Trip Report, Study Tour to India
February 10 – 16, 2014

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Trip Organized by Sunita ImpEx Private Limited, India

Day 1 – February 10, Arrival in Mumbai

Promethean Power Systems, Mumbai
Manufacturers of Rapid Bulk Coolers
- Instantly cools milk without a diesel generator
- Battery charges whenever there is electricity so that in case of outage cooling does not stop
- Equipment uses brine to instantly cool milk from 35 degrees to about 4 degrees centigrade
- Cooled milk can then be transferred to tankers that are connected to the cooler
- Smart control system that logs history and can be accessed remotely

Bala Industries/Venkys, Pune
Manufacturers of Poultry farming equipment
- Equipment they manufacture can have capacity ranging from 1,000 – 90,000
- They handle a range of poultry issues – genetics, feed, vaccines, broilers production
- Can make custom made equipment
- Can address requirement from LIVES – incubators, poultry housing which should be easily adaptable by smallholders, genetics (more long-term)
- [www.venkys.com](http://www.venkys.com)

Day 2 – February 11

Repute Engineers, Pune
Processing Plants & Machinery
- Processing plants, systems & equipment for Dairy, Beverage & Food Processing Industry
- Thermal engineering, refrigeration, separation, homogenization, juice & pulp concentration, UHT processing, aseptic bulk filling etc
- Fermented products (yoghurt, curd, cheese etc)
- Non fermented products (ice-cream, flavored milk)
- [www.reputeindia.com](http://www.reputeindia.com)

Possibilities for Ethiopia:
- Micro-packaging of milk
- Mobile processing unit – 500 to 5,000 litres (20 feet container)
- Yoghurt

**Star Industries, Pune**

Manufacturing of Dairy & Chemical Equipment
- A range of stainless steel equipment ranging from storage, transportation, to cooling and heating processes
- Some of their products are milk silos, milk storage tanks, road milk tankers, cheese molds, ageing vats, raw milk reception equipment etc
- [www.starindustriesindia.com](http://www.starindustriesindia.com)

**Ganesh Cooperative, Pune**
- Established in 1976
- 1,300 members, annual increase in membership of 25%
- Potential members would need to buy shares
- The Cooperative makes a profit of $25,000/month
- The Cooperative is self-sufficient – store, bank, medicine (including hormones), feed, veterinary services are all available at the site (all products & services sold at a subsidized rate to members and upon credit if need be)
- Farmers get paid 27Rs/litre for their milk
- The economy of the surrounding community has changed because of this Cooperative
- In the future, they plan to go into packaging and selling directly to the market (since by-products are more profitable)
- Many of the members showed up at the Cooperative on this day to greet us and show off all that they had been doing. They seemed extremely proud of their accomplishments and wanted to show this off to the visitors

**Impromptu visit to a Dairy Farm**
- Upon arriving at the farm, we met an employee from the collection center and the farm manager
- The collection center created an irrigation scheme for the farmers in the area. In addition, farmers can get loans to purchase cow, feed etc
- The collection center staff supervises about 10 farmers in the area and oversees the management of the farms since the cows are bought on a loan basis, he ensures that they are taken care of properly

**Collection center**
- Milk is tested for quality as soon as it’s been collected
- All results are shown on a display that is visible to everyone (pics). Weight, fat content, rate of payment, farmer number is all displayed (equipment provided by Milktronics)
- Due to all these measures, farmers know exactly how much milk they brought, the fat content, rate of payment and total payment they will receive

**Day 3 – February 12**
Milktronics, Pune
Manufacturers of software and hardware
- Customized solutions which can also be provided in local languages
- All activities of the milk chain are automated in order to minimize misconduct at any point (collection, transportation etc)
- The company also produces the ‘DSK Mobilis’ which is a solar powered computing device that can be used as a PDA, tablet or a desktop. This machine is used in several milk collection centers but has several other uses such as e-learning, sales force automation, surveys etc
- www.dskmilkotronics.com

Gartech Equipment, Pune
Poultry Cage System Manufacturers
- Cage manufacturing for different types of birds – broilers, layers etc
- One box can hold 8 chicken
- Does not require electricity for manure removal
- The company has sold systems for many African countries (2 tier system)
- Smallest cage can accommodate 160 birds (80 birds in one unit x 2 units)
- Modular system where more cages can be added as needed
- The space required for 500 birds is 26m² (13m long x 2xm wide). If the floor system is used, only 250 birds can be accommodated in the same amount of space
- A 10cm gap is needed between tiers for ventilation
- LIVES will purchase 90 units (4 for the Regions, 10 Zones & 31 for the Districts = 45 units x 2 = 90)
- www.gartech.co.in

Day 4 – February 13
Kutwal Foods Pvt. Ltd., Pune
Production of dairy products & fruit drinks
- 22 different products under one roof
- The company owns 10 chilling centers for milk collected from 5,000 farmers (60,000 liters/day – capacity of 100,000 liters) but this amount decreases in the summer
- Equipment provided by Repute (set up in 40 days)
- Milk is bought from farmers at 28 Rs and sold at 38 Rs (profit of 5 Rs/liter)
- The company has over 100 outlets in Pune and is 2nd in production in Maharashtra region
- Training is provided to farmers in terms of treatment of cows (milking, cleaning)
- AI services are provided by the government (20%) and the company (80%)
- Concentrate feed is provided on credit (deducted from their payment for milk every 2 weeks)
- For the future, they plan to start producing condensed and powdered milk
- www.kutwalfoods.co.in
Cattle Feed Plant, Pune
Equipment provided by Khare Agromech Industries Pvt. Ltd

- The plant was shut down for the day but the group had a discussion with a representative from Khare who provided the equipment for this plant
- A machine that could accommodate 2 tons per day to batch, mix and grind (including motors, panel board, gearbox, all structures) will cost USD 30,000. Space required for this type of machine – Length 7.2m, Height 7.1m, Width 2.5m (USD 45,000 for one that could accommodate 5 tons)
- [www.kharegroup.com](http://www.kharegroup.com)

Day 5 – February 14

SUNITA ImpEx, Bangalore

The Indian Dairy Industry
- 125 million tons of milk produced per annum in India
- In the past, milk was consumed at the household level only
- The National Diary Development Board (NDDB) was established in order to enhance the consumption of milk. The belief was that everyone has to consume milk every day
- India now has the highest milk production in the world.
- Dairy farmers in India own an average of 5 cows
- The challenge is how to get milk to the consumers
- The NDDB decided to create cooperatives and provide inputs to dairy farmers and also incentives (2 Rs/liter but varies from state to state). Unless raw materials are available for farmers, the dairy industry will not be successful
- Imposition of cooperatives by the government does not work, farmers need to understand & require the need for cooperatives
- Empowering women is also crucial for the success of the dairy industry

Gou Ganga – Cow Urine/Dung products, Bangalore

- Factory established at a cost of USD 200,000
- All profits go to charity (for the wellbeing of cows)
- Farmers are paid 10Rs/liter of urine and 5cents/kg of cow dung. 4,000 liters of urine is collected every day
- The factory uses biogas for electricity
- The investment to set up the factory will be recouped within 5 years and additional profit will be reinvested for further research
- Sales are now USD$30,000 month (within India) and are expected to reach $300,000 by 2016
- Urine from cows (ones that have already given birth only) are used for medicinal purposes while urine collected from bulls is used for disinfectants
- [http://gomata.weebly.com/](http://gomata.weebly.com/)
Goushala, MGPPL, Bangalore
Milk Collection Center
- Pipeline milking machines are available for dairy farmers to bring their cows
- Milk is then collected, quality tests are done and farmers are paid
- Feed & medication is also available (on credit if necessary) to the farmers
- Veterinary services are provided to the farmers for free

Day 6 – February 15

National Dairy Research Institute, Bangalore
- Established in 1923
- Caters to the research, training and extension needs of the dairy industry and dairy farmers
- A few books/publications recommended:
  - ‘I took had a dream’ by Verghese Kurien
  - NDDB Annual Reports
  - Dairy India – Volumes 1 through 4
  - Handbook of Animal Husbandry – Indian Council of Agricultural

Questions/Discussion
- Would it be possible for ILRI to get genetic resources from India?
  This type of issue must be decided upon by the governments of India & Ethiopia

- How can the NDRI assist in biotech operations in Ethiopia?
  For the long term, it would be possible to look at progeny testing

- India is moving to working on indigenous breeds to improve production and Ethiopia should ensure that the indigenous breeds should not be spoiled

Do-All Engineering Industries, Bangalore
Manufacturing of Mango Processing Equipment
- Production of machines that pulp mangos
- The smallest machine that they make can process a minimum of 3 tons (costs USD $250k not including transportation & installation). Would require 2 – 3 months to be manufactured
- The mango skin can be used as cattle feed and the stone is burned for energy for the factory