

**SMALL RUMINANT VALUE CHAINS AS PLATFORM FOR  
REDUCING POVERTY AND INCREASING FOOD SECURITY IN  
DRYLAND AREAS OF RAJASTHAN, INDIA**

**(imGoats)**

**FINAL REPORT**

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## **1. INTRODUCTION**

Goat rearing has been an important livelihood option for small and marginal farmers as well as landless families in India. Goat husbandry being a highly unorganized activity, goat keepers have been deprived of scientific knowledge, modern management practices and fair marketing opportunities. In view of these hurdles, BAIF has been working on goat development to empower these economically weaker sections of the society.

This project was implemented by BAIF Development Research Foundation in India and CARE in Mozambique and hence named as imGoats Project. The project was funded by European Commission (EU) through International Fund for Agriculture Development (IFAD), as a part of the EC incremental contribution to CGIAR and implemented under the leadership of the International Livestock Research Institute (ILRI). The project of two year duration from June 2010 to December 2012, was extended till June 2013. The total project budget sanctioned was Rs. 20912879.

## **2. PROJECT OBJECTIVES**

- To pilot sustainable and replicable organizational and technical models to strengthen goat value chains in India and Mozambique that increase incomes, reduce vulnerability and enhance welfare amongst marginalized groups, including women;
- To document, communicate and promote appropriate evidence-based model(s) for sustainable, pro-poor goat value chains.

## **3. TARGET AREAS**

The project target areas in India were tribal and semi-arid areas in the backward regions of the following states:

- Sarada and Jhadol blocks of Udaipur district of Rajasthan;
- Jama block of Dumka district of Jharkhand.

## 4.0 STATE-WISE ACTIVITIES UNDERTAKEN

### 4.1. Rajasthan

#### 4.1.1. Introduction

**Project at a Glance:** The project had set a target of 3000 goat keepers' families in Rajasthan, but restricted it to approximately 2685 families, to avoid spread of the project area, which is located in a remote hilly region. The details of the project are presented below in Table 1:

**Table 1: Project Details**

S. No.	Particulars	Numbers
1.	Total beneficiaries/participants	2685
2.	Working Area:	
a.	No. of Districts	1
b.	No. of Blocks	2
c.	No. of Clusters	6
3.	Field Guides ( <i>Bakri mitras</i> )	25
4.	Groups of Goat keepers' formed	244
5.	Project period	January 2011 – June 2013

**Project Area:** The project was implemented in Jhadol and Sarada blocks of Udaipur district. This is a semi-arid region in the Northern Plain and central highlands, including the Aravalli hill ranges. Forests account for 55% of the total geographical area in Jhadol block. In Sarada block "land used for other than agriculture" account for 55% of the total geographical area. The average rainfall is 600 mm and temperatures vary from 11.6 and 28.3<sup>0</sup> C in winter to 22 and 44<sup>0</sup> C in summer. Farmers in this region prefer to grow short duration food grain crops under rain fed condition.

With 21.5 million goats, Rajasthan ranked second in goat population in India. Udaipur district ranked sixth in goat population with 1.1 million goats. Jhadol block hosted 0.13 million goats and Sarada block had 0.13 million goats, which accounted for 27% goat population in the district (Livestock census, 2007). Most of the goat keepers were marginal or small farmers and agricultural labours, belonging to Scheduled Tribes (ST), who represented 48% population in the project area. Among 2685 participant families, 2534 families belonged to ST, 31 to Scheduled Castes (SC), 88 to Other Backward Classes (OBC) and 43 families belonged to general categories.

Goat keepers largely depended on forests for fodder and followed the practice of 50% browsing and 50% stall feeding. Green fodder included lopping of tree leaves of *Zizyphus mauritiana* (Ber), *Acacia nilotica* (Babul), *Acacia leucophloea* (Aurunja) and *Azadirachta indica* (Neem), and grasses such as *Hiran* and *Rohida*. It was a common occurrence that the pods of *Aurunja* resulted in cyanide poisoning and death of the animals. The major crops of the area are wheat, maize, barley, chickpea and mustard. The average annual household income was about Rs. 22,000. Out of this income, 68.4% was generated through wages in the neighbouring towns, 19.6% from agriculture and 12% from goat farming.

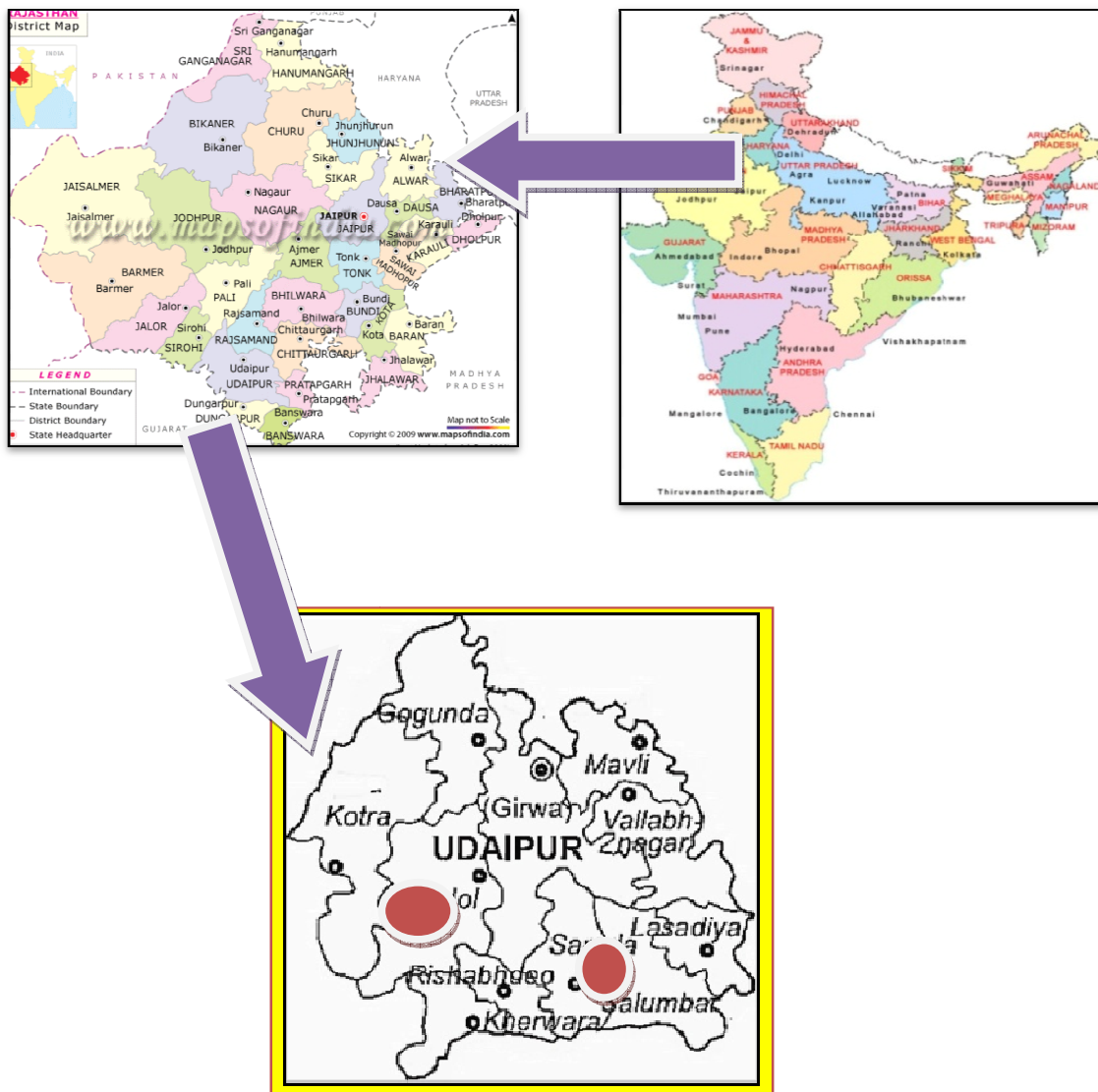


Figure 1 shows Sarada and Jhadol blocks in the Map

#### 4.1.2. Major Project Interventions

**Baseline Survey:** A baseline survey format was developed in consultation with ILRI. The project staff were trained for a day before taking up randomised survey in 11 villages. Key results of the baseline study were as below:

- The goat-keeper households participating in the project, were below poverty line households with a very high dependence on their small land and livestock holdings. Crop production was subsistence in nature with wage labour as the main income source. Goat husbandry was mainly a complementary source of income to support household needs or during emergencies.
- The breed prevalent in the area was mainly the local non-descript breed locally referred to as *desi*. The goat keepers did not follow any specific breeding practices.
- The goat keepers practiced a combination of open browsing and stall feeding, which varied according to seasons. Forest lands were considered as an important feed source by almost 58%, 63% and 62% of the goat keepers in winter, summer and rainy seasons respectively. 63% of the respondents expressed that they had experienced shortage of feed for goats in the past one year especially during the months of April and May.
- About 66% and 49% of the sample goat keepers indicated that their goats were housed inside the house during the rainy and winter seasons.
- The awareness levels about health management practices among goat keepers, was almost negligible. They had not undertaken any health management practices such as vaccination, de-worming and treatment for ticks and injuries. Majority of them indicated that they had not made any investments in goat rearing and that they considered it as a low-input (cost) system.
- The goats were mostly sold to the local butchers. The peak sales were in the winter months of November, December and January, which coincide with important Hindu and Muslim festivals.

- In goat rearing, women were involved in day to day activities whereas men were involved in activities such as medication and selling of animals. Both women and men were involved in the decision making process to sell the animals and had equal control over the money generated.
- About 62% of the sample goat keepers indicated that they did not have membership in any active community group. There was a general lack of coordination among goat keepers with respect to planning for different goat husbandry activities.

**Project Team Composition:** The project team consisted of one Project Manager, one Project Officer, six Supervisors (Livestock Management Diploma holder) and 25 Field Guides. The Project Manager was responsible for overall project management and developing various reports and was located in Udaipur. The Project Officer was responsible for coordination of the field activities in two blocks and was placed at Jhadol. Six Supervisors was responsible for implementation of developmental activities, one at each cluster and for providing technical support to Field Guides and Goat keepers' groups. Field Guides were the backbone of the project and were responsible for day-to-day interaction with the community for mobilisation, technical inputs and mentoring.

**Capacity Building and Exposure Visits for Project Team:**

- i. Training-cum-exposure visit of project staff was arranged at Deepan Yuba Goshthi (an NGO), in Burdwan, West Bengal, who had implemented a similar goat development project in association with BAIF in the recent past. The objective was to orient the team on basic knowledge of breeding, health care, feed and fodder and marketing of goats.
- ii. The Project Officer and six Supervisors were also sent to the Central Institute for Research on Goats at Makdhoom, Mathura, for a one-week training in goat management.
- iii. RRIDMA organized 10 orientation and refresher trainings for Field Guides and Supervisors for improving their technical skills.
- iv. Exposure visits to State Buck Breeding Farm, Ramsar, Ajmer, CSWRI, Tonk and to the Private Goat Entrepreneur Farm, Chahiyawas, Ajmer were conducted to enhance the capacity of project staff.

- v. Outcome mapping training was organized by ILRI in Udaipur. During this training, the project team learnt about the tools and framework for project monitoring.

#### 4.1.3. Project Activities:

**Selection of Field Guides:** The Project team adopted a unique bottom to top approach to select Field Guides, by discussing with the community at every village level meeting about the expected qualities and role of the field guides, which included education up to the 8<sup>th</sup> to the 10<sup>th</sup> standard, experience in goat rearing, living in the same village, etc. In response to such discussions, the community suggested the most suitable candidates for the post of Field Guides.



Figure 2. Field Guide on bicycle

**Formation of Goat keepers' Groups:** Formation of goat keepers' groups consisting of 8-10 women members, owning a total of 45-50 does, was an important aspect of the project. These groups were formed voluntarily by the goat keepers themselves after series of meeting among the community members in each village. 244 groups were formed spread over 41 villages. The project team organised regular monthly meetings of these groups to motivate and organise them to carry out various activities as advised by the Field Guides.

**Health Camps:** Deworming camps were organized in 41 villages, where health check up of goats was carried out and 222 sick animals were treated. 11,108 goats infected with ectoparasites, were drenched with Albendazole.

**Focus group meeting:** Focus group meetings of the community were conducted to understand the traditional goat rearing practices such as breeding, feeding, health care and marketing. These



Figure 3 . Focus Group meeting with Community



meetings conducted in every village, were attended by 30-40 goat keepers, who shared their experiences in goat husbandry practices.

### Goat Development Activities:

**Breed Improvement :** The project adopted holistic goat breed improvement in line with the State Policy, using Sirohi breed for genetic improvement. Bucks were selected on the basis of phenotypic breed characters, weight at birth and at various stages of growth, milk yield and twinning tendency of the mother, etc. Selected



Figure 4. Goat herd keepers selecting Sirohi buck

bucks were screened for diseases and kept in quarantine for 21 days, before handing over to the buck keepers, who were selected by the respective groups. The buck keepers were supported with barley and gram as concentrate, at 400 grams per buck per day. 304 Sirohi and 2 Sindhi breeding bucks were provided concentrate and all of them were insured. It was also agreed that the bucks would be rotated between different groups to avoid in-breeding.

**Castration:** The purpose of castration was to reduce non-descript breeding and to improve body weight of male kids which were not needed as breeding stock. Field Guides were trained for castration. 763 males were castrated till the end of the project.



Figure 5. Field Guide castrating a buck

### Health Care:

- 1. Vaccination:** Major diseases prevalent in the project area were Enterotoxaemia and *Pestes de Petitis Ruminants* (PPR). Hence, it was decided to vaccinate against these two diseases, which was carried out by the Field Guides, particularly through village level health camps. 30,584 goats were vaccinated during the project period.



Figure 6. Field Guide injecting vaccine

2. **Parasite Control:** Endo and ecto parasite control camps were conducted in all the project villages on fixed days, giving wider publicity. The Field Guide drenched dewormer and sprayed Butox externally. 284 faecal samples were tested prior to deworming and 54,483 goats were dewormed.



Figure 7. Drenching Goat with dewormer

deworming and 54,483 goats were dewormed.

3. **Primary Health Care:** First Aid Kits were provided to each Field Guide to enable them to provide primary treatment to sick goats. Over 12,803 goats were treated.

#### **Mobilising Fodder Resources:**

1. **Fodder Development:** The strategy was to encourage goat keepers to grow some fodder to feed their goats. As most of the small farmers had no surplus land for growing fodder, it was planned to encourage them to grow fodder shrubs on field bunds and in their backyards. Hence, fodder plants as well as seeds were distributed for establishment of fodder tree rows and plantations. This also helped in creating awareness about importance of fodder to combat fodder scarcity during lean period. The fodder species selected for promotion were Sesbania and Subabul (*L. leucocephala*) saplings (covering 143 goat keepers) and seeds of Babul (*Acacia nilotica*) benefitting 189 families. Seeds of Subabul (*L. leucocephala*) were also distributed to 167 goat keepers.
2. **Urea treatment of Wheat Straw:** Five demonstrations were organized at Goat keepers' houses, with the objective of introducing this new technology, which can improve the nutritive value of neglected crop residues and to make efficient use of dry fodder. Over 250 goat farmers were exposed to this practice through these demonstrations.

- 3. Azolla Cultivation:** Azolla, being a protein rich green fodder, efforts were made to promote the cultivation through method demonstrations through eight units managed by selected goat keepers. Each unit was provided with 1 kg Azolla planting material and 2.5 x 2.5 m plastic sheet for establishing the demonstration. As the goats relished this feed, many goat keepers showed interest in growing azolla particularly to feed their goats during shortage of green fodder.
- 4. Leaf Meal collection :** The project team demonstrated leaf meal production by collecting green leaves of *Khejri (Prosopis cineraria)*, *Arunjia (Acacia leucophlea)*, *Ber (Zizyphus mauritiana)*, Mango (*Mangifera indica*), *Vilyati Babool (Prosopis juliflora)*, Neem (*Azadirachta indica*), etc., collected from community wood lots, private plantations and forests, by drying for a few days in the shade. Goat keepers were advised to store and feed during lean period. The purpose of this demonstration was also to explore alternative sources of fodder during shortage.
- 5. Use of Mineral Bricks:** With an objective of demonstrating the positive impact of feeding minerals to improve growth, milk and meat production of goats, special mineral bricks of 1 kg each were developed adding specific minerals for the project location and provided to each goat keeping family. Most of the goat keepers were surprised to know about the benefits of mineral supplementation, which were never heard of before.

#### **Good Management Practices:**

**Demonstration of Fodder Manger:** Realising the fodder scarcity and neglect of available fodder resources, special bamboo trays were developed for placing fodder and facilitating better feeding without any wastage. The project also introduced a wooden Fodder Trough of 120 cm length, 45 cm height and 20 cm width, for feeding fodder.

**Innovation Platform:** The Innovative Platform (IP) consists of four types of boundary partners namely, Producers (Goat rearers), Post Producers (Local goat traders, Butchers),

Input Suppliers and Enabling Agencies (Animal Husbandry Department and RRIDMA). The objective of the IP was to bring all the boundary partners on one platform for reviewing and discussing on various existing field issues and concerns related to Goat husbandry and to develop an action plan for the future.



Figure 8. Project Advisor facilitating IP meeting

The Innovation Platform was formed in Jhadol block for resolving various issues and for developing an action plan. The project facilitated 11 IP meetings. The concerns and issues raised in these meetings are presented below:

### Issues and Concerns

Issues	Concerns
Production	<ol style="list-style-type: none"> <li>1. Good breeding bucks needed;</li> <li>2. Timely health care facilities;</li> <li>3. Need for fecal examination for using specific dewormers;</li> <li>4. Lack of availability of feed and fodder.</li> </ol>
Trade and Marketing	<ol style="list-style-type: none"> <li>1. Availability of sizeable number of goats;</li> <li>2. Preference for Breed, colour, sex and size for different occasions;</li> <li>3. Need for suitable infrastructure;</li> <li>4. Regular market operation on fixed days and time;</li> <li>5. Meat packaging facilities (Alternatives to replace polythene bags).</li> </ol>
Inputs and Services	<ol style="list-style-type: none"> <li>1. Awareness levels about diseases low among the goat keepers;</li> <li>2. Regular support to Field Guides from Government Veterinary Services;</li> <li>3. Easy supply of vaccines and medicines.</li> </ol>

## Marketing of Goats

- 1. Goat Fairs (*Mela*) :** A one-day Goat *Mela* (fair) was organized in October 2012 at Khardia village of Jhadol block, to encourage goat keepers to organise collective goat marketing and to sell on the basis of body weight. 16 goat keepers brought 32 goats for sale. 17 local traders and butchers were invited but only 3 of



them participated and did not purchase any goat, mainly to express their dissatisfaction with the initiative made by the project. However, they could observe initiatives made under the project and the positive changes which could benefit goat keepers.

- 2. Collective Goat Marketing:** As goat keepers were receiving low price in their village, they decided to aggregate from the members and sell in nearby towns. The response from goat keepers was very favourable and the organizers (Local youth) collected 69 male goats and brought them to Udaipur goat *mandi* (market) in six trips and sold them at a higher price, which enabled them to earn an additional sum of Rs. 800 – Rs. 1000 per goat.
- 3. Market Trends:** Series of observations and market studies were conducted to understand the consumer preference. It was observed that there had been wide fluctuation in the demand and price of goat meat. The demand varied with the season and days during the week. For *Bakri Id* festival, the demand was for male, brown or bright coloured goats, while black male goats were preferred for *Dassera* festival. Demand during the week was high on weekends. Many Hindus did not consume meat on certain days like Mondays and Thursdays and hence the demand for meat was low on these days.

### 4.1.4. Major Success / Achievements:

1. Rajasthan project team mobilized 2685 goat keeping families and formed 244 groups.

2. 304 improved Sirohi and 2 Sindhi Breeding Bucks were provided to these groups for genetic improvement of goats. These bucks served 4765 does and 2052 kids were born.
3. Innovation Platform was formed and 10 meetings were held to identify solutions for various problems related to breeding, health, feeding and marketing.
4. 3085 goats were vaccinated against ET and PPR.
5. 54483 goats were treated against ecto and endo parasites.
6. 763 males were castrated by our Field Guides.
7. With the project intervention, goat mortality has reduced from 35% to 2.5%.
8. Collective marketing by goat keepers was encouraging as the goat keepers earned an additional income of Rs. 800 – Rs. 1000 per goat.

#### **4.1.5. Key Challenges:**

1. Sustainability of IP forum in the future without any support.
2. Persuading traders and butchers to purchase goats on live body weight.
3. Slow process of transfer of new technologies.
4. Lack of initiatives for goat breed improvement.
5. Revival of community pastures.
6. Distress sale of goats due to financial crisis of poor goat keepers.
7. Lack of infrastructure for organized goat marketing and meat processing.
8. Lack of Poor Government policies for promoting goat development.

#### **5. KEY LEARNINGS**

- The project duration should be of 4 – 5 years;
- Supply of critical inputs and services should be organized during the early phase of the project, immediately after inception, to ensure active involvement of goat keepers;
- Deworming based on faecal test, can be effective and can help in reducing the cost;
- Cold chain for stocking vaccines and rigorous awareness campaign are necessary before carrying out vaccination;

- Seasonal and annual marketing plan synchronized with production and feeding plan can fetch higher price for goats;
- Collective goat marketing activity could empower goat keepers to realise better price;
- Active involvement of the community and other stakeholders through Innovation Platform can be helpful for improving production and profitability.
- Active role of Field Guides / paravets is crucial for programme sustainability.

**Notable changes after Project implementation related to goat rearing practices:**

- Awareness about use of breed specific bucks for breeding;
- Field Guides working as service providers at multi-levels;
- Importance of Goat Keepers' Groups and Federations;
- Periodic training to adopt good management practices;
- Good scope for making efficient use of non-traditional feed resources, supplementation of minerals, cultivation of fodder trees and Azolla;
- Importance of faecal sample examination for prescribing specific dewormers;
- Demand for castration through awareness;
- Opportunities for grooming goats for specific events;
- Critical supportive role of State Animal Husbandry Department for health care and policy support.
- Capacity building and strengthening People's Organisations for sustainability.

**Conclusions**

- Activities such as breed improvement, health care, feeding and marketing enabled the participant goat keeping families to enhance their income at least by two folds. The benefits are likely to further increase in the near future as they start getting kids of improved breeds;
- Breed improvement was a significant contribution of the project. Launching such projects, involving local communities can be an effective strategy for goat breed conservation;
- Disease mapping, timely disease diagnosis and regular vaccinations are helpful to eradicate all the major diseases and make goat husbandry risk free, even in remote areas;

- Field Guide (local trained youth) play an important role in mentoring and providing critical services, essential for sustainability of the programme;
- Better feeding is essential to harness the impact of genetic improvement and efficient health care;
- Collective marketing by the goat keepers groups is completely new for tribal community, it requires a lot of work for success in marketing of bucks. BIRVA and RRIDMA also introduced innovative local ideas such as use of Manger for consuming fodder. The community is also appreciating the efforts.
- Innovative Platform is useful for bringing together all the stakeholders and to establish an effective network; State Animal Husbandry Department can continue to facilitate the IP beyond the project.

## **6. POLICY DIRECTIVES**

### **1. Group Formation:**

- Goat rearing through goat keepers' group ensures effective implementation.
- Female FGs will play an important role in goat rearing. Hence, training courses need to be arranged for FGs as well as women.

### **2. Capacity Building:**

- Assistance for Farmers' Training and Demonstration

### **3. Breeding**

- Incentives for Breed Conservation.
- Attractive Insurance Schemes for livestock.

### **4. Health Support:**

- Supply of First Aid field kit; Periodic technical training and monitoring; Access to D I Lab and Veterinary Doctors
- Vaccination as per schedule.
- Disease Surveillance: Disease Mapping; Preventive vaccination, Disease Diagnostic services and Public awareness

### **5. Feed and Fodder Development:**

- Motivation and Promotion of backyard plantation, azolla, leaf meal, silage, enrichment of poor quality of straws, use of market surplus vegetables, Supplementation of Minerals and concentrate feed.

### **6. Marketing:**

- Credit facilities for Groups and
- Facilitation of Periodic Stakeholders' Meetings
- Establishment of Block level Market Yards for Weekly / Daily sales



- Support for processing of milk and meat under PPP
- 7. **Extension:**
- Annual Fairs and Recognition of outstanding Goat keepers

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