

Project Profile

# Breed Improvement



Gujarat CSR Authority

# Project Profile – Breed Improvement

## Background & rationale

In an agro-based developing country like India, natural resources provide basic livelihood support to rural people. Rural families tend to be dependent on land, water, livestock and forests for generating employment and for earning their livelihood.

Among the livestock, cattle and buffaloes play a significant role, because of their contribution to human nutrition (milk and butter fat), plant nutrition (farmyard manure) and energy (draught power). Cattle and buffaloes, unlike other natural resources, tend to be well distributed among small and large land holders. Unfortunately, a majority of the livestock are low productive, non-descript and lack adequate feed resources and health cover to enhance the milk yield, making breed improvement important.

The advantages of using Artificial Insemination (AI) are numerous and well documented. Some of them include:

- the ability to use sires of superior genetic merit (the best bulls of the breed);
- improving production traits for future cattle generations;
- reducing the requirement of herd bulls needed for cattle operation and breeding; and
- when combined with modern methods for advancing the heating cycle (estrous synchronization), a shorter breeding period, results in a more consistent and uniform calf production is achieved.

The average yield of milk and meat in the animals within India is 20%-60% lower than the global average<sup>1</sup>. Further, their production potential is not realized fully because of constraints related to feeding, breeding, health and management. Deficiency of feed and fodder accounts for half of the total loss, followed by the problems of breeding and reproduction (21%) and diseases (18%).

The demand for animal food products is responsive to income changes, and is expected to increase in future. Between 1991-92 and 2008-09, India's per capita income grew at an annual rate of 4.8% and urban population at a rate of 2.5%. These trends are likely to continue. By the end of 2017, demand for milk is expected to increase to 141 million tons and for meat, eggs and fish together to 15.8 million tons. The global market for animal products is expanding fast, and presents an opportunity for India to improve its participation in global market.

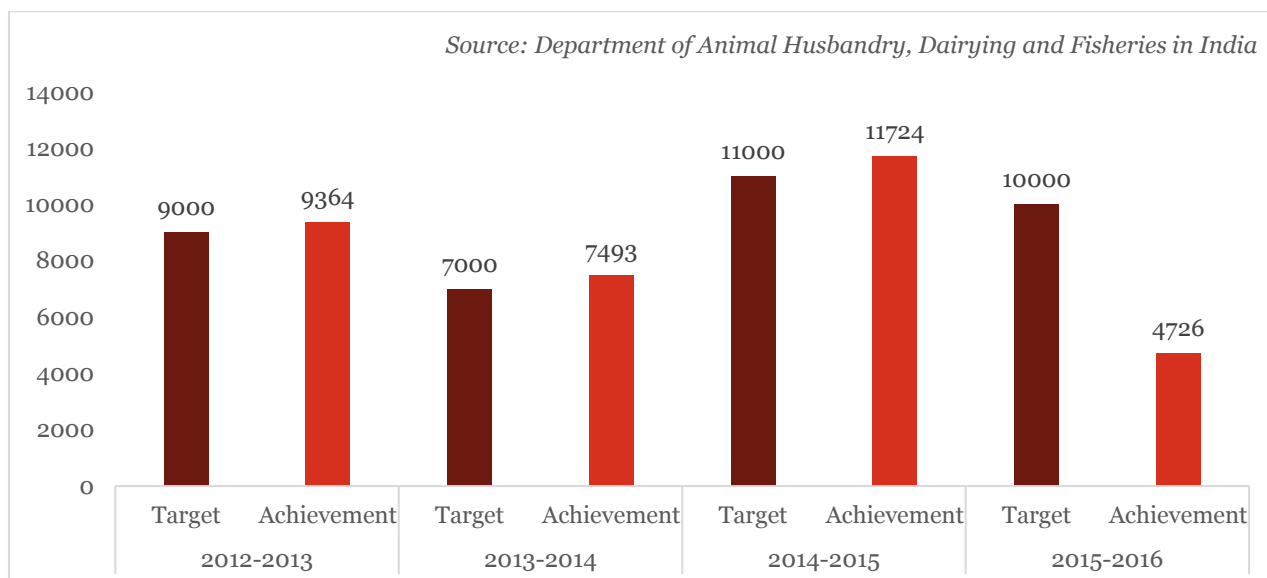
India witnessed an increase in milk production from around 20 million tons in 1960s to 115 million tons in 2010-11. It grew at an annual rate of 4.4% during 1990s and 3.8% during 2000s. Although per capita availability of milk has increased from 128 g/day in 1980-81 to 267 g/day in 2010-11, it is still below the estimated per capita requirement of 280 g.<sup>2</sup>

The target for establishing mobile AI units by Department of Animal Husbandry, Dairying and Fisheries in India under National Programme for Bovine breeding has shown a consistent performance in establishing mobile AI units (except for the period 2015-16) as shown in **Figure 1**. **Figure 2** highlights that female exotic cross-bred cows form only 17.69% of the total female cow population in Gujarat and thus there is a huge opportunity to increase milk production in the state by adopting scientific practices.

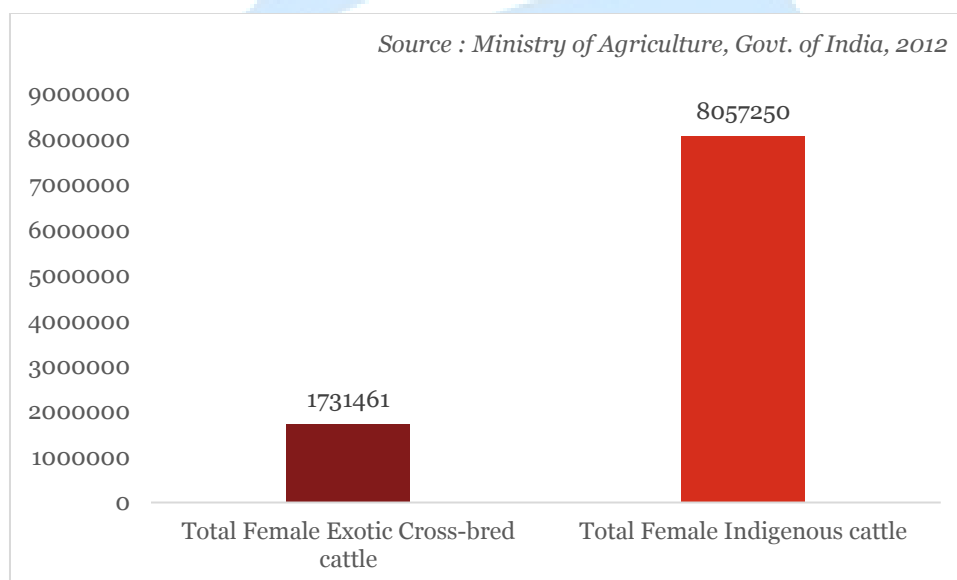
<sup>1</sup> [http://planningcommission.gov.in/aboutus/committee/wrkgrp12/agri/AHD\\_REPORT\\_Final\\_rev.pdf](http://planningcommission.gov.in/aboutus/committee/wrkgrp12/agri/AHD_REPORT_Final_rev.pdf)

<sup>2</sup> Report of the Working Group on Animal Husbandry & Dairying for the 12th FYP (2012-17), submitted to the Planning Commission

*Figure 1: Establishment of Mobile AI units under National Programme for bovine breeding*



*Figure 2: Number of Female exotic Cross-bred v/s Female Indigenous cattle in Gujarat*



## ***Objectives of the project***

The project will focus on the following key areas:

- improving productivity (milk / draft strength) of the local cattle and buffalo through artificial insemination, balanced feeding, veterinary services and management,
- establishing “Integrated Livestock Development (ILD)” centres to provide integrated breeding, feeding and cattle management services to dairy farmers,
- increasing per capita availability of milk,
- decreasing the inter-calving period of milch animals by providing timely breeding facility at the doorstep of the farmers,

- helping the farmers in reducing the financial loss due to reduced milk yield and/or death of the animals by providing veterinary First Aid services on time,
- increasing the coverage of breedable population under A.I. programme, and
- providing information on the latest scientific animal management practices to the dairy farmers.

## Expected Benefits

The support provided by sponsoring companies would result in reaping tangible and intangible benefits as outlined below:

Tangible Benefits	Intangibles
<ul style="list-style-type: none"> <li>❖ Community support &amp; appreciation</li> <li>❖ Social license to operate, through cooperative community engagement</li> <li>❖ High levels of employee satisfaction</li> <li>❖ Recognition through awards</li> </ul>	<ul style="list-style-type: none"> <li>❖ Enhanced reputation by way of supporting projects benefitting communities at the 'bottom of the pyramid'</li> <li>❖ Social branding</li> <li>❖ Enhanced credibility within community and sector</li> </ul>

## Opportunities for CSR intervention

Milk yield of various types of dairy animals increased at an annual rate of 2.7% to 3.0% during 1990s but the growth was considerably low during the 2000s. This calls for a technological breakthrough in animal breeding and production to sustain a growth rate of 4% in milk production, as the milk consumption has otherwise been growing at about 5% per annum.<sup>3</sup> Technologies of sexed semen, embryo transfer, and ovum pick up should be integrated in breed improvement programmes. Further, with the incomes from selling milk, a family's economic condition can be improved by maintaining one crossbred. An illustrative example of the cost-benefit details of owning crossbred cows are presented in **Table 1**.

Table 1: The Cost Benefit details of Desi v/s Crossbred cows (Illustration)

Parameters	Local Cow		Crossbred Cow	
	Quantity	Amount (INR)	Quantity	Amount (INR)
<b>Income:</b>				
Average milk production per lactation of 305 days excluding milk suckled by calf (Rs.28.00/litre)	900	25,200	2,700	75,600
Dung, farmyard manure (t/year)	3	1,800	5	3,000
<b>Total Income (INR)</b>		<b>27,000</b>		<b>78,600</b>
<b>Expenses:</b>				
Feed : Concentrate (INR 9/kg)	250	2,250	1,100	9,900
Dry Fodder (INR 2/kg)	3,150	6,300	3,000	6,000
Green Fodder (INR 1.5/Kg)	400	600	1,000	1,500
Vaccinations and Veterinary care		500		1,000
<b>Total Expenses (INR)</b>		<b>9,650</b>		<b>18,400</b>
<b>Net Income (INR)</b>		<b>17,350</b>		<b>60,200</b>
<b>(Excluding Labour Costs)</b>				
Labour Cost		12,000		12,000
Breeding and other services		1,500		1,500
Miscellaneous Maintenance Expenses		3,000		3,000
<b>Net Profit (INR/year/cow)</b>		<b>850</b>		<b>43,700</b>

<sup>3</sup> Report of the Working Group on Animal Husbandry & Dairying for the 12th FYP (2012-17), submitted to the Planning Commission

Farmers maintaining crossbred cows can meet their draught power needs locally without additional costs. However, due to lack of awareness, field extension and demonstration are needed to optimise the use of crossbred bullocks. Thus Breed improvement centric interventions have to focus not only on technical aspects but also few common but important parameters, which shall revolve around:

### **Management Support**

- Community mobilisation
- Training and capacity building on SHG aspects, financial management & business planning
- Institution formation
- Marketing and collective action

### **Technical support**

- Establishment of ILD (Integrated Livestock Development) centres.
- Introduction of breed improvement techniques for increasing the milk productivity
- Veterinary treatment and creating a cadre of local unemployed youth called as 'Gopal' for scientific management and disease control

### **Potential project area**

Potential project areas are rural areas across Gujarat. Valsad, Surat, Tapi, Bharuch, Panchmahal, Sabarkantha, Narmada, Dahod and Banaskantha districts maybe emphasised as they have a significant indigenous cow population.

### **Target group**

Socio-economically backward populations with low size of landholdings, with an emphasis on SC and ST households, and those from minority communities.

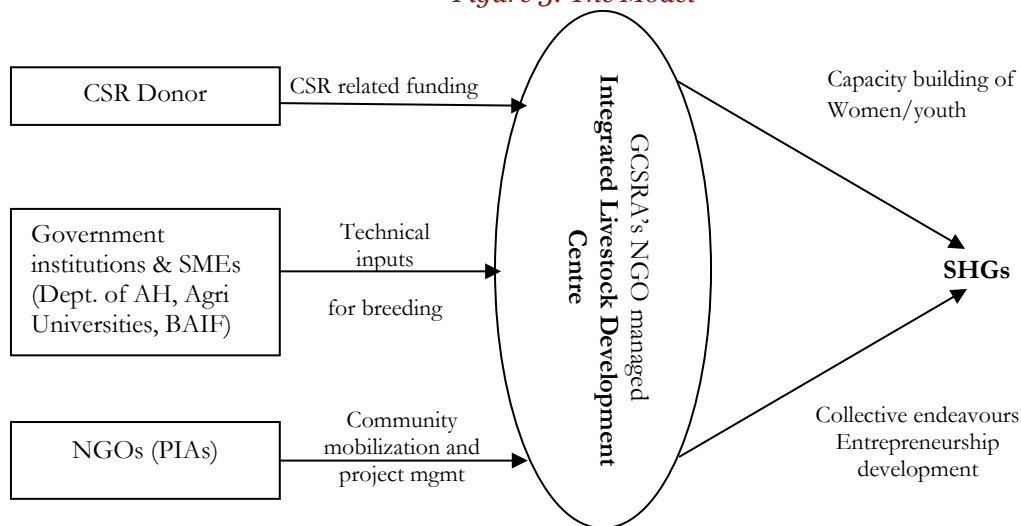
### **Project implementation**

#### **A. Implementation**

The project shall focus on upgrading the local indigenous low milk- yielding cows/buffaloes by crossbreeding / upgrading them with the use of frozen semen from highly pedigreed exotic/indigenous bulls. The resulting crossbred/upgraded calves will be better milk yielders and will help in improving the socio-economic status of the farmers. These crossbred/upgraded female calves will also be reared as mature cattle under the project. The programme will be implemented through Integrated Livestock Development (ILD) centres.

The project will target socio-economically weak community households to provide them with support for establishing small micro-enterprises revolving around bovine animals and local unemployed youth to run the ILD centres. The various project components are:

Figure 3: The Model



### ***PHASE I: Planning and mobilisation (1 year of support)***

A resource unit – **Integrated Livestock Development (ILD)** centre would be set up for every 5-6 villages, with oversight and strategic support from the GCSRA, technical support from Dept. of Animal Husbandry, Agri Universities and NGO, thus working in the role of a Project Implementing Agency (PIA). The ILD will be a convergent point of service delivery and will house critical data on all the beneficiaries in its catchment. It will also have all information on demand side - markets, prices, etc; as well as on supply side - on inputs, suppliers and government programs. The ILD will help the SHGs/entrepreneurs in breed improvement and allied animal husbandry services like animal healthcare, castration, vaccination, deworming, first aid, infertility treatment, fodder and nutritional feed supplement.

The beneficiaries will start paying an actual 'fee-for-service' sought from the ILD centre by year 3 as the value for fee-based services becomes an accepted norm with due recognition of the value of its inputs, thus facilitating sustainability of the same.

The process steps are dealt out below:

#### **Situational assessment of the project villages (developing a baseline status)**

- GCSRA (with PIA support) will undertake a detailed study of the project area. The study will be a baseline study and would include benchmarking secondary & primary information on the vulnerable & marginalised households in the identified villages, assess their S-E status and credit performance, productivity, availability of economic infrastructure, current and emerging markets/trends etc w.r.t. the local demand and detailed survey of cattle and buffalo population, including the numbers of breedable cattle and buffaloes, bulls to be castrated and other details. Through this baseline, the potential for income and the success criteria shall be defined.

#### **Value Chain analysis**

- While the baseline is being commissioned, GCSRA shall also conduct a value chain analysis of the dairy sector, with an attempt to map the value chain and conduct an opportunity: constraint mapping with respect to the market, and seek the opinions on various intervention points.
- The value chain is expected (at this stage, without any baseline) to be short, largely localised and compact, and requiring technical inputs from a breed improvement and disease control perspective. The value chain analysis and enterprise assessment will be done in accordance with specific target groups and the skills and resources accessible with such communities/household.

### **Entry point interventions - Community sensitization and mobilisation**

- An initial round of sensitization meetings will be organised in identified villages with potential SHG and ILD members / youth to sensitise them on the project strategy and interventions, and the possible benefits. The sensitisation program will be an intensive effort to inform the rural women/SHGs/youth on the SHG and ILD, on the end-of-project scenarios.
- This will be done with the help of animators/field coordination partners through continuous interactions with SHG members. By the third sensitisation meet, enrolment into SHGs and shortlisting youth for running ILD centre is expected to be initiated.
- Based on the value chain analysis, stakeholders identified for associating with the project (subject matter experts and resource organisations) will be contacted and the project design and strategy shared with them.

### **Technical support for productivity enhancement & enterprise promotion**

- A package of practices shall be developed in consultation with Subject Matter Experts (SME) and Resource Organisations (RO) such as BAIF and the Junagadh Agricultural University, that shall focus on :
  - breed improvement practices, using high yielding exotic and indigenous dairy breeds for improving the quality of cattle, with an emphasis on their productivity
  - scientific management of the cattle, w.r.t. feeding, rearing, hygiene standards
  - disease prevention and management, including vaccination of cattle and provision of first aid support
- A series of exposure visits and trainings shall be planned in consultation with SMEs and ROs, to visit best practices and progressive farmers and see them on ground. Atleast 2 such exposure visits and 1 training on cattle management provided to the beneficiaries at the Universities.
- Cattle Health camps shall be conducted with the help of NGOs / SMEs and local service providers involving veterinarians.
- Local unemployed youth to be shortlisted for atleast 3-4 months of intensive training to carry out artificial inseminations in cows/buffaloes and other allied veterinary services, by veterinarians at various training centres. They shall be groomed to take over the role of maintenance & service provision on a gradually increasing 'pay-for-access' basis over time, thus increasing rural entrepreneurship amongst the community. Youth, possessing an elementary educational qualification (grade 8) and an aptitude for science, belongingness to the community, good leadership, communication and observation skills, physically strong and having manual dexterity shall be selected and provided with trainings / exposure visits to develop their capacities for the same.

### **SHG formation**

- As an entry point activity, SHG formation shall be initiated over a 6-9 month period, and the governance & management systems set up, and credit activities subsequently initiated.

### **Developing the results framework**

- Based upon the progress of the year, GCSRA will provide support to the NGO to develop a success framework, under which, success indicators shall be defined, the baseline levels defined and targets defined over a 2-5 year horizon, on an annual basis. The same can then be broken down into half-yearly input-output-outcome targets, with impact criteria defined post a period of 3 years.

## ***PHASE II: Start-up (year 2-3)***

### **Formation of ILD centres**

- Based on the baseline, a central location covering all the villages (approximately 5-10) falling within a radius of 5-8 km will be identified and the ILD centre will be set-up. Further depending on the area to be covered, the number of ILD centres to be established will be decided.

- The ILD centre will primarily be operated by an educated unemployed youth called as 'Gopal', who shall be shortlisted for training in Phase I of the project. The programme operator will be provided with a motorcycle, to enable him to provide door-step veterinary support services.
- The programme operator will be paid a monthly sustenance allowance and performance-based incentive for the production of calves.

### **Capacity building support to the SHGs/ ILD centre**

- Capacity building of the SHG members and ILD programme operators will be a continuous process so that they serve as locally available and sustainable human resource to better negotiate business terms with the banks/market intermediaries/buyers. Efforts shall be made to encourage their increased participation in the value chains by managing all the processes. This mechanism, by establishing and capacitating local resources will provide a means for sustaining the interventions even beyond the Project duration.
- As and when required, technical consultants will be engaged to help build up the entrepreneurial orientation within the rural community, and provide them with inputs on governance aspects / production / inventory management/marketing etc.

### **Monitoring & Evaluation**

- A qualified monitoring officer will be deployed for a cluster of 15-20 ILD centres, who shall track the project progress on a monthly basis.

### **Sustainability of the project**

- SHGs draw strength from the skills and human resources in the surrounding local environment, and would therefore sustain beyond the project life. They are expected to be financially viable and operationally sustainable entities. It is envisaged that the surpluses achieved via interest incomes would go into creating a corpus for a SHG that shall be available to its members for future use.
- Incremental benefits of collective procurement & marketing shall directly accrue to the producer, rather than being absorbed by the 'usual' middleman in the conventional value chains. This would eventually lead to increased incomes, and enhance household level sustainability.
- Creation of a cadre of locally available AI and allied service providers to provide demand-based services. It is envisaged that till the first three years, the Project expenses would be entirely supported by CSR funds, however, from the year 3, the ILD centre would slowly start generating part of the project costs incrementally from the community (the producers) as a 'fee-for-service' and would also work to develop dedicated partnerships with input suppliers and market intermediaries.

## **List of success indicators**

### **Project Outputs**

- Number of SHGs formed
- Number of self-sustainable ILD centres
- Decrease in inter-calving period of milch animals by providing timely breeding facility at the doorstep of the farmers
- Increase in the coverage of breedable population under AI programme
- At least three private sector partners in agribusiness linked with the project over a 3 year period

### **Desired Outcomes**

- Improvements in milk productivity by at least 200% (from baseline levels) over a 3-year period
- At least a 100%-150% increase in the income of at least 80% of total targeted households over a 3 year period, due to adoption of the 'scientific practices and AI'.



- Established links of SHGs with input suppliers / private market channels;
- Increased farmers benefitting through replication of the SHG model in surrounding areas.

### **Potential Impact**

Sustainable increase in the incomes of vulnerable & marginalised communities, and better quality of life for all stakeholders

### **B. Implementing agency**

The Project shall be implemented by the GCSRA, with local livelihood support organisations (NGOs) and having expertise in livelihood promotion, community mobilization, being tasked with grassroots implementation.

#### Roles and responsibilities

- **GCSRA** : baseline survey, strategic plan for the project, coordination between donors, technical service providers, monitoring & evaluation, documentation and (physical/financial) reporting for the Project
- **NGO** : implementation and community mobilization, on-field support for capacity building, progress reporting as per the results framework
- **Resource Organisations / Subject Matter Experts** (like BAIF etc) : technical support for breed improvement and training of para-professionals
- **Corporate** : funding the initiative and timely disbursement

### **C. Partnerships**

- *Government Institutions*: Department of Animal Husbandry, Govt of Gujarat; NABARD; Junagadh Agriculture University
- *NGOs/Civil Society*: BAIF, JK Trust, individual SMEs
- *Alternative sources of funding (co-funding)*: **NABARD** – is the apex institution for all matters relating to policy, planning and operation in the field of agricultural credit. Loans from banks (with refinance facility) via the NABARD is available for Dairy farming. The items of finance includes costs of assets like development of land, construction of sheds, purchase of equipments, purchase of breeding stock, rearing cost of animals till it generates income etc. Other donors could potentially include the **Tata Trusts**.

### **D. Anticipated benefits from the project**

Given the broad understanding amongst all stakeholders that poor households depend upon a ‘diversified portfolio of subsistence livelihoods’ to generate incomes, it is easily comprehensible that when multiple vocations are supported within the same household, it would result in increased incomes, and correspondingly, a greater degree of sustainability for the rural community. The finer impacts could be studied as:

- Increase in incomes of beneficiary households by higher percentage, due to sale of milk (improvements, quality & quantity), through the introduction of scientific practices
- Generation of social capital (community based organisations), by way of representative associations like SHGs that can better negotiate with the markets for collective inputs procurement (and possibly sales)
- Empowerment of poor communities
- Increase in the nutritional status of children among the beneficiary households
- Increase in welfare spending, assessed by way of proxies (education, healthcare, toilet construction)
- Changes in asset profile of the rural household (consumption assets)
- Increase in employability of educated unemployed youth.
- Availability of doorstep animal husbandry support services like castration, vaccination, deworming, first aid, infertility treatment

## Estimated Financial Costs

The estimated financial costing is provided in the table below, assuming 800 beneficiaries and 5 ILD programme operators.

Figure 4: Estimated Budget

SI No.	Particulars	Number		Unit Cost	Year 1	Year 2	Year 3
<b>A</b>	<b>ILD Programme operator</b>			(in INR)	(in INR)	(in INR)	(in INR)
a1	'Gopal' -Programme operator	5	100%	12,000	60,000	66,000	72,6000
	<b>Costs of Project Personnel (site)</b>				<b>60,000</b>	<b>66,000</b>	<b>72,600</b>
<b>B</b>	<b>NGO-HO Co-ordination (INDIRECT)</b>						
b1	Secretary PIA	1	5.00%	20,00,000	1,00,000	1,10,000	1,21,000
b2	Manager (M&E)	1	10.00%	7,50,000	75,000	82,500	90,750
b3	Costs of NGO HO support				1,75,000	1,92,500	2,11,750
b4	NGO shared costs <sup>1</sup> @ 5%		5%		8,750	9,625	10,588
	<b>Sub-Total (Personnel)</b>				<b>1,83,750</b>	<b>2,02,125</b>	<b>2,22,338</b>
<b>C</b>	<b>Recurring costs</b>						
c1	Travel @ 20% of the personnel costs		20%		48,750	53,625	58,988
c2	Infrastructure & Rent @ INR 3000 p.m. <sup>2</sup>	5		15,000	1,80,000	1,98,000	2,17,800
c3	Overheads @ 10% of infrastructure cost	1			18,000	19,800	21,780
	<b>Sub-Total (Recurring costs)</b>				<b>2,46,750</b>	<b>2,71,425</b>	<b>2,98,568</b>
<b>D</b>	<b>Institutional/ enterprise development costs</b>						
d1	Exposure visits (a group of 15 persons per visit)		25/15/10	50,000	12,50,000	7,50,000	5,00,000
d2	Capacity building and EDPs <sup>3</sup>	2	400/200/200	100	80,000	40,000	40,000
d3	External TSP's costs <sup>4</sup>			7,50,000	7,50,000	7,50,000	7,50,000
	<b>Sub-Total (Institutional/enterprise development cost)</b>				<b>20,80,000</b>	<b>15,40,000</b>	<b>12,90,000</b>
<b>E</b>	<b>Programme Costs</b>						
e1	Baseline survey and Needs Assessment	800		500	4,00,000		
e2	Value chain analysis			1,50,000	1,50,000		
e3	Training to programme operators	5		5000	25,000	25,000	25,000
e4	Cost of artificial insemination	3,200		22.65	72,480	72,480	72,480
e5	Health Camps	3,200	2	250	16,00,000	16,00,000	16,00,000
e6	Monitoring & Evaluation (5x1/2 yr + 1 end of term)	2		1,50,000	3,00,000	3,00,000	4,00,000
	<b>Sub-Total</b>				<b>25,47,480</b>	<b>19,97,480</b>	<b>20,97,480</b>

SI No.	Particulars	Number	Unit Cost	Year 1	Year 2	Year 3
<b>F</b>	<b>National level upstream linkages</b>	1	2,00,000	2,00,000	2,00,000	2,00,000
f1	Coordination with the Govt. Programs					
f2	Seminars and Workshops					
<b>G</b>	<b>Total Project Costs</b>			<b>53,17,980</b>	<b>42,77,030</b>	<b>41,80,985</b>
<b>H</b>	<b>GCSRA Administrative cost</b>		4.00%	<b>2,12,719</b>	<b>1,71,081</b>	<b>1,67,239</b>
	<b>TOTAL PROJECT COST (Inclusive of GCSRA cost)</b>			<b>55,30,699</b>	<b>44,48,111</b>	<b>43,48,224</b>

Note:

<sup>1</sup>Shared costs are the programme support costs of the PIA-NGO (finance, admin and HR)

<sup>2</sup>Rent has been assumed at INR 3,000 per month (inclusive of net etc), assuming that the ILD has to avail the space on its own

<sup>3</sup>The CB and technical trainings costs are estimates and may vary on actuals

<sup>4</sup>Technical specialist costs include the costs to be incurred on technology dissemination and POP

Figure 5: Estimated per unit cost

Particulars	Number	Year 1 (in INR)	Year 2 (In INR)	Year 3 (INR)
<b>Total Project Cost</b>		55,30,699	44,48,111	43,48,224
<b>Beneficiaries</b>	800			
<b>Unit Cost per beneficiary</b>		<b>6,913</b>	<b>5,560</b>	<b>5,435</b>
<b>No. of villages</b>	25			
<b>Unit Cost per village</b>		<b>2,21,228</b>	<b>1,77,924</b>	<b>1,73,929</b>

## Project Plan & Timelines

#	Activity Description	Y1, Q1	Y1, Q2	Y1, Q3	Y1, Q4	Y2, Q1	Y2, Q2	Y2, Q3	Y2, Q4	Y3, Q1	Y3, Q2	Y3, Q3	Y3, Q4	Y4, Q1
1.	Situational assessment of the project villages (developing a baseline)													
2.	Value Chain analysis													
3.	Entry point interventions - Community sensitization and mobilisation (including group formation)													
4.	Identification of ILD service providers													
5.	Training of ILD programme operators													
6.	Technical support for productivity enhancement & enterprise promotion (market led programming)													
7.	Exposure visits and health camps													
8.	SHG formation													
9.	Developing the results framework													
10.	ILD Formation													
11.	Capacity building support to SHGs/ ILD centre													
12.	Monitoring & Evaluation (Inclusive of joint review with GCSRA team)													
13.	Impact Assessment (Mid-term and Final evaluation)													

## ***Monitoring***

- The process will continuously be monitored under a joint review mechanism with the GCSRA team on a half-yearly frequency. For each phase, the GCSRA team may develop a list of indicators that shall detail the performance and quality parameters to be assessed. This methodology will measure the effectiveness of the project processes within a results framework of actual outputs, outcomes, and impacts vis-à-vis the intended targets, and shall form the basis of monitoring and evaluation exercises
- The progress of the project will be measured against the initial baseline using quantitative and qualitative milestones achieved by the community and the project, and reviewed against the targets defined in the results framework.
- The half-yearly monitoring exercises would be aimed at suggesting ongoing corrections and to document the positive and negative outcomes. A mid-term (end of 1.5 years) and final evaluation (end of 3 years) will be conducted by GCSRA (either on its own or through an external firm) to independently assess and report on the outputs, outcomes and the impacts of the Breed improvement project.

## ***Reporting***

The implementing agency would be responsible for the following:

- ensure regular monitoring and follow up and updation of records in the database and generate progress reports for GCSRA and company as per agreed timelines
- ensure reporting on CSR activities to GCSRA on monthly, quarterly and annual basis as against the funds disbursed to them

GCSRA would be responsible for collating the data and then reporting on the overall CSR activity management and annual compliance, followed by the issue of a compliance certificate on the same to the sponsor company.