

**STUDY OF DUE DILIGENCE IN THE VALUE CHAIN: LIVESTOCK AND HONEY FOR THE STATES OF  
MEGHALAYA AND TRIPURA**

**EXECUTIVE SUMMARY - TRIPURA STATE**



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## Executive Summary

### Background

North Eastern Development Finance Corporation Ltd. (NEDFi) mandated N R Management Consultants India Pvt Ltd (NRMC) with a “*Study of due diligence in the value chain: livestock and honey for the States of Meghalaya and Tripura*”. The study was completed using a mix of secondary review and primary data collection. In Tripura, under livestock, 159 value chain actors and in honey 36 were covered as part of the study, and interactions were held with officials of the Animal Resource Development Department (ARDD) and other officials from NABARD, Biotechnology, ICAR institutions, and externally funded JICA project.

The economy of the state of Tripura is agrarian, with more than 42 percent of the population directly dependent on agriculture and allied activities. The contribution of agriculture to the Gross State Domestic Product (GSDP) at current prices was 26.96 percent in 2014-15. The contribution of the livestock sector to GSDP has risen from 1.75 to 2.97 percent between 2011-12 and 2014-15.

Tripura is characterized by small land holders. Above 95 percent of total operational holdings in the state are below two hectares in size and these cover 75 percent of the operated area. Average size of holding is 0.6 hectares in 2010-11, which is lowest in the North-Eastern States.

### Livestock Sector in Tripura

The livestock sector provides livelihood opportunities for the small and marginal farmers in the state. Majority of the livestock farmers in the state practice composite livestock farming and rear more than one kind of livestock. Dairy, pig rearing and poultry rearing are popular activities. While pig rearing and broiler are practiced for income purposes, dairy and Kuroiler rearing is undertaken for meeting household nutritional needs and the marketable surplus is sold. Commercial production was observed in a limited scale only in dairy and broiler.

Despite constraints, Tripura has made significant progress in livestock development, particularly in meat production. As per Livestock Census 2012, of the total livestock in Tripura, cattle constitute 49 percent followed by goats at 31.55 percent, Pigs at 18.72 percent and others at 0.72 percent.

The ARDD of Tripura is responsible for the development of the livestock sector in the state. The overall sectoral impact of ARDD can be seen in the improved per capita availability of milk and the self-sufficiency achieved in meat. Between 2006-07 and 2014-15, the per capita availability of meat has increased by 149 percent (from 3.65 kg/year to 9.08 kg/year), egg consumption by 53 percent (from 34 nos/year to 52 nos/year) and milk consumption by 44.32 percent (from 70 grams/head/day to 101.03 gm/head/day). Among the different meat types, broiler is the most popular with a production of 20,000 metric tonnes (MT) in 2014-15, followed by pork at around 10,700 MT and Chevon at 1,550 MT in the same year.

### Dairy Sub Sector

Dairy Sub Sector overview: The total milk production in Tripura is not sufficient to meet the demand and packaged milk and milk powder imports supplement local production (141,430 MT in 2014-15). Agartala is the biggest market for liquid milk and milk products, absorbing 40 percent of the milk produced in the state. The liquid milk market in the state is dominated by the unorganized sector,

which has an estimated 90 percent market share and the share of the organised milk sector is limited to less than 10 percent. In the unorganised sector, the producers sell milk either to the aggregator or directly to the customer or sweetshops. The footprint of the organised dairy sector is limited to a few milk pockets in the districts of Gomati, West Tripura, Sehajhela, North Tripura and Unnakoti where the farmers are organised into village level milk cooperative societies and the milk is procured through the milk collection centre established in each village.

**Value Chain Actors in Dairy:** While the ARDD provides animals to rearers under different Government programmes, rearers also buy cattle from the weekly cattle markets organized across the state. Cooperative and private dairies in Agartala and North Tripura provide subsidised feed to the dairy farmers. Rearers not covered by the dairies buy feed from the market, where feed sourced from Guwahati as also branded feeds like Godrej and Tata are available. Most of the animal health care services are provided by ARDD through a network of veterinary hospitals, dispensaries, doctors and AI workers. Medicines for animals are also available in medical shops in the district markets. With banks reluctant to provide loans, most dairy farmers raise capital for buying animals from their own sources, private money lenders or microfinance agencies. Dairy entrepreneurs, who undertake commercial dairy operations, raise loans from banks or other credit linked Government programmes.

Most of the dairy producers are small rearing one to three local or cross bred (CB) cows for addressing household level milk consumption with a small marketable surplus. For most small holders, dairy income contributes to less than 10 percent of their annual income. Green fodder, dry fodder and other feed ingredients are inputs from the producer's own field. Usually the farmers employ their own household members in the dairy activities. It was also found that most cattle sheds are not well maintained and the overall udder and animal management is poor, thus leading to high incidence of mastitis.

In Tripura, the aggregators are a vital link in the milk value chain as they handle 80 percent of the milk being moved from producer to consumer. Field interactions revealed that milk collecting agents are not adhering to quality hygiene standards as milk collection equipment is not properly washed with detergents. In the village clusters where farmers are organised in dairy cooperatives, village level aggregation takes place at the milk collection centres. Some of the collected milk is sold to the dairy while the rest is sold in the open market. The overall hygiene at the collection centre was found to be good, where milk collecting agents wash cans with detergents before starting milk collection. However, milk utensils used by producers require improvement.

There are three milk dairy processing plants located in the state, of which two are owned and operated by cooperative dairies - Gomati Dairy in West Tripura and Uttarayan Dairy in North Tripura, and one by a private dairy called 'Nest n Crest'. Gomati is the biggest dairy handling 12-13,000 litres per day collected from 7,000 members located in Khowai, West Tripura, Sephiahela, and Gomati districts. The hygienic standards of the dairy plants are high. While the dairies supply good quality feed to the farmers at subsidized costs, the milk procurement price is also lower than the market.

There are shops selling traditional Bengali sweets in all parts of the state, in small and large markets in the state. These shops sell a variety of dairy products like *paneer*, curd, *chena* and a wide variety of sweets. Most of these workers come from outside the state, mainly from West Bengal.



Channels in Dairy Value chain: In Tripura, liquid milk moves from producers to consumers in five distinct channels. The producer-consumer channel, producer-aggregator-consumer channel, producer- collection centre-dairy-consumer channel, producer-sweet shops-consumer channel and producer-aggregator-sweet shops-consumer channel. While the producer-aggregator- consumer channel handles around 75 percent of the liquid milk consumption, the producer- collection centre-dairy-consumer channel offers the highest returns (in percentage) to the producers. However, currently this channel has limited outreach in the state.

Constraints: There are various constraints in the dairy value chain in Tripura. These are: limited land available for fodder development, feed and fodder availability, poor understanding of hygiene among the farmers and aggregators, very little marketable surplus milk available with producers, limited pockets of milk routes and dairy clusters, absence of chillers in all milk producing pockets and lack of strong branding and packaging for milk and milk products on scale.

Recommendations:

- There is a need for increasing production and improving productivity of cattle through breed improvement, increasing the artificial insemination (AI) coverage and improving performance of AI through training and re-training AI workers. Systematic farmers' training on good practices also needs to be undertaken on scale.
- The current initiatives of ARDD should be strengthened to include systematic vaccination against bacterial and viral diseases of milch cattle on campaign mode in vulnerable seasons, timely deworming to reduce parasitic load and proper cold chain management from production to site of vaccination. Producers may be informed through electronic/social media about camps being organized and vaccine availability in state government institutions.
- The cooperative dairy sector would benefit from a marketing strategy for its dairy products.
- The ARDD can promote demonstration dairy units (cross bred cows with a herd size of 3-5 cows and with fodder facilities) in collaboration with NABARD and State Apex Cooperative Bank. Initially, the programme can start on a pilot basis on identified clusters of 5-7 villages across the state and based on the response, the same can gradually be replicated across the state. Depending on the density of dairy units in a cluster or district, a producer company comprising a minimum of 500 to 600 small dairy farmers can be promoted.
- Stronger state level convergence between forest department and ARDD is needed to address the fodder shortage and scale up successful experiences of collaboration in dispersed locations to the state level. Fodder production can be undertaken by the joint forest management committees and supplied to dairy farmers. Potential Self-Help Groups and JFMCs could be identified to produce fodder and for converting it to fodder bales.
- For addressing feed availability, the department may consider the viability of procuring feed from established private players like Godrej, Pioneer, and supply to producers through subsidy oriented schemes. The farmers collective can be incentivized through subsidies to produce feed and supply to their members.
- Dairy farmers with large cattle sizes should be encouraged to use bio gas and reduce dependency on LPG. The biogas units need to be institutionalized so that the state can benefit from carbon



credits. Farmers need to be oriented on proper use of slurry produced from the biogas units for using it in the field as organic manure / vermicomposting.

### Piggery Sub Sector

**Sectoral Overview:** Tripura is self-sufficient in meat production. The total pork production in the state in 2014-15 was 10,747 MT. There is good demand for pork in the state. The piggery sub sector in the state is unorganised and dominated by small holders and aggregators, and commercial production does not take place at scale. Local intermediaries procure piglets/ fattened pigs from rearers and sell in local markets. While the piglets are purchased by other rearers for fattening and subsequent resale, the fattened pigs are purchased by butchers for slaughter. The slaughtering takes place in a common place and the process is very unhygienic and unscientific. The demand for pork is highest in Agartala where around 300 live pigs are traded per week. Among the consumers, there is preference for fresh raw pork for household level consumption and this comprises 95 percent of the pork sold in the state.

The ARDD has a good distribution network for the supply of piglets in the state and has successfully introduced the Large White Yorkshire breed. There is good infrastructure for breeding of pigs and supplying piglets to the producers. There are also markets in different parts of the state from where the rearers purchase the animals. For pig purchase, the farmers raise capital from their own sources. Most of the healthcare services are provided by the ARDD with scarcity of swine fever vaccine.

Pig rearing is popular among the small holders across the state with 1-4 pigs being reared mostly for fattening. The average litter size was found to be 10-12 piglets and the mortality was around 10 percent. Piglets are reared for nine months and sold to middlemen or retail aggregators. There are also fatteners who procure piglets of two to three months period from the breeders and fatten it for five to six months and sell it in the market. Income from pig rearing was less than 10 percent of the household annual income. There is a scarcity of pig feed in local markets. To reduce feed costs, farmers use kitchen leftovers, sweet potato, colocasia, tapioca along with feed purchased from local market. Adding these ingredients disproportionately, results in the feed being produced to be of inferior quality.

The aggregators play an important role in the pig value chain as they handle nearly 90 percent of the pigs being transacted in the state. The retailers slaughter pigs and sell the meat in markets. Most of the pigs are slaughtered in open places without following minimum standard of HACCP (Hazard Analysis Critical Control Point) and waste disposal techniques.

**Channels in Value chain of Piggery in Tripura:** The sale of live pigs and piglets happens through three channels in Tripura: Producer-Consumer, Producer-Aggregator-Consumer and Producer- Aggregator-Retailer/ Butcher-Consumer. The Producer-Aggregator-Retailer/ Butcher-Consumer handles around 90 percent of the pigs sold in Tripura. For both pig and piglet sales, all existing value chains offer the best returns to the producer, although the share of total profits in the channel comes down with the involvement of value chain actors.

The pig value chain in Tripura is constrained by lack of local feed ingredients production, high cost of feed, poor management practices at the farm level regarding pig sales, Unhygienic and unscientific slaughtering undertaken by butchers and lack of transparency in weighing during sales.

Recommendations:



- Government may consider further incentivizing and scaling up existing subsidy schemes for promoting the cultivation of tapioca in farmers' fields. It can encourage select farmers in clusters to produce tapioca for addressing the needs of the pig rearers in a cluster.
- Pertinent research and development on low cost feed rations may be considered by ARDD using the participatory technology development approach by involving farmers and research institutions. Improvements in feed by promoting production of tapioca will help farmers to develop low cost rations including tapioca mixed with bran, mineral mixture, mustard oil cake and jaggery. This will reduce the production cost and increase farmer's income.
- Introduction of Duroc Pig can be tried for promoting lean meat. The conservation of indigenous breeds needs to be taken to the village level by involving the community.
- To meet the growing demand for piglets, the department should promote AI programme. Research to increase shelf life of boar semen at room temperature and packed frozen semen also needs to be undertaken.
- Selective Breeding process needs to be implemented by identification of healthy male piglets (heaviest of all piglets born) at the village level. For increasing incomes of the poor farmers, rearing of piglets may be decentralized and reared in the farmer households until it reaches breeding age with a buy back arrangement between farmer and department.
- The department may consider improving preventive healthcare through timely vaccination (two vaccinations in a year) and deworming. The department should focus on establishing swine fever vaccine unit to cater to needs of the North-East region.
- Steps should be taken to control indiscriminate breeding at the farm level. Fresh Genetic stock needs to be introduced from Kerala in the ratio 10:1 (10 females to 1 male) for improving breeding by maintain the pedigree seeds.
- For promoting and strengthening farmer collectives, competent external agencies may be invited for mobilizing the farmers and organizing farmers into livestock farmers' collectives.
- The meat production is very unhygienic and although no zoonotic diseases are reported, there is high risk of spreading diseases, if principles of clean meat production are not followed. The state government may consider submitting proposals to Ministry of Food Processing under NMPS scheme for Modernization of Meat Stalls. Butchers require training on animal welfare and proper slaughtering techniques.
- The state may consider establishing a bacon factory to process 15-20 pigs every day, post conducting of a market survey. The unit can be promoted on a producer company model or an entrepreneur model.

### Poultry Sub Sector

Sector Overview: According to information gathered from market players, the annual demand for poultry in Tripura is 17 lakh birds per month with per capita meat consumption of 7kg/annum. The local production is augmented with birds from Guwahati to meet the demand in the state. Agartala is the biggest market in the state with a demand of around 20,000 birds every day, absorbing around 35 percent of the demand in the state. The district headquarters absorb between 45 percent of the demand and the rest 20 percent is absorbed by the small towns and villages. Chicken is a popular food

in the state and part of the regular diet of the local population. There are three types of poultry production systems in the state- Broilers, Kuroiler, and back yard poultry (ND birds).

**Broiler:** The annual demand for hatchable broiler eggs in Tripura is around 22 lakh (17 lakh broilers with 80 percent hatchability), of which 1.9 lakh eggs are sourced from farms in the state and remaining 20.1 lakh come from outside the state. The eggs are hatched at hatcheries in Tripura. There are eight hatcheries in the state with a combined capacity to hatch 32 lakh eggs. There are private hatcheries in Amtali West and Jogindra Nagar. There is also a well -managed private parent farm near Agartala with 15,000 capacity producing 1.90 lakh hatch able eggs per annum.

The chicks and feed are supplied to farmers through wholesalers. While feed is also provided by the department the outreach is limited. The ARDD provides most of the services to the poultry farmers. The vaccines and medicines are available in the dispensaries and hospitals. However, the dealers maintain their own stock of medicines which they supply to the producers from time to time. They usually find their own informal sources for funding the business. The vaccines and medicines are sourced from Guwahati. For the producers, there are schemes for funding infrastructure but access to these are limited to few recommended by the Gram Panchayats.

Broiler is reared largely as contract farming with poultry farmers having buy back arrangement with wholesalers. In all there are 400-500 broiler farmers across the state. Most of the producers, rear between 500-1,000 birds. Farmers rear the chicks for 30 to 35 days. While most birds are sold to the wholesalers/ dealers, a small volume of local sales also takes place. The birds are well managed in the farms, due to which, the mortality rate is very low at 2.5 percent. The feed conversion ratio is 1:1.45 to 1:1.5. The winter body weight gain is 1.6 kg in 30 days and in the summer it is 1.4 to 1.5 kgs in 30 days. To prevent the outbreak of epidemic, hygiene standards are maintained at the farm level. After a lot is cleared, the rearing place is disinfected and left vacant for 15 days.

There are 25 dealers in Agartala and every dealer is associated with more than 100 farmers. It is the dealers who control the broiler business in Tripura. They source the day old chicks, arrange for medicines and feed, as also for transportation of the birds. All the payments are made upfront in cash. Sometimes credit is also provided to the producers. In case of an epidemic, it is the wholesaler who suffers most losses. The wholesalers sell to different retailers in the state, and manage volumes of around 30,000 – 100,000 birds on a monthly basis.

The retailers also enjoy the highest margins in the business. In major markets, for instance in places near Agartala, it was observed that electronic meters were used for weighing chicken, indicating higher transparency in the sale transactions. The slaughtering is done in the open or in the shop and indicate scope for improvement in hygiene standards.

Channels in the Value Chain of Broiler in Tripura are Producer-Consumer and Producer- Wholesaler-Retailer-Consumer. The Producer-Wholesaler- Retailer-Consumer is the most developed value chain in the state with the wholesalers making the most investments and controlling the trade; the margins, however, are highest at the retailer level.

**Kuroiler:** In Tripura, the ARDD has established parent stock units in each district to supply Day Old Chicks (DoC) to an entrepreneur identified in each block. In the year 2014-15, the state farms produced 451,883 DOCs and distributed 293,176 to block level brooder houses. The block level brooder houses

are managed by entrepreneurs who rear the birds for a period of 45 days and subsequently distribute them to farmers. The chicks are distributed in the female to male ratio of 5:2 or 3:1 respectively. On an average, it was found that around 15 chicks were being distributed to a beneficiary in phases in Tripura. The farmer is expected to rear the birds until 70 weeks. They rear the birds in their backyard mainly through scavenging. The egg and meat production from Kuroilers fulfils the household need of animal protein. However, in the field it was found that less than five percent of the beneficiaries are selling either eggs or birds. All sales made are directly to the consumers either at the homestead or in the local market. Both eggs and meat are marketed as *desi* or country eggs/birds as these fetch a premium price compared to regular eggs and broiler respectively.

**Backyard poultry:** According to Livestock Census 2012, Tripura had 24 lakh back yard poultry birds. In Tripura, while schemes exist for promotion of backyard poultry, most of the rearers source the birds locally from the village. Little or no healthcare services are provided to the animals. Usually 1-4 units are maintained in a household. The birds are left in the backyard for scavenging and household members spend little or no time in the upkeep of the birds. A bird lays 25-30 eggs and an adult gain weight upto 3.5 kgs in 9 months to a year. Mortality is as high as 40 percent. Most of the eggs and meat is used for household consumption. The marketable surplus of both eggs and birds are sold in the local market. These are marketed as country / *desi* eggs and chicken and sold at a premium in the market. While egg sales occur on a daily basis, the meat sales occur on special occasions like marriages or social functions/ feasts. The birds are sold directly to the consumer.

**Constraints in Poultry Sector in Tripura:** In the Broiler Value Chain, the major constraints are high feed cost, absence of cheaper local substitutes for feed preparation, low cost to producers' due to monopoly by dealers, irregularity of input supply, chicks not taken from producers in time, lack of timely veterinary doctor support resulting in higher mortality and timely payments not being made. For Kuroiler, sectoral growth and income to household is constrained by less marketable surplus with the producer. The birds are consumed by the producer themselves. For backyard poultry, the major constraints are higher mortality rate at the field level at around 45 percent, epidemic diseases wiping out birds from the entire villages, near absence of vaccination knowledge for backyard poultry, non-availability of chicks of *desi* birds, lack of proper night shelters resulting into high levels of predation and theft and low hatchability of eggs at household level due to poor handling of eggs.

**Recommendations for Broiler:** To meet the growing demand for poultry, the department may consider farmers' cooperative/ producers' company managing a hatchery in the state. Farmers' bodies may be encouraged to procure chicks from Hyderabad and further supply to members on pilot basis.

**Recommendations for Kuroiler:** Promoting Kuroiler for producing organic eggs in the state can emerge as a good alternate to broiler. Sexing skills may be developed at the farm level and training on sexing needs to be provided for people working at farm level. For addressing the challenges of feed, low cost technologies can be promoted (like harvesting of termites by placing jute bags in the open).

**Recommendations for Backyard Poultry:** For increasing the productivity of backyard poultry, high yielding varieties of *desi* birds need to be introduced through selective breeding. A systematic training program needs to be organized for the village women on poultry management. Availability of feed, medication and vaccination needs to be made on timely basis to farmers. Training a woman/ youth for providing vaccination and primary health care services and establishing market linkages (inputs and outputs) may be considered by the department. Establishing a *desi* Birds Breeding Farm at a small

scale (50 hen unit Enterprise) for regular supply of chicks of *Desi* Birds to households may also be considered by the department.

### Honey Value Chain

In Tripura, honey collection from the wild is practiced as a seasonal activity in the areas close to the forests. According to information provided by TKVIB, *Apis cerana Indica*/ *Apis dorsata* are the dominant bee species in Tripura. *Apis mellifera* was introduced in Tripura but could not sustain due to the lack of expertise and interest among the beekeepers and has been re-introduced recently. The honey produced is multi floral/ wild floral honey. Scientific beekeeping was introduced in Tripura by TKVIB. The biotechnology directorate under the Department of Science and Technology and Environment has also initiated a research project on increasing pollination and productivity of honey in around 30 villages in Tripura.

The honey production in the state was 509 MT in 2015-16, which is less than one percent of the total production in the country. The average yield per colony in Tripura was found to be 8 kilogrammes which is far lower than the national average of 15.32 kgs per year. The major markets for honey are in West Tripura, South Tripura and Unnakoti. The honey produced in Tripura is consumed locally for its medicinal properties. Many believe that processing kills the medicinal value of honey and hence, the consumers are willing to pay higher rates for unprocessed raw honey sold in the open market.

The honey sub sector in the state is dominated by the unorganised sector players. Of the total production in the state, around 70 percent is sold as unprocessed/ wild honey as it fetches a higher price, between INR 450 to INR 600/ kg, compared to the price offered by TKVIB to the producer, which is INR 369 per kg. Honey is packed in used glass bottles (usually old whiskey bottles) by the producers and sold either in the local markets along the roadside or at the farmers doorstep. Around 30 percent of the total produce in the state is sold through TKVIB after processing, packaging in new glass bottles and branding at INR 480 per kg. This honey is marketed either through the retail outlets in the town, through fairs or rural marketing events.

Value Chain Actors in Honey: There are around 2000 trainers empaneled with KVIC in Tripura. The trainers identify potential bee keepers for training in consultation with the local Gram Panchayat. KVIC provides a three day training to participants and after successful completion of the training, two boxes, smoker, extractor and other equipment, costing around INR 6,000/- is provided to each trainer to start the activity. However, due to high dropout rates, less than 30 percent of the trained beekeepers practice beekeeping. Income from beekeeping is less than 10 percent of the total annual household income. The activity is undertaken largely by men and the transaction time involved in the activity is very less.

According to estimates, there are around 500 active beekeepers in the state. Most beekeepers keep 2-10 boxes in their homes or in areas close to the fields/ forest areas. The colonies are identified in the wild and captured by bee keepers. Bee colonies can also be purchased from other bee keepers keeping personal colonies at the rate of INR 600-700 per colony. The producers sell directly to the consumer or the aggregator, and handle volumes between 3 to 100 kilograms, depending on the number of boxes.

The aggregators are also producers but they manage larger volumes of honey. Aggregators collect honey from small producers and sell it either in the open market or to TKVIB. Almost all aggregators

are master trainers of TKVIB. There are around 400 aggregators in the state. The annual volumes handled by the aggregators are between 2500- 4000 kilograms.

Honey procured by KVIB is tested in the testing laboratory and payments are made based on the quality of honey. The processing and packaging of the honey is done at a processing plant in Agartala and sold under brand Tripura Khadi Honey through the retail outlet in Agartala or through rural marketing events held in Tripura and the North East.

The factors constraining the growth of the honey sector in Tripura are high bee mortality and difficulty in locating colonies due to increased use of pesticides in agricultural areas, incorrect beneficiary selection due to the selection process being politicized, less number of active beekeepers to consider collectivization options, seasonal nature of income from bee keeping, the Tripura Khadi Honey brand not being as popular or visible as Nagaland (Naga Honey) or Meghalaya (Soura/ orange honey), existing beekeepers not using bi products like waxes, beehives to make candles, etc. and lack of scientific processing at the producer level.

**Recommendations:**

- A communication strategy targeting the educated youth should be devised to share about the potential of the bee keeping activity as a secondary source of income.
- Beekeepers need to be promoted in identified clusters to make critical mass of beekeepers in the state. Beekeeping needs to be promoted in a mission mode in identified clusters like it has been done in Meghalaya and Nagaland.
- Currently the investment from the Government is on providing technical training and subsidizing start up infrastructure. Investments on building social capital should complement the current efforts.
- Village level bee keepers groups need to be formed and strengthened. Currently only aggregation happens at the cluster level. Efforts should be made to decentralize processing, quality assurance and packaging at the cluster level. The cluster should function like an active hub of beekeeping activities and should strive to be a profit centre. Other activities like colony supply, making of bee boxes and frames can also be undertaken in few clusters by members.
- The focus of trainings should also be on improving the packaging of honey and making it more hygienic. A branding strategy should be devised for the honey in Tripura by marketing the brand attributes of the honey in Tripura.
- Consumer education campaigns on promoting branded honey and addressing misconception regarding reduction of the medicinal value due to processing should be devised.
- For improving existing infrastructure, the existing honey processing plant of the TKVIB at Dhaleswar, Agartala should be expanded with all latest technology, equipment and modern lab facilities for processing, quality assurance and packaging at the said plant.
- The beekeepers should be trained to use wax from the honeycomb and also produce other by products like Pollen, Royal jelly and Bee venom to earn additional incomes.



### Other Pertinent Stakeholders

**PRI:** The PRIs play an important role in identification of beneficiaries and are indirectly responsible for the efficient use of state resources devoted to livestock development. Through trainings and sensitization of PRIs, the beneficiary selection process can be further streamlined. The state can consider promoting organic linkage between PRIs and SHGs other farmers groups for promoting income generation activities.

**Self Help Groups:** There are 9,662 functional SHGs in the state covering around 98,000 members. The number of SHGs linked to the banks is 656 in 2015-16 with the loan disbursed amount of INR 5.32 crores. The average loan amount per individual has increased from INR 0.52 lakhs to INR 0.81 lakhs. Most of the current loans are being sanctioned by the Tripura State Cooperative and other nationalized Banks. For strengthening the livestock sector in the state, it is imperative to strengthen women's SHGs in the state, as most of the livestock for small rearers can easily be funded by SHGs own funds.

**NABARD - (DEDS) in Tripura:** According to data provided by NABARD, as on December 2015, a total of 595 beneficiaries were covered under the DEDS programme. A total of INR 7.42 crores was released to the beneficiaries for purchase of animals. Most of the loans, around 88 percent were sanctioned in Gomati and West Tripura area. As of December 2015, the subsidy released by NABARD amounted to INR 2.21 crores.

**PSU Banks:** The participation of PSU banks is on the decline in funding SHGs and most of the loans are being provided by Tripura DCCB. Orientation workshops with bankers working with PSUs in the state would prove useful in reversing the trend. Good groups can serve as role models for convincing bankers.

**NGOs:** As there is a dearth of NGOs working on livestock sector in the state, it is imperative that some resources from outside be brought to the state to identify and train existing NGOs.

**Entrepreneurs:** Interested rural youth need to be identified and trained as entrepreneurs in the livestock sector. The state may consider preparing an ecosystem for supporting entrepreneurs. The entrepreneurial spirit needs to be cultivated through trainings and exposure to other states. The department can invite trainers from institutes like EDI, National Research Centre for Pig, IIM Guwahati to train youth in different skills for becoming skilled entrepreneurs in the livestock sector.

