes in the sub basin**	14,000	1.500
7	**Enhancing the knowledge level of human resource**		
	Training of Farmers & In-service Training for Veterinarians	607	3.100
	TOTAL		**30.177**

Annexure 1.

Capacity building of Farmers.

Animal Husbandry contributes significantly in supplementing the income of small, marginal farmers and landless labourers many of them women who play a major role in the care and management of livestock. Livestock is not only an important source of income to the rural poor but also help them sustain their livelihoods. It also provides organic manure for agriculture, milk, meat and eggs. Animal Husbandry can ensure a better quality of life for the rural farmer by not only providing sustainable employment at their location but also can add to their assets.

Though farmers are aware of the artificial insemination, their awareness level on the best and latest Animal Husbandry practices, know-how on emerging new diseases and their control are not up to the satisfactory level. The capacity building programmes would be focusing on Good management practices, feed practices, bio security and effective disease prevention measures.

Animal Husbandry Department will reach 600 farmers in this sub-basin to facilitate them to produce more milk per drop of water thus enabling them to accrue more profit. Capacity building activities will start with campaigns and village level nigh meetings to educate farmers on the need for adapting newer techniques and methods in Livestock Management.

Follow-up visits at regular intervals would focus on ensuring sustainability of best practices and upgrading farmer's skills.

The Major subjects to be covered in IEC and Capacity building programmes are as follows:

- Livestock breeding – signs of oestrum, correct time of artificial insemination
- Accurate diagnonisis of diseases
- Practice of deworming
- Feeding practices
- Infertility problems and solutions

Besides farmers, 7 Veterinarians working in Government Institutions in the sub-basin will be give in-service training at Madras Veterinary College / Namakkal Veterinary College / Central Frozen Semen Production & Training Institute, Hasserghatta / Kerala Livestock Development Board, Mattupatti at a cot of Rs 10000/- per personnel.

Training Matrix

	Training content	Time frame	No.of trainees	Type of CB Programme	Who will do it	Duration and Location
Component 1. Change Behaviour						
Village Level	Awareness Generation – IEC (Through Pamphlets and leaflets and Hoarding and Wall Paintings)		All villages in the sub-basin	Village meetings, Campaigns with IEC materials.	Veterinary Assistant Surgeons.	
Component 2:Technical						
Village level	Best livestock practices in livestock breeding activities lime signs of oestrum, correct time of artificial insemination, deworming, feeding schedule, artificial insemination, pregnancy diagnosis and other health measures. This will be followed by cluster level technical training programme. (At regular intervals)			On the field training programmes.	Veterinary Assistant Surgeons.	
Cluster level	Imparting skills pertaining to disease management, feeding practices and others.		600 farmers	Training	Department Officers	Three Days, at a nearest veterinary institution.

Estimated Budget

	Training content	Description of the cost		Total in Rs
Component 1. Change Behaviour				
Village Level	Awareness generation	IEC		84000
		Local Cable TV	20000	
		Printing of Pamphlets, leaflets and Health Cards	32000	
		Wall Paintings and Hoardings	32000	
Component 2: Technical				
Village level	On the field training programmes and Follow-up Visits	Lump-sum		300600
Cluster level	Farmers Interactive Meeting -	Lump-sum		32000
	Farmers Training	Training materials : 600 farmers x Rs 50	30000	240000
		Incidental expenses (Food and others): 600 farmers x Rs 100 x 3 days.	180000	
		Honorarium for Resource person and other miscellaneous	30000	
	In-service Training of Veterinarians	7 personnel x Rs 10000	70000	70000
Total				726600