The milk crisis in India: The story behind the numbers

The Dairy Working Group of the Food Sovereignty Alliance, India
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The Milk Crisis in India: The story behind the numbers
The Milk Crisis in India: The story behind the numbers

Researched and compiled by The Dairy Working Group, Food Sovereignty Alliance - India: Adi Narayana N., Apparao S., Charanya R., Murugamma V., Radha Gopalan, Sagari R Ramdas, Srikrupa R., Yadgiri G. and Yellaiah Ch.
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# Acronyms and abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>BC</td>
<td>Backward caste</td>
</tr>
<tr>
<td>BMCU</td>
<td>Bulk milk chilling unit</td>
</tr>
<tr>
<td>CAGR</td>
<td>Cumulative average growth rate</td>
</tr>
<tr>
<td>DRDA</td>
<td>District Rural Development Agency</td>
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<tr>
<td>FSA</td>
<td>Food Sovereignty Alliance</td>
</tr>
<tr>
<td>FY</td>
<td>Financial year</td>
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<tr>
<td>hh</td>
<td>Household</td>
</tr>
<tr>
<td>KMF</td>
<td>Karnataka Cooperative Milk Producers Federation Ltd.</td>
</tr>
<tr>
<td>MMPO</td>
<td>Milk and Milk Products Order</td>
</tr>
<tr>
<td>MNC</td>
<td>Multinational company</td>
</tr>
<tr>
<td>NARMAC</td>
<td>Nalgonda-Rangareddy Milk Producers Mutually Aided Cooperative Union Limited</td>
</tr>
<tr>
<td>NDDB</td>
<td>National Dairy Development Board</td>
</tr>
<tr>
<td>QR</td>
<td>Quantitative restriction</td>
</tr>
<tr>
<td>Rs</td>
<td>Rupee</td>
</tr>
<tr>
<td>SC</td>
<td>Scheduled caste</td>
</tr>
<tr>
<td>SGRS</td>
<td>Sri Gopi Rythu Paraspara Sahakara Sangham</td>
</tr>
<tr>
<td>SMP</td>
<td>Skimmed milk powder</td>
</tr>
<tr>
<td>SNF</td>
<td>Solids-not-fat</td>
</tr>
<tr>
<td>TKCMSSL</td>
<td>Kalahasti Cooperative Milk Supply Society Ltd.</td>
</tr>
<tr>
<td>UHT</td>
<td>Ultra-heat treatment</td>
</tr>
<tr>
<td>USD</td>
<td>United States dollar</td>
</tr>
<tr>
<td>WMP</td>
<td>Whole milk powder</td>
</tr>
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<td>WTO</td>
<td>World Trade Organisation</td>
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We, the Dairy Working Group, thank the member organisations of the Food Sovereignty Alliance-India for supporting this inquiry. We are grateful to everyone who shared experiences and participated in the making of this report.
The Milk Crisis in India: The story behind the numbers
Executive Summary

For centuries, livestock has been a critical component of the lives and livelihoods of India’s small farmers, pastoralist and indigenous peoples (Adivasis). Together, these communities own nearly 70% of all livestock in India. Animals and animal products are a vital part of Indian food, farming and agriculture systems – providing food (meat, eggs, milk and milk products), fibre and energy (manure, draught, transportation) and playing a critical role in ecosystem diversity. Animals are also ‘banks on hooves’ for communities, and an intrinsic part of their cultures. In the national economy, animals contribute significantly to India’s gross domestic product (GDP).

Yet today, there is a grave crisis underway in the Indian milk market which is threatening to undermine the multifunctional role of livestock and the way of life of entire communities. Dairy processors are competing with each other to sell milk at extremely low prices in cities. To keep prices low, while retaining their margins, the dairy processors are reducing the procurement prices and volumes of milk from producers. A large number of these producers are small farmers1, whose livelihoods depend on selling milk. They are the backbone of the Indian milk market but have been hardest hit by the price war being waged by dairy processors. This has also severely affected the peoples’ milk market, commonly referred to as the “informal” or “unorganised” milk market.

In June 2015, the crisis was brought to the attention of the Food Sovereignty Alliance (FSA) by its small farmer members from Chittoor district in Andhra Pradesh State and Medak district in Telangana State, India. The FSA launched an investigation which included a fact-finding exercise with farmers and secondary research. The investigation discovered that this crisis extends well beyond the small farmers of Chittoor and Medak, to affect small farmers nationally as well as globally. This book tells the story of how global trends are driving countless small farmers into debt and ultimately out of farming. It calls for a solution based on nurturing the resilience of the small, localised networks of milk producers, cooperatives and consumers.

1 In this book, we use the term small farmers to mean small and marginal farmers in the Indian context – those who rear a couple of dairy animals, and also cultivate crops. They are not exclusively dairy farmers. We also use this term to refer to small dairy farmers in the global context. Small dairy farmers in the global context are farmers whose exclusive livelihood is dairying, and whose dairy herd sizes are substantially smaller than large dairy farms.
What did our investigations reveal?

Investigations on the ground and through secondary research shed light on the causal factors and impacts of the crisis (Figure 1). The initial trigger was a slump in global skimmed milk powder (SMP) prices due to a glut of SMP, reportedly triggered by a fall in imports by China and Russia, further exacerbated by the withdrawal of milk quotas in the European Union (EU) in April 2015.

These low global prices then affected Indian exports of SMP, in turn affecting domestic markets. In 2013-14, India exported nearly 1.3 lakh tonnes of SMP valued at Rs 2,717.56 crore. During the fiscal year 2014-15, barely 30,000 tonnes of SMP were exported. In April 2015, SMP was being sold by private dairies at Rs. 180 per kg, compared to Rs. 270 in April 2014. This happened despite relatively high import tariffs (ranging from 30-70%) on all dairy products.

Indian dairy processors attempted to dispose of these domestic SMP stocks as recombined liquid milk in various parts of the country, rather than procuring milk from farmers at fair prices. A critical ingredient of recombined milk is butter fat. The accompanying sharp spike in imports of subsidised butter fat – primarily from the EU and USA into India in 2015 – is most likely linked to a huge demand by domestic dairy processors to recombine with SMP. Cheap butter fat imports threaten to further depress procurement prices. While procurement prices continue to plummet, input costs keep rising, and farmers’ critical milk price (cost of production) is not covered. The impact on small farmers selling milk to either large private dairies, cooperatives, small localised dairies or private vendors is severe, pushing them out of production and further into debt. India’s dairy producers receive absolutely no support or subsidies from the Indian Government. Yet subsidies in the EU and USA favour their large dairy players who survive and grow whilst small farmers across the globe are being pushed out of the market. This is not just a national crisis – it is an international crisis for small producers.

What about consumers? While they are temporarily benefitting from lower prices in India, they do not benefit in terms of health or quality. The consumer cannot determine the age of the processed SMP and butter fat product used in the recombined milk. Fresh milk is richer in vitamins and minerals than SMP (FAO, 2013). And as dairies monopolise their positions and expand, prices will rise once again. Global dairy markets, controlled by corporations, are highly volatile, with periodic cycles of booms and depressions. Further, the entry of milk and milk products onto futures markets will only exacerbate volatility.

2 1 lakh in the Indian numbering system is equivalent to 100,000 and 1 crore is equal to 100 lakh or 10 million.
4 As of February 2016, India’s import tariff for SMP was 68.27% and 46.85% for butter fat. These high import duties act as a barrier to imports of cheap subsidised SMP and butter fat from the EU, USA and other countries and regions. Cheap imports depress domestic prices. Here, we are witnessing a decline in domestic SMP prices despite high import duties, and thus barely any imports of SMP into India. The decline is a result of excess domestic SMP stocks.
5 Recombined by blending skimmed milk powder (SMP) and butter fat.
Figure 1. India’s National Milk Crisis, A Chronology

July 2014 to date
- Slump in global SMP prices.
- Decline in SMP exports from India.

Crash in milk procurement prices and volumes

November-December 2014
- Private dairies in North India reduce procurement. Increased pressure on cooperatives to increase procurement.

Plenty of fresh milk with no buyers

December 2014
- Dairy retailers (led by cooperatives) slash liquid milk sales prices. Expand their domestic markets
- Exporting private and cooperative dairies project inability to export SMP and express intent to dispose SMP stocks in domestic markets

Price war among dairy brands
- Continued reduction in milk procurement prices and volumes
- Temporary price benefit (not quality and health) to consumers in some states
- Severe impact on small producers and informal markets
The implications of this – in the context of India further liberalising its dairy sector – are dire for the peoples’ markets. Domestic dairy processors, regardless of whether they are corporate or cooperative, seem to be trapped within the logic of capitalist commodity markets, just like their international counterparts in the USA, EU, Australia and New Zealand. Their strategy to address the problem of overproduction is to produce more, expand, grow, capture consumer markets around the world, and push out local producers and local markets from those regions. This expansion and growth through investments, mergers and partnerships is actively supported by national and global policies. Small farmers who are the backbone of India’s milk production are being rapidly alienated from their means of production. Instead of deciding how much to produce based on local processes and resources, these farmers are being transformed into workers for large companies. This is driving them to adopt completely ecologically unsustainable production strategies, making their environment and lives extremely vulnerable. Where dairying was once considered to be a livelihood to fall back on in times of agrarian distress, particularly in rain-fed, dryland areas of the country, sadly today dairying is becoming a precarious death trap for small farmers. There is a massive rise in oligopolies and extreme market concentration of inputs and global consolidation of the industrial livestock complex, be it poultry, eggs, sheep and goat, beef or animal feed. As for the traditional ecological, multifunctional role of animals as providers of manure, energy for agriculture and transportation, these are rapidly disappearing and being replaced by non-renewable fossil-fuel dependent machines and chemical fertilisers. Paradoxically, national policies are pushing more and more small farmers into this model of intensified dairy production, leading finally to debt and displacement of livelihoods.

Hope for the future: resilient peoples’ markets and agro-ecological livestock farming

The study provides clear evidence that the only hope for the future lies in localised peoples’ milk markets based on agro-ecological livestock cultures: cultures where livestock are reared not as machines to produce single commodities, but as an important component playing a multifaceted role in food farming production systems. The study clearly shows that the more local the production and market, the less affected it has been by the “global system”. The investigation found that organised dairy processors, those which still procure locally and sell locally (e.g., Vijaya Dairy in Telangana State and Vishakha Dairy in Vishakapatnam, Andhra Pradesh State), were less affected. Even greater resilience was demonstrated by cooperatives which procure locally and sell locally (e.g., Kalahasthi Cooperative in Andhra Pradesh State), and the so-called informal peoples’ markets which link local producers via small vendors to local consumers, all operating within a radius of 10-30 kilometres.

While these are comparatively more resilient, the impacts of the 2014-15 crisis have been felt even by these local systems for the first time, as articulated by the small vendors. They worried about not being able to raise the procurement prices
for producers in January 2015, and possibly not even in 2016. As a result they are uncertain of the survival of their livelihoods.

**Taking action: recommendations for the way forward**

It is evident that small producers and peoples’ markets are at great risk. The farmers’ movements in India have unanimously and strongly condemned the failure of our government to take the necessary actions to protect local peoples’ markets and the small farmers’ livelihoods that depend upon dairying and livestock rearing.

To address the ongoing crisis and to challenge a future monopolised by large industrial agribusiness, we at the FSA are organising to resist the systematic and concerted effort underway to push small farmer producers out of production and make local peoples’ markets redundant. Small farmers, milk vendors and co-producers are organising collectively to sustain localised processes of production, distribution and consumption through local peoples’ markets. We are also organising against global and national policies that are aggressively homogenising and industrialising animal production, reducing their role to merely providers of milk, meat or eggs.

In the long run, it is clear that small farmers – whether in India or Germany, or other parts of the world – must rethink their dependency on fossil-fuel and industrial-based farming, and organise to protect the holistic, multifunctional roles of animals in food and farming systems. It is important that we, as farmers’ movements from the Global South and North, get together to discuss this crisis, and develop common actions.

The following specific recommendations for a way forward in India arise from this investigation and dialogue with various farmers’ movements across the country:

1. Farmers’ organisations unanimously urge the state to protect the interests of small farmers and their livelihoods.

2. The state must play a proactive role in stabilising the system with a guaranteed minimum procurement price of milk to farmers. This price must cover their cost of production (critical milk price) and should be executed through public-sector cooperatives (for example, Telangana State’s Vijaya Dairy recently increased its procurement price by Rs. 4/litre to support milk farmers).

3. Sales prices must be regulated to forestall the depressive effect on procurement prices that will ultimately follow dumping of milk by large cooperatives and other dairies outside their state of origin. The regulation of sales price must of course take into account affordable milk prices for low-income consumers. A system of inter-state taxation is recommended to prevent monopolies of the value chain.

4. Policies must support and strengthen local peoples’ markets and small producers to self-organise into non-centralised and localised milk production and consumption collectives.
5. Public financial support must be provided to encourage farmers to move to diversified agro-ecological multifunctional livestock-rearing practices, in a context of food sovereignty, and move away from intensification of production.

6. The National Food Security Act, through its commitments to revitalise agriculture (including dairy) through non-centralised local dairy markets, must be operationalised immediately.

7. Resources (land, water, air, forests, biodiversity, seeds), agricultural produce and the dairy, meat, eggs and milk sector must be excluded from all bilateral, multilateral, plurilateral and/or regional free trade agreements being negotiated by India with various countries.

8. The reduction of import tariff duties on milk and milk products must be prevented in India. Pressure must be mounted on the EU, USA, Australia, and New Zealand to halt and reverse their export-driven dairy industries, and to withdraw huge subsidies that distort the dairy markets.

9. Foreign direct investment in animal farming, dairy and dairy processing must be revoked.

10. Consumer awareness and education is critical for the peoples’ market to survive.

11. Whilst organising towards the above actions, small farmers need to step away from intensive, specialised industrial production, and commit to rediversify production.

12. Small farmers need to self-organise into non-centralised and localised milk producer collectives that link directly to local consumers. Only this will enable them to step away from an extremely volatile and vulnerable global system of commodity production, which is not controlled by people.
The milk crisis 2015: The story behind the numbers

Domestic milk markets in India are in crisis. A price war is raging among dairy processors to sell milk at extremely low prices in cities. This has been accompanied by a steep reduction in milk procurement prices paid to producers, as well as in the volume of milk procured from producers by dairy processors. Small farmers, whose livelihoods depend on selling milk and who are the backbone of this market, have been hardest hit. This has also severely affected the peoples’ milk market, commonly referred to as the “informal” or “unorganised” milk market.

In January 2015 the Food Sovereignty Alliance (FSA) was alerted to the crisis by its small farmer members from Chittoor district in Andhra Pradesh and Medak district in Telangana, India. In exploring the issue in greater detail, the FSA discovered that this is not merely a crisis for small farmers in Chittoor and Medak – it is a grave crisis that is affecting small farmers nationally and globally, who stand to be deprived of their livelihoods en masse.

Given the urgency of the issue, it became apparent to the FSA that the only way forward was to:

- understand the reality on the ground, through dialogue with as many small milk producer farmers as possible; and
- chalk out a collective strategy to resist this systematic planned decimation of small producers and peoples’ milk markets.

We shared our findings with other farmer movements in India through a dialogue known as ‘The Milk Crisis of 2015’ in October 2015 in Chennai, India. This dialogue served to reinforce and validate our findings: the crisis was not merely being faced by farmers in one state, but was affecting small farmers across India and the world. The farmers’ movements unanimously and strongly condemned the failure of both central and state governments to take the necessary actions to protect small farmer livelihoods that depend upon dairying and livestock rearing. The movements also

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6 The Food Sovereignty Alliance brings onto a common platform adivasi, dalit, pastoralist, fisherfolk and peasant social movements along with co-producers to build solidarity with one another for a common vision of food sovereignty, in defence of sovereign rights to food and the rights of Mother Earth.
resolved to take this dialogue forward and organise against the systematic destruction of small farmers’ livestock-based livelihoods and peoples’ milk markets.

This book describes in detail what we have learned and makes recommendations for the way forward. After setting the scene in the rest of this section, Section 2 tells the stories of the crisis on the ground in various parts of the study area. It then analyses what's behind these trends in Section 3, starting with a global perspective before shifting to explore national and local drivers and impacts. Section 4 outlines how these trends are not confined to India – whose dairy industry is part of a global phenomenon, with devastating consequences for the world’s small milk producers. Section 5 introduces a ray of hope in the form of stories of resilience; Section 6 builds on these ‘bastions of resilience’ to make 10 recommendations for protecting peoples’ milk markets.

1.1 The signs of a crisis

The seriousness of the situation became clear to the FSA when speaking at a meeting in January 2015 organised by the Twin Cities Milk Vendors Welfare Association of Hyderabad. The aim of the meeting was to protest against a new marketing strategy by Amul (the largest Indian cooperative dairy processor – see Box 11 in Section 4) which involved bypassing the traditional milk vendors in Hyderabad (a large city in the south Indian state of Telangana; see Figure 2), and supplying their own produce direct to shops and hotels (Ramdas, 2015a). In January 2015, Amul launched an aggressive marketing strategy to sell liquid milk in Hyderabad at much lower prices than any other brand. This put pressure on other brands (cooperative and private) to reduce their sales prices. The FSA predicted that the reduction in sales prices could result in a fall in procurement prices for farmers selling milk in and around Hyderabad city. A wider audience was then alerted by the FSA about this impending crisis, for instance through articles in Telugu newspapers (Ramdas, 2015b).

In June 2015, the FSA received reports from its member sanghas (farmers’ organisations) in Chittoor district, Andhra Pradesh that since the previous month, milk from small dairy farmers in Andhra Pradesh was being rejected by both private and cooperative dairies. Milk procurement prices had been reduced. Farmers were pouring milk down the drain in protest.

The FSA immediately launched a fact-finding exercise to explore the problem with the farmers, as well as investigating it further through secondary research. The aims of the investigation were to:

1) understand the specifics of the immediate milk crisis of 2015;

2) determine its causal factors;

3) understand the short-term and long-term impact on small dairy farmers; and

4) identify immediate, short-term and long-term actions that must be taken to protect the livelihoods of small farmers who depend on dairying and the peoples’ markets.
Figure 2. Location of the study in India

Source: www.mapsofindia.com
1.2. Methodology

Representatives from the various constituent member organisations of the FSA7 formed a fact-finding team and carried out the investigation in Chittoor and Vishakapatnam districts, Andhra Pradesh and Medak district and Hyderabad city, Telangana State in July and August 2015 (Figure 2). The team met with farmers (men and women), milk vendors who procure and market milk, agents of private dairies, officials from the Department of Animal Husbandry, managers of cooperative dairies and private dairies, and consumers (individuals, tea shops, hotels, sweet shops) to understand the situation on the ground. One-on-one informal interviews based on a checklist of questions, participatory workshops and small group discussions were the main methods of enquiry (see Annex 1). In addition, the team carried out in-depth secondary research to gather information on the national and global situation in the dairy sector. The team analysed primary and secondary data and shared its preliminary findings with farmers’ movements in India. The feedback from farmers who participated in the dialogue has also been incorporated into this book.

1.3 India’s dairy and bovine economy in context

For centuries, rearing animals has been a critical component of the lives and livelihoods of Indian peasant (small) farmers, pastoralist and indigenous peoples (Adivasis). These communities own 70% of all livestock in India (Box 1). Animals and animal products are a vital part of Indian food, farming and agriculture systems – providing food (meat, eggs, milk and milk products), fibre and energy (manure, draught, transportation) and playing a critical role in ecosystem diversity. Animals are also ‘banks on hooves’ for communities, and an intrinsic part of peoples’ cultures.

Within these millions of households, women play a vital role in livestock production contributing anywhere between 60 and 90% of all the labour involved in livestock care (Ramdas, 2015c). According to the government’s own data, women make up 75% of the labour force in livestock production, and employment of women in dairying in states like Punjab and Haryana, where animals are stall-fed, is as high as 90% (Government of India, 2012b). It would not be wrong to assert that women form the backbone of India’s livestock economy, including dairying.

Animals contribute significantly to India’s gross domestic product (GDP). In 2013-14, of the total agricultural production value of Rs 1,881,152 crores, the gross value added by the livestock sector at current prices was about Rs 406,035 crore, or 21.6% of the total contribution from agriculture, forestry and fisheries (Government of India, 2015). The livestock sector contributed 3.9% of the country’s gross value at current prices (Indian Ratings & Research, 2015)8. Milk and milk products account for two-thirds of the total value of livestock products. In 2013-14, the livestock

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8 22.7% at constant 2011-12 prices.
The Milk Crisis in India: The story behind the numbers

sector expanded by 5.5% compared to the agriculture, forestry and fishing sectors combined, which grew at 3.7%. India is first in the world for milk production, third for egg production, and first for beef exports. Whilst globally cows are the main source of milk, in India the main source is the buffalo. The country accounts for 67.5% of the world’s buffalo milk – 51.9% of India’s milk comes from buffaloes, followed by 44.3% from cows and the rest from goats (Indian Ratings & Research, 2015). Of the total milk produced by over 70 million households (most of whom are small farmers) in India, 45% is for self-consumption. The balance (55%) is sold (comprising loose unpackaged milk and processed products). Of this, 75% is sold in ‘informal markets’ and 25% in formal markets (Table 1). Of all the milk procured in the so-called ‘formal markets’, private dairy processors procure over 50% (Rabobank International, 2014).

Over four-fifths of the country’s milk is produced by 10 states – Uttar Pradesh, Punjab, Haryana, Gujarat, Rajasthan, Madhya Pradesh, Bihar, Maharashtra, Tamil...
The Milk Crisis in India: The story behind the numbers

Table 1. Milk consumption in India, 2009

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<th>Use</th>
<th>Share of production %</th>
<th>Composition of marketable surplus (55%)</th>
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<tr>
<td>Home consumption</td>
<td>45%</td>
<td></td>
</tr>
<tr>
<td>Marketable surplus sold in urban and rural markets (formal and informal)</td>
<td>55%</td>
<td></td>
</tr>
<tr>
<td>Sold in urban markets as loose unpackaged milk</td>
<td>19%</td>
<td>34.5%</td>
</tr>
<tr>
<td>Sold as processed products in informal markets</td>
<td>22%</td>
<td>40%</td>
</tr>
<tr>
<td>Sold as packaged milk in formal markets</td>
<td>8%</td>
<td>14.5%</td>
</tr>
<tr>
<td>Sold as packaged milk products through formal markets</td>
<td>6%</td>
<td>11%</td>
</tr>
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Nadu and Andhra Pradesh – each contributing more than 5% to total production. Uttar Pradesh was the largest milk-producing state over financial years (FY) 2009-13, at 17.5%. Consumption is largely concentrated in these major milk-producing states/union territories. India’s per capita availability of milk grew at a cumulative average growth rate (CAGR) of 3.2% over FY2005-FY12 and improved to 296.5 grams daily in FY13. This is higher than the world average of 294 gms. Per capita milk consumption grew at a CAGR of 1.6% over FY 2005-FY12 to 144.43 gms daily in rural India and at 0.9% to 180.73 gms daily in urban India (India Ratings & Research, 2015).
The Milk Crisis in India: The story behind the numbers
2.1 The Chittoor milk crisis: April 2015 to today

Chittoor, the second largest milk-producing district in India after Anand in Gujarat, is the fountainhead of the ‘White Revolution’ in Andhra Pradesh. There are 841,943 female bovines in Chittoor district according to the 2012 census\(^9\), and they produced 9.38 lakh metric tonnes of milk in 2014 (Andhra Pradesh State, 2014)\(^{10}\).

2.1.1 Dairying in Chittoor district

Up to the 1990s, milk in the organised/formal sector was procured under the aegis of the Andhra Pradesh Dairy Development Cooperative Federation (APDDCF)\(^{11}\). Milk was collected through village collection centres set up by the Chittoor District Dairy Cooperative Union. This milk was then processed at the union’s various processing plants and finally sold. Milk from Chittoor was sent to different parts of the state and to other states, depending on the federation’s requirements. Chittoor district was known for having the largest number of women members in the dairy cooperative union.

In 1992, the Government of India liberalised the dairy sector and granted permission to private dairies to set up dairy processing plants (see Section 3). These processing plants began with production capacities of 10,000 litres of milk/day and have gradually become larger and larger, with no limits to their processing capacity (see Table 10 in Section 4). While the private dairies received maximum public support to expand, the financial support to the cooperative sector dwindled. The Chittoor District Dairy Cooperative Union collapsed and finally closed in 2002. In its place today there are several private dairies selling milk. Some are small and very local, while others

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11 For further details on the history of India’s dairy cooperatives, see Section 3.2.3.
function across states (e.g., Heritage Dairy). Some of the major private dairies have processing and packaging plants in Chittoor district. Heritage has three processing units: at Puttur Road, Kothakota and Piler. It procures around 5 lakh litres of milk per day from Andhra Pradesh, with the majority of the milk coming from Chittoor district. Similarly, Dodla dairy has two large processing plants in Chittoor district, at Penumur and Palamaner. These plants process about 3.5 lakh litres of milk every day. Agrigold Dairy has its plant in Kaanipakam.

These private companies provide loans to farmers to purchase livestock and feed, and also assist in setting up bulk milk chilling units (BMCUs). The state government is also actively financing the establishment of bulk chilling units, to be managed by women self-help groups (SHGs). The state government has also actively linked these chilling centres managed by women to dairy processors such as Balaji Dairy, where the milk will be sold.

2.1.2 Farmers’ experiences from the ground

Mandemvaripalli, located in Kurabalakota Mandal of Chittoor district, is a hamlet of 200 households. In this hamlet, 100 farmers own cows which together produce around 700 litres of milk a day. Sixty-five of these farmers sell their milk to the autonomous farmers’ sangham, the Sri Gopi Rythu Paraspara Sahakara Sangham (SGRS), which initiated a milk marketing collective in August 2012. The remaining 35 farmers sell their milk to the Balaji Dairy and a private vendor.

Until January 2015, the private dairy retailers/companies purchased milk from the farmers at a procurement price that ranged from Rs. 27 to 30/litre, depending on the solids-not-fat (SNF) and fat content. The private vendor procured milk from the farmers at Rs. 22/litre.

The SGRS, on the other hand, was procuring 600 litres of milk a day from 80 farmers spread across five villages and paying them a procurement price of Rs. 26/litre. The SGRS was selling 250 litres of milk a day to the nearby Rishi Valley Education Centre at Rs. 30/litre, 250 litres of milk to consumers in nearby Madanapalle Town at Rs. 32./litre and 100 litres of milk at Rs. 30/litre, to an ice-cream shop in Madanapalle Town (Box 2). However, towards the end of January 2015, the ice-cream shop stopped purchasing milk from SGRS, and began to use milk powder, which they found cheaper than fresh milk. The SGRS was thus forced to sell this surplus milk to Agrigold dairy at Rs. 18/litre. Until June 2015, SGRS continued to pay a procurement price of Rs. 26/litre to its member farmers. However from July 2015 onwards it was forced to reduce the price to Rs. 25/litre in view of the fact that Agrigold began

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12Balaji Dairy was established by the National Dairy Development Board with assistance from the state government. The government’s District Rural Development Agency (DRDA) of Chittoor district signed an agreement with Balaji Dairy and the district nodal body of the women’s self help groups, the Zilla Mahila Samakhya. As per this agreement Balaji Dairy would procure milk collected through bulk milk chilling units managed and operated by the Zilla Mahila Samakhya. These units were financed by the government (Gupta, 2015). Today Balaji Dairy is listed as a major exporter, supplier and manufacturer of milk, butter milk, ghee and curd, and is headquartered in Tirupati, AP.
Box 1. Milk sales patterns in Madanapalle Town

In Madanapalle market, around 20,000 litres of milk are sold every day, 15,000 litres of which are sold by various private companies (Table 2). The balance of 5,000 litres is sold by 150-170 private vendors. They sell milk to individual consumers in their homes, and also to sweet shops. The private vendors procure milk from the farmers at Rs. 18-24/litre and sell it at Rs. 18-32/litre in Madanapalle town. The highest price (Rs. 32) is for fresh full cream milk. The price of milk falls the more it is diluted with water. Most of the vendors in Madanapalle sell milk between 6 and 9am. Any milk not sold after 9am is sold to private dairies. There has been no change in milk sales prices since 2014 in Madanapalle. Usually sales prices increase slightly in the new financial year. However in 2015, the companies did not increase the price (Table 3). The impact of the price war in liquid milk seemed not to have affected the Madanapalle markets until August 2015, when the price of milk from Tirumala Dairy fell by Rs. 2/litre.

Table 2. Milk sales in Madanapalle town, August 2015

<table>
<thead>
<tr>
<th>Milk brand</th>
<th>Litres/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dodla</td>
<td>7,500</td>
</tr>
<tr>
<td>Tirumala</td>
<td>3,000</td>
</tr>
<tr>
<td>Jersey</td>
<td>1,500</td>
</tr>
<tr>
<td>Aaha</td>
<td>1,500</td>
</tr>
<tr>
<td>Govardhan</td>
<td>1,500</td>
</tr>
<tr>
<td>Heritage</td>
<td>200</td>
</tr>
<tr>
<td>Fresh Milk</td>
<td>5,000</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>20,200</strong></td>
</tr>
</tbody>
</table>

Source: Primary data from Fact Finding Study in Madanapalle Town, August 2015.

Table 3. Milk sales for various private dairies, August 2015

<table>
<thead>
<tr>
<th>Type of milk</th>
<th>Price per litre of milk (Rs)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dodla</td>
</tr>
<tr>
<td>Toned milk 3% fat</td>
<td>40</td>
</tr>
<tr>
<td>Whole milk 6% fat</td>
<td>46</td>
</tr>
<tr>
<td>Standard milk 4.5% fat</td>
<td>42</td>
</tr>
<tr>
<td>Double toned</td>
<td>NA</td>
</tr>
</tbody>
</table>

Source: Primary data from Fact Finding Study in Madanapalle Town, August 2015.
to return milk, and had also reduced its procurement price. This led to downward pressure on SGRS's running costs, pushing it into a distressed situation and leaving it with no option but to reduce the procurement price paid to members.

From January 2015, all the private dairies gradually began to reduce their procurement price, and by March 2015 they were paying farmers Rs. 22/litre. The private vendors continued to procure milk at Rs. 22/litre. In July 2015, the private dairy retailers further slashed their procurement prices to Rs. 18-22/litre, citing reasons such as low SNF and fat quantity in the milk, or that companies were procuring far beyond their capacity, or that farmers were producing excess milk.

Milk procurement agents revealed the reality behind the decisions of the various dairies:

“Nowadays they are sending the milk back too. The reasons that they are stating is that there is an excess of milk production at the farmers’ end and the companies cannot take more milk. How can there be more milk? We are sending the same amount of milk everyday.” - Reddy, Milk Agent for Balaji Dairy.

One of the agents of Agrigold added, “the milk prices have decreased in Hyderabad because big co-operatives like Amul, Nandini started selling milk at a low price. There is lots of milk accumulated with the milk companies. Therefore they are returning the milk to the producers”.

An agent of Aaha milk said, “big companies like Dodla have around 30,000 tonnes of Skimmed Milk Powder and with such extra stock, they would prefer to recombine the existing SMP than procure fresh milk from the farmers”.

Various private dairies are also procuring milk in tankers from Tamil Nadu and Karnataka.

“Why should the government allow procurement of milk from other states when there is sufficient of milk in ours?” questioned the owner of a small private dairy in the nearby village of Angallu. He pointed out that it is easy to transport milk across state boundaries because there is no inter-state taxation on transportation of milk.

Farmers however strongly differ with the private dairy companies over questions of quality and quantity. SGRS tested samples of milk rejected by the dairies and found that the SNF and fat levels were well within acceptable levels announced by the private dairies.

Farmers also question the claim that there is too much milk being produced:

- Between January and December 2014, SGRS procured 206,716 litres of milk from 60 farmers, or an average of 1.89 litres milk/day per farmer (on a standard 300-day production basis).

- Between January and October 2015, SGRS procured 166,987 litres of milk from 76 farmers. On average each farmer poured 7.3 litres milk/day (Table 4 and Figure 3).
Table 4. SGRS’s milk procurement, January 2014-October 2015

<table>
<thead>
<tr>
<th>Month/Year</th>
<th>Litres of milk collected</th>
<th>Number of Sangham members</th>
<th>Comments</th>
<th>Average litres / day / farmer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/14</td>
<td>18,555</td>
<td>55</td>
<td></td>
<td>10.9</td>
</tr>
<tr>
<td>2/14</td>
<td>18,670</td>
<td>55</td>
<td></td>
<td>12.12</td>
</tr>
<tr>
<td>3/14</td>
<td>18,623</td>
<td>55</td>
<td></td>
<td>10.9</td>
</tr>
<tr>
<td>4/14</td>
<td>18,665</td>
<td>55</td>
<td></td>
<td>11.3</td>
</tr>
<tr>
<td>5/14</td>
<td>18,677</td>
<td>55</td>
<td></td>
<td>10.96</td>
</tr>
<tr>
<td>6/14</td>
<td>18,626</td>
<td>60</td>
<td></td>
<td>10.35</td>
</tr>
<tr>
<td>7/14</td>
<td>17,947</td>
<td>60</td>
<td></td>
<td>9.65</td>
</tr>
<tr>
<td>8/14</td>
<td>15,621</td>
<td>60</td>
<td>Drought year</td>
<td>8.4</td>
</tr>
<tr>
<td>9/14</td>
<td>14,618</td>
<td>60</td>
<td>Drought year</td>
<td>8.1</td>
</tr>
<tr>
<td>10/14</td>
<td>14,774</td>
<td>60</td>
<td>Drought year</td>
<td>8.2</td>
</tr>
<tr>
<td>11/14</td>
<td>15,731</td>
<td>60</td>
<td></td>
<td>8.7</td>
</tr>
<tr>
<td>12/14</td>
<td>16,209</td>
<td>60</td>
<td></td>
<td>8.7</td>
</tr>
<tr>
<td>1/15</td>
<td>14,976</td>
<td>65</td>
<td></td>
<td>7.4</td>
</tr>
<tr>
<td>2/15</td>
<td>13,998</td>
<td>66</td>
<td></td>
<td>7.6</td>
</tr>
<tr>
<td>3/15</td>
<td>16,726</td>
<td>68</td>
<td></td>
<td>7.9</td>
</tr>
<tr>
<td>4/15</td>
<td>16,080</td>
<td>70</td>
<td></td>
<td>7.7</td>
</tr>
<tr>
<td>5/15</td>
<td>15,829</td>
<td>75</td>
<td></td>
<td>6.8</td>
</tr>
<tr>
<td>6/15</td>
<td>15,515</td>
<td>76</td>
<td></td>
<td>6.8</td>
</tr>
<tr>
<td>7/15</td>
<td>17,291</td>
<td>85</td>
<td></td>
<td>6.6</td>
</tr>
<tr>
<td>8/15</td>
<td>17,157</td>
<td>85</td>
<td></td>
<td>6.5</td>
</tr>
<tr>
<td>9/15</td>
<td>19,350</td>
<td>85</td>
<td>Good rain and fodder available</td>
<td>7.6</td>
</tr>
<tr>
<td>10/15</td>
<td>20,065</td>
<td>85</td>
<td>Good rain and fodder available</td>
<td>7.6</td>
</tr>
</tbody>
</table>

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Today, the total volume of milk procured by the SGRS (with merely two months left in the calendar year at the time of writing) is well below the total quantity procured in the 2014 calendar year. Importantly, the average milk poured by each farmer in 2015 is significantly lower than in 2014 despite SGRS having more farmers pouring milk in 2015 (85 in October 2015 compared to 60 in October 2014). The average milk poured per farmer in October 2014 was 8.2 litres/day, compared to 7.6 litres/day in October 2015.

These data completely belie the claims of the organised dairy sector that increased production and volumes of milk being poured by each producer is the primary reason for a reduction in milk procurement prices and total volumes being procured. Clearly from the small farmers’ experiences there is no dramatic increase in production per farmer, or for that matter increase in total numbers of farmers owning animals. The increase in total volume procured by SGRS is related to the increase in total numbers of farmers who are pouring milk to SGRS, which increased from 55 in January 2014 to 85 in October 2015. New farmers, who began to pour milk to SGRS, were earlier selling their milk to other private dairies, and decided to sell their milk to SGRS because of the higher price being paid by the collective as compared to other private dairies.

The SGRS is suffering a loss today because of the broader dynamics at play – they are still dependent on selling a part of their milk to a private dairy processor which pays

Figure 3. SGRS milk procurement and production trends
them substantially lower than their cost of production. This situation has arisen as a result of a key customer (an ice-cream shop) shifting to cheaper milk powder.

Prior to May 2015, the production cost for a litre of milk was Rs. 26/litre. Today, because of a severe drought in the region, the cost of production is Rs. 30/litre of milk. Poor rainfall has resulted in a lack of green fodder. This is coupled with rising costs for animal feed, dry fodder and veterinary health care. In the words of the farmers:

“This year, there has been no rainfall at all. No water, feed, fodder for the animals from our fields. We have to buy everything. The cost of production has gone up but the price per litre of milk has reduced. How are we expected to continue to produce milk with this loss?” - Hari, Mandemvaripalli

“The companies return milk in the evening. We tried selling them in the local town at a lesser price than what the company purchases or else we throw away the milk, as it cannot be saved.” - Sudhakar Reddy, Mandemvaripalli

“I have been returning the milk to the farmers since May-June. Sometimes, it is around 50 litres and sometimes around 100 litres. The company tells me that the milk is not according to their fat and SNF quality. Nowadays this is happening regularly” - Vijay, autodriver, who carries milk from villages to the Agrigold Company

In the eastern part of Chittoor district, in KVB Puram Mandal, milk procurement prices have similarly dropped to well below the farmers’ critical price of milk. In Rayapedu village, there are 20-30 buffaloes and 30-35 cows. The cows were distributed to women through self-help groups over the last three to four years. Previously the villages only had buffaloes for milk, and they used to sell milk locally in the village and to neighbouring villages. Today a private vendor procures cows' milk from the farmers at Rs 20/litre and buffalo milk at Rs 23/litre. The private vendor procures roughly 20 litres per village per day from 5 villages He sells 10-15 litres of milk in the 5 villages, and the remaining to Trinetra dairy. He sells buffalo milk at Rs 30-35/litre in the village or outside, and to Trinetra dairy at 27 Rs /litre. Families with infants and young children buy buffalo milk from the vendors. A BMCU, managed by the Mandal Mahila Samakhya of the SHGs, has been set up by the DRDA in KVB Puram town. The DRDA linked the milk sales at these BMCUs to the National Dairy Development Board (NDDB) subsidiary, Balaji dairy. Ten villages sell about 2,600 litres of milk/day to Balaji Dairy. The villages are Rayapedu (BC), Rayapedu (SC hamlet), Oluru (BC and SC), Pathapalyam (BC, SC), Arunjyotiwada (SC), Wogaturu, Sadashipuram (SC), and Sidhamnayagkandriga (SC). In August 2015, Balaji dairy was purchasing buffalo milk at Rs 32/litre, and cows' milk at Rs 24/litre based on SNF and fat content. In November 2015, the average price being paid to farmers for cows’ milk was Rs 23/litre, and Rs 27/litre for buffalo milk. Once again, this confirms the steady decline in milk procurement prices.

13 BC: backward caste; SC: scheduled caste.
2.2 The milk crisis in Hyderabad and neighbouring Medak district

Telangana State produces around 24 lakh litres of milk per day. This milk is procured by the organised market (state cooperatives and private dairy processors) and peoples' markets (independent milk traders and producers); and sold in towns and cities. In Telangana, private dairies and small vendors procure 75% of the milk produced, and 25% is procured by the cooperatives. Of all the milk sold through the organised sector in Telangana, 80-90% is sold in Hyderabad (20 lakh litre/day), and the rest (3-4 lakh litres/day) in other urban centres.

2.2.1 The Hyderabad milk wars

In Hyderabad, 22 to 24 lakh litres of milk are consumed each day. Up until January 2015, 15 dairies – including cooperatives, large private dairy processors and local Hyderabad-based dairies – contributed nearly 15 lakh litres of milk per day. The remaining 8-9 lakh litres of milk per day were contributed by 35 small dairies, Hyderabad-based milk producers and individual milk vendors who collect milk from farmers in villages within and outside Hyderabad.

Under Operation Flood\(^\text{14}\), a three-tier cooperative structure (from village to state) was established across the former Andhra Pradesh\(^\text{15}\) to organise milk production, procurement, processing and marketing. As part of the larger milk marketing strategy of the Cooperative Dairy Federation of Andhra Pradesh (APDDCF) which headed the three-tier structure, milk was supplied to Hyderabad, and marketed under the Vijaya Dairy brand. The Vijaya Dairy milk processing plant in Hyderabad has a daily processing capacity of 6 lakh litres. Vijaya Dairy procures milk from Mahabubnagar, Warangal, Khammam, Nizamabad and Adilabad districts. Ranga Reddy and Nalgonda districts disassociated themselves from the federation in 2005, and became a subsidiary of NDDB’s Mother Dairy.

In October 2014, Vijaya Dairy, the Cooperative Dairy Federation of Telangana, announced an increase in its procurement prices for both buffalo and cows’ milk. Prior to this announcement, it was procuring buffalo milk with a minimum of 5% fat at Rs. 26.50/litre and cows’ milk at Rs. 23.34/litre. The revised rates after the announcement rose to Rs. 30.50 and Rs. 27.34/litre respectively. At that time, newspapers reported that private dairy players were already paying Rs. 31/litre for the same quality of buffalo milk and Rs. 27.45/litre for cows’ milk. According to officials at the Vijaya Dairy, their announcement regarding the increase in procurement prices came into effect in February 2015\(^\text{16}\). The large private dairy processors did not anticipate a significant decline in their milk procurement volumes as a result of this

\(^{14}\) The dairy development programme financed by the Government of India between 1970 and the mid-1990s to build India's cooperative dairy sector – see Section 3.4.

\(^{15}\) On 2nd June 2014, a part of the state of Andhra Pradesh was split off to form the new state of Telangana, comprising 10 districts of the erstwhile united state. The remaining districts continue to be in Andhra Pradesh state.

\(^{16}\) Pers. comm.
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announcement (Rahul, 2014).

The Hyderabad market for packaged milk brands is controlled by milk vendors and agents\(^\text{17}\). A vendor charges an additional Rs. 3/litre and the retailer Rs. 1/litre on the milk sales price announced by a cooperative or private dairy processor. Thus a customer pays an additional Rs. 4/litre over and above the price announced by a brand.

In January 2015, Amul announced its intentions to enter the Hyderabad market, offering much lower milk prices than any other dairy – whether cooperative or private. Amul was selling toned 3% fat milk at Rs. 38/litre, whilst other brands were selling the same quality (toned 3% fat) milk between Rs. 40-48/litre, with the exception of Vijaya Dairy (Rs. 38/litre). Amul entered the market by selling milk directly to small retail shops, offering them an incentive payment of Rs. 3/litre to sell Amul milk. Amul bypassed the traditional milk agents. They launched their entry into Hyderabad with a massive advertising publicity drive: 66 hoardings, newspaper advertisement, radio jingles etc., all aimed at attracting the Hyderabadi consumer. Amul entered the market by signing a contract with the Nalgonda-Rangareddy Milk Producers Mutually Aided Cooperative Union Limited (NARMAC) for processing, packaging and marketing Amul milk. NARMAC was already procuring, processing, packaging and marketing 1.3 lakh litres of milk for Mother Dairy\(^\text{18}\) in Hyderabad under an agreement signed in 2005 (Box 3).

The milk vendors in Hyderabad protested against Amul’s entry into the retail market (Ramdas, 2015a). However, by the end of March, Amul had reached an agreement with Hyderabad and Secunderabad city milk vendors to increase the overhead percentage paid to retailers. In short, Amul was successful in suppressing resistance from milk vendors by offering them a portion of the pie. This also reflects how the city milk vendors were ultimately only interested in their own livelihoods, and were not really concerned about farmer livelihoods. By August 2015, Amul was able to sell around 1.2 lakh litres of milk.

Along with Amul, several other new dairy companies – such as Nandini, Parag and Gokul – entered the Hyderabad market in 2015. Nandini, the brand of Karnataka Cooperative Milk Producers' Federation Ltd. (KMF), launched sales in Hyderabad in May 2015, selling toned milk at Rs. 36/litre, lower than all other brands. They began by supplying 40,000 litres of milk per day and announced their intentions to reach 100,000 litres a day and to also set up their own processing units in Telangana. By July, 2015 Nandini was selling 60,000 litres of milk per day. Milk procured from Vijayapura and Belagavi in Karnataka is processed in Hyderabad at a franchised facility (The Hindu, 2015d; The Economic Times, 2015d and e). KMF also proposes establishing other sorts of facilities, such as bulk milk coolers, processing units,

\(^{17}\) These vendors deal with marketing packaged milk and are distinct from milk vendors who market fresh milk procured from farmers.

\(^{18}\) Mother Dairy is a wholly owned subsidiary of the National Dairy Development Board (NDDB)
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Box 3. The NARMAC-Mother Dairy conflict

In 2014 Mother Dairy enjoyed 5.9% of Hyderabad's milk market share. Mother Dairy's contract with NARMAC was due to expire in March 2015. When NARMAC entered into the agreement with Amul, and Amul's sales began to increase, Mother Dairy wrote a letter to NARMAC informing them of their decision not to extend the contract with NARMAC if they did not stop processing and packaging milk for Amul. By the end of February 2015, Amul started selling around 1 lakh litres of milk in Hyderabad. In April 2015, NARMAC and Mother Dairy did not renew their contract. NARMAC began to sell its milk under the new brand name of Narmul at Rs. 38/litre, using the same networks, agents and vendors that had supplied Mother Dairy milk. Narmul sells about 1.2 lakh litres of milk in the city today. Mother Dairy lost its milk, agents and vendors as well as its supply chain in Hyderabad. In May 2015, Mother Dairy re-entered the Hyderabad milk market through a tie-up with Tirumala Dairy for procuring and packaging milk, and now has sales of 30,000 litres of milk a day, selling at Rs. 40/litre. Mother Dairy has introduced direct incentives to tea shops and retailers, along with the existing incentives to agents.

The ensuing price war amongst dairy companies led milk sales prices to fall as low as Rs. 33/litre (Economic Times, 2015a), ‘benefiting’ consumers.

Table 5. Falling prices of toned milk sold by private and cooperative dairies in Hyderabad January 2014 - August 2015

<table>
<thead>
<tr>
<th>Name of the brand</th>
<th>Sales prices in January 2014 (Rs/litre)</th>
<th>Sales prices in August 2015 (Rs/litre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vijaya</td>
<td>38</td>
<td>38</td>
</tr>
<tr>
<td>Mother Dairy</td>
<td>42</td>
<td>38</td>
</tr>
<tr>
<td>Dodla</td>
<td>44.5</td>
<td>40</td>
</tr>
<tr>
<td>Heritage</td>
<td>44</td>
<td>40</td>
</tr>
<tr>
<td>Jersey</td>
<td>42</td>
<td>40</td>
</tr>
<tr>
<td>Milky Plus</td>
<td>43</td>
<td>41</td>
</tr>
<tr>
<td>Masqati</td>
<td>46</td>
<td>46</td>
</tr>
<tr>
<td>Al Safa</td>
<td>49</td>
<td>48</td>
</tr>
</tbody>
</table>

Source: Primary data collected by FSA from retail shops selling different milk brands in Hyderabad. August 2015
In July 2015, private dairy companies complained about how milk cooperatives had forged alliances, thereby slashing milk sale prices and stabilising milk procurement prices (Economic Times, 2015a). They pointed out that this was affecting private dairies (Dodla, Creamline Ltd., Heritage etc.), who had been forced to reduce sales prices, and consequently procurement prices for farmers. In August 2015, Dodla and Heritage reduced the milk sales price by Rs. 4/litre, and were selling milk at Rs. 40/litre (Table 5). The sales prices of Tirumala and Jersey reduced by Rs. 2/litre.

Hyderabad newspapers report that the price war is essentially operating only in the cows’ milk markets, not buffalo. In cities like Hyderabad, which have 18-20 private dairy players, projections were that the price war would affect the smaller dairies that

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**Table 6. The decline in milk sales by Hyderabad’s smaller cooperative and private dairies July 2014 and July 2015**

<table>
<thead>
<tr>
<th>Dairy</th>
<th>Sales/day in lakh litres/day July 2014</th>
<th>Sales prices in July 2015 (Rs/litre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vijaya</td>
<td>3.8</td>
<td>3.8</td>
</tr>
<tr>
<td>Heritage</td>
<td>3</td>
<td>2.5</td>
</tr>
<tr>
<td>Jersey</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Tirumala</td>
<td>1.5</td>
<td>1.45</td>
</tr>
<tr>
<td>Masqati</td>
<td>1.5</td>
<td>1.3</td>
</tr>
<tr>
<td>Amul</td>
<td>-</td>
<td>1.2</td>
</tr>
<tr>
<td>Narmul</td>
<td>-</td>
<td>1.2</td>
</tr>
<tr>
<td>Nandini</td>
<td>-</td>
<td>0.6</td>
</tr>
<tr>
<td>Hatson Agro</td>
<td>-</td>
<td>0.55</td>
</tr>
<tr>
<td>Dodla</td>
<td>0.5</td>
<td>0.45</td>
</tr>
<tr>
<td>Mother dairy</td>
<td>1.2</td>
<td>0.3</td>
</tr>
<tr>
<td>Mukunda</td>
<td>0.4</td>
<td>0.3</td>
</tr>
<tr>
<td>Milky Plus</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>Reliance</td>
<td>-</td>
<td>0.15</td>
</tr>
<tr>
<td>Al Safa</td>
<td>0.36</td>
<td>0.25</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15.01</strong></td>
<td><strong>15.75</strong></td>
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*Source: personal communication from Manager, Creamline Dairy and Managing Director Al Safa in Hyderabad*
supply about 10,000 litres of milk/day (e.g. Al Safa, Babu Miya, Kishan, Priya and Sahara) (Rathor, 2015). The impact in Hyderabad is evident in Table 6, which shows a general decline in milk sales by the smaller independent dairies.

All these changes have affected the existing milk production-procurement supply chain.

Around 2 lakh litres of milk supplied by farmers in Andhra Pradesh and Telangana have now been displaced by ‘cheaper’ milk sold in the city and procured at greater and greater distances from the state. For example, Amul procures milk from farmers in Gujarat, Nandini from Karnataka farmers, and Hatsun from farmers in Tamil Nadu (see Figure 2 above). Hence the milk from the Telangana and AP farmers is in effect now ‘excess production’, and is no longer being procured or sold by the dairy processors or small dairies.

The market expansion of these large organised dairy processors is a direct threat to the livelihoods of the small players who trade in fresh milk: small dairies in the city, such as Al Safa, Kishan, Babu Miya and Priya, who sell between 10,000 and 15,000 litres of fresh milk every day; independent milk producers in the city; traders who bring village milk into the city; and the local farmers who produce the milk. Several small dairy farms and farmers are making losses. A good number of the farms are on the verge of closure. The farmers are being paid far less than the cost of production. While the cost of production of buffalo milk is more than Rs. 40/litre, the farmers are getting Rs. 33-38 from the dairies. Those who are producing cows’ milk receive Rs. 18-24/litre, while the cost of production ranges from Rs. 26-28/litre. The other major players in the market are forced to reduce their procurement prices, as they say they are unable to absorb the fall in their sales. So at the bottom of this market chain, the losses are silently being born by the small farmers and other citizens whose livelihoods depend upon the peoples’ milk markets.

2.2.2 The peoples’ milk markets in Hyderabad City

The peoples’ milk markets of Hyderabad comprise traditional urban milk producers; rural milk producers in villages outside Hyderabad City who sell their milk in Hyderabad via vendors from their village; and local dairies.

**Traditional urban milk producers**

Traditional urban milk producers rear buffaloes and sell the milk. Many belong to the Yadav community; on average they own 4-7 buffaloes. They have been rearing buffaloes for generations: “I have been doing this since I was a child and do not know anything apart from grazing buffaloes”, said Krishna Yadav, a milk producer in Marredpally. Take for instance the Marredpally locality of Secunderabad in Hyderabad. Prior to the early 2000s there were plenty of families who reared animals, milked buffaloes and sold milk in the city. However, today only a handful of independent milk

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19 According to the caste system, the Yadav community is categorised as a ‘backward caste’, whose traditional occupation was rearing cattle/buffaloes and selling milk.
producers remain. Even they are challenged by customers’ demands for cheaper milk and other rapid economic changes.

Their production cost per litre of milk is Rs. 50. Milk is in turn sold at between Rs. 45 and Rs. 60/litre (the latter for pure whole cream milk). Milk production costs are higher than in villages, as all inputs must be purchased: from dry grass, green fodder, concentrate feed, to water and electricity. The animals need to be tethered in a shed permanently as there is no space for them to graze. A full-time worker is required to take care of the animals. In the words of Krishna Yadav, “I have 4 buffaloes and 1 cow. I have to buy feed, dry grass, green fodder, water, electricity to pump water and so on. Everything has become so expensive in the city, and consumers do not pay adequately...We tie the animals so we need to ensure that there is water in the drinking pit, the animals are cleaned, their shed is clean and swept, they are feed on time, milked twice a day, sold the milk at various houses. And if there is no feed or fodder, one has to go to market to buy and the list goes on and on”.

The sales price of milk has remained unchanged over the last one and a half years, despite escalating input costs. Most milk producers in the city earn a meagre livelihood from the business of milk. In 2014, it cost on average Rs. 300-350/day to feed four buffaloes. In 2015 the same quantity of feed costs Rs. 500-650/day. If it rains the cost of feed increases. Feed and fodder are usually purchased once every 3-4 days, as there is insufficient space to store the feed. Despite the increasing input costs, the milk producers cannot increase the sales prices of milk, as customers will protest.

“We cannot increase the price of milk because we fear losing customers, as they have a choice of buying packaged milk for a lower price”, notes Venu Yadav, who possesses three buffaloes in Addagutta, Secunderabad.

Nagesh Yadav, who once had six or seven buffaloes, sold his animals in 1997 and is now a milk agent for Vijaya milk. He sells Vijaya milk by standing with crates of milk near Teacher’s Colony Garden and also sends his son to deliver milk door to door. He explains, “Taking care of animals was becoming difficult. My sons were studying. I had to rear the animals, buy feed, fodder, grass from the market and the money I earned from selling milk was not sufficient to maintain my household’s needs. So I decided to sell the animals. And with that money I started a retail shop where I sell milk in the morning (as a milk agent with Vijaya Dairy) and other goods throughout the day.”

Srinivas Yadav had six buffaloes but sold the animals a year ago, “My father used to take care of animals. I have three sisters and my father took a loan for their wedding. After my dad passed away, I couldn’t take care of the animals as I am studying. My family was unable to clear loans by selling milk. So I decided to sell the animals and pay off the loan.” Srinivas is studying law, and washes cars and bikes for various households to earn a living.

Golla Krishna Yadav, another milk producer in Marredpally, has around 18-20
buffaloes. Most of them are local breeds and two are graded Murrah buffaloes, which have higher milk yields. He sells approximately 60-80/litres a day and makes a sizeable income. He sells the milk to individual customers through door-to-door supply. He has two or three people working with him, in addition to his son and father. Tasks include milking, feeding, washing the animals and delivering milk to peoples' houses. “I have been supplying milk to customers in Marredpally for several years. People who continue to buy milk from me, do so out of trust, as I have maintained the milk quality.” On the issue of other small city producers, he says “since I have around 20 buffaloes, I am able to make a living despite increasing costs. But it is worrisome, as a lot of my relatives have had to either sell their animals or are experiencing huge losses”.

Another producer, who was supplying milk to individual households, started selling milk to a private dairy as it is more convenient to sell milk in bulk in one go than to sell small quantities from door to door. In the city, expenses and the cost of production have increased, aspirations have changed and so have choices. Most Marredpally milk producers want their children to have a profession other than rearing animals. Krishna Yadav explains, “I would want my child to do what I am doing but today in this work there is no respect, no living, no dignity. Only drudgery with no pay.”

It is evident that such traditional small producers for dairies in Hyderabad City are fast disappearing. Reasons largely include the spiralling costs of feeding and caring for animals, shrinking spaces to graze animals, shortage of family labour, and a gradually declining customer base, with several customers moving towards packaged milk.

Individual consumers use the largest share of the milk marketed in Hyderabad: both fresh milk from small traders and/or local dairies and packaged milk. Milk is also used by hotels, sweet shops, tiffin centres, tea shops, businesses, schools, hostels etc. Most tea shops buy packaged milk: popular brands include Tirumala, Nandini, Mother Dairy, Mukunda and Vijaya. On average, a small tea shop purchases 20-30 litres/day and slightly larger cafés, such as the famous Irani cafés, purchase 50 litres of milk/day.

“I prefer Tirumala milk compared to other milk because the milk is thick and the chai [tea] tastes better”, says Chote Lal, owner of a Rajasthani chai shop in Marredpally. He owns three tea shops in Marredpally and buys 75 litres of milk daily for all the shops. He buys 55 litres of Tirumala milk at Rs. 40/litre and 20 litres of Mother Dairy milk at Rs. 38/litre.

Most of the tiffin centres buy toned milk from the agents at their prices: Vijaya milk at Rs. 36/litre, Mother Dairy at Rs. 38/litre, Tirumala at Rs. 40/litre etc. Irani cafés in Hyderabad are known for their tea. These cafés start their business at 5 o’clock in the morning and continue till 11 o’clock at night. A café can sell between 1,000 and 10,000 cups of chai depending on the number of customers. A small café would require around 100 litres of milk. They use packaged milk for its convenience, and
procure it directly from agents at their prices: Mukunda, Vijaya, Amul, Mother Dairy, Tirumala, etc. As one cafe owner comments, “We used to buy milk from the milk man. We shifted to Mukunda milk 7 years ago which we buy at Rs. 38/litre from the agent. We don't need full cream milk from the milkman for tea” (Ramser Café). ‘We buy Vijaya milk because we get milk at Rs. 35/litre which is the lowest price available in the market” (cashier at White Rose café).

At a conservative estimate of one tea shop per residential area, assuming that each shop purchases about 20 litres of milk a day and with about 10,000 residential areas in Hyderabad, tea shops alone would be procuring 2 lakh litres of milk each day. Sweet shops buy milk from the doodhwallas (milk vendors/traders). They do not buy packaged milk because they need fresh milk to make sweets. For example, the Agra sweet shop in Marredpally purchases 120 litres of milk from doodhwallas located in the outskirts of the city, at Rs. 55/litre of buffalo milk and Rs. 36/litre of cows' milk. Their criteria for buying fresh good buffalo milk is that 1 litre of buffalo milk should yield 250 grams of mava/khova20. The owner adds, “we buy 100 litres of buffalo milk and 20 litres of cow milk. We use cow milk to make rasagollas and other bengali sweets. For the rest we use buffalo milk.” Large hotels e.g., five-star hotels such as Taj Krishna Hotel, Hyderabad, procure Vijaya Dairy Milk.

**Rural milk producers**

In the villages, a farmer’s livelihood is derived from multiple sources: food crops, vegetables, buffaloes, sheep and goats, and backyard poultry. Animals are reared to produce milk for home consumption, and excess milk is sold either to local milk vendors, to cooperatives or private dairies. The production cost per litre of milk varies with the breed and numbers of animals.

For example, one farmer in Peddagottimukula village in Narsapur Mandal, Medak District owns one local buffalo, which produces 810 litres of milk annually. The average cost of production is Rs 26/litre. He sells it to a local vendor and is paid Rs 30/litre. This farmer is able to make some profit. Another farmer in Peddagottimukula village owns four buffaloes and produces on average 2,500 litres of milk a year. The production cost/litre of milk works out at Rs. 25/litre. The farmer says, “we do a lot of things in a day and grazing the animals, taking care of them, milking them is one of the things.” He sells his milk to traders at Rs. 30/litre.

On the other hand, the cost of milk production is lower for a farmer with eight buffaloes in Ramachandrapuram, Narsapur. He sells an average of 3,500 litres of milk a year and his production costs are just under Rs. 19/litre. The farmer grows his own fodder, and green fodder is available all through the year. He observed that the quality of straw which they get from their crops (crop residue) has changed. Today they harvest paddy with a harvester, and the straw is much shorter, with half of the straw remaining in the ground too long to be grazed. He sells the milk to Manikanta

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20 Khowa is thickened solid milk obtained from boiling down milk.
private dairy, which procures milk for Heritage, at Rs. 33.5 to Rs. 42/litre depending on its fat and SNF content. His lower cost of production is largely because he grows his own fodder, which is a significant part of a farmer’s cost, and also because he does not hire outside labour, despite having more animals.

Farmers in Ramchandrapuram either sell milk through local village milk vendors, or directly to shopkeepers, sweet shops, hotels, individual families and private dairies. They sell milk at Rs. 30-40/litre to private dairies based on fat and SNF content. Between 50 and 60 farmers from Achampet village, Narsapur, sell milk at Rs. 40/litre to a yoghurt shop in Narsapur town. In Narsapur, almost all the households buy milk from farmers at Rs. 40-45/litre. There is no pressure from consumers in Narsapur to reduce the prices of milk.

Tea shops in Narsapur have begun to switch to using Nandini’s Good Life tetrapack. Although they used to buy milk from farmers, they prefer the tetrapack long-life milk because it does not need refrigeration. Hotels in Narsapur purchase milk from milk vendors or farmers. Sweet shops in Narsapur use fresh milk. A Rajasthani sweet shop in Daulatabad purchases 100 litres of milk a day from three local villages. Three vendors supply milk at Rs. 36-38/litre. Currently the sweet shop supplies milk to a factory nearby, and hence procures 120 litres each day.

**The local Hyderabad dairies: The experience of Al Safa**

Al Safa milk is the brand of Osman Ali Dairy Farm and Babu Miyan Dairy Farm. The former was started in 1982, and the latter is Hyderabad’s oldest dairy farm, started in 1928 by the current proprietor’s father. The dairy farms are located in the Yakutpura and Chandrayangutta suburbs of Hyderabad respectively. They produce around 3,000 litres of milk a day on their own dairy farms and procure the rest from cooperative societies in Telangana and Andhra Pradesh. They pay Rs. 1 per litre more than the cooperative dairy rates to the farmer. Their procurement rates range from Rs. 40-60/litre of milk depending on fat and SNF content.

Al Safa sells whole milk, toned milk, curd, sweet curd, khowa, cream, ghee, paneer, butter and ice-creams. It has milk shops across Hyderabad and Secunderabad. It sells 80% of the milk in its own dairy shops and the remaining 20% is sent to other farms, sweet shops, ice-cream parlours and restaurants.

It currently sells about 25,000-30,000 litres of buffalo milk/day. Previously it was selling around 36,000 litres of milk a day, but since Amul and Nandini entered the market, sales have reduced. It has begun to sell the excess milk on the open market or to other milk vendors at a lower price. So far, it has not reduced its procurement price or volumes procured. “We are worried about the farmers as they are the ones who are affected by the decrease in sales. So far, we are still buying 40,000 litres of milk every day from the farmers despite the decrease in sales. The excess we are selling at a lower price to various vendors in the city,” says Rahman, Managing

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Director and owner of Al Safa.

Due to the reduction in sales, however, vendors decreased the price of toned milk from Rs. 45/litre to Rs. 40/litre on July 16th 2015. The price of full cream milk remains unchanged at Rs. 60/litres.

**Small vendors and traders: victims of milk dumping**

Whilst there are no published data, it is evident that there is a large number of local farmers, milk vendors and traders who procure milk from their own villages and transport it to Hyderabad to sell to individual families, sweet shops, hotels, hostels etc. around the city. Here we describe the impact on these farmers and milk vendors in Medak district of the disposal of large stocks of skimmed milk powder (SMP) as cheap recombined liquid milk. These farmers belong to member farmer organisations of the FSA.

Around 20 milk traders/vendors from 8 villages in Medak district\(^{22}\) are organised into an informal union. Each trader procures 100-150 litres of milk a day from local farmers in these villages and sells it to consumers in the S R Nagar, Balanagar, Ameerpet and Kukatpally Housing Board localities of Hyderabad City. Their customers include individual families, sweet shops, hostels and hotels. On average, the traders collectively procure 2,000-3,000 litres of milk every day from these 8 villages, and pay the farmers Rs. 30-34/litre. They also advance loans to farmers to purchase local indigenous buffalo breeds. Whilst the yield of a graded Murrah buffalo breed may be higher, its production cost per litre of milk is also higher than for a local buffalo, and farmers often end up in debt with a Murrah. The vendor recovers the loan by deducting Rs. 11-12/litre of milk sold by the farmer.

Each morning, the traders collect milk from farmers, and load the milk cans onto the early morning public transport bus belonging to the Telangana State Road Transport Corporation. Traders take it in turns to travel on the bus with the milk cans and sell the milk at various points. The traders have been procuring milk from the farmers and selling it in Hyderabad for the last 15 years. A private dairy wanted to start a collection centre in their area but all of them fought hard to keep out the private dairies and cooperatives. The traders sell milk in the city at between Rs. 45-50/litre depending upon the quality and customer. They sell fresh full cream milk at Rs. 45/litre to sweet shops and at Rs. 40-50/litre to individual households. There is no contract between the traders and the buyers. Two to three years ago, the sweet shops and the traders used to have a contract, but today the traders sell milk to them without a bond, on a payment and supply basis. Most sweet shops and hostels pay money on a daily basis, while households pay for the milk on a monthly basis. Most consumers buy the fresh milk because they feel it is healthier than packaged milk. They also like to make their own butter and ghee.

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\(^{22}\)Peddagottmukula, Nawabpet, Bijilipur, Chennapur, Sinkindlapur, Nagereddigudem, Lachereddigudem, Chandi and Dontakunta.
Vendors’ customers – individual buyers, sweet shops and hostels – have begun to pressurise the vendors to sell fresh milk at a lower price. Due to the falling prices of packaged liquid milk sold by the organised dairies, this year (2015) the vendors have been unable to increase the milk sales price, and consequently the procurement prices to farmers have not increased. The traders’ relationship with farmers and consumers is fragile and insecure, as voiced by a local milk vendor:

“There is a lot of competition in the Hyderabad milk market and every trader wants to ensure that they earn a margin while selling milk. Sweet shops in Hyderabad do not care about the health of the people. Pure khova from buffalo milk costs Rs. 400/kg but in Begum Bazar, the sweet shops can purchase khova for Rs. 250/kg. The latter is not produced from pure milk, and could have milk powder in it. This affects our trade, as the sweet shops either stop buying milk from us, or pressurise us to reduce our sales price. Cooperatives and private companies are attracting the middle class with their notions of fresh milk: ie pasteurised milk is good milk. Consumers are never informed that milk in packets is far from fresh, and could actually be recombined milk power and butter fat. No one is reminding the consumers of the values of fresh milk, and the joys of being able to remove the cream and make one’s own butter and ghee at home. Can we really compete with these big cooperatives and corporations that are selling milk in Hyderabad?” For the first time ever, they are deeply worried about the future of their trade, and the livelihoods of the farmers in their village.

2.3 The story of dairying in Vishakapatnam, Andhra Pradesh

The Sri Vijaya Visakha Milk Producers Company Ltd. (Visakha Dairy), based in Visakhapatnam in Andhra Pradesh, procures milk from farmers in the coastal Andhra districts of Srikakulam, Vizianagaram, Visakhapatnam and East Godavari. It sells fresh milk in coastal Andhra districts and a few parts of Odisha and Chattisgarh (Figure 2). The dairy was part of the Cooperative Dairy Federation of Andhra Pradesh until 1999, when it separated from the federation and registered itself as an independent cooperative (Sri Vijayavisakha District Milk Producers Mutually Aided Cooperative Union) under the Mutually Aided Cooperative Act, 1995. In 2006, it registered itself as a company under the Company Act, 1956. Vishaka Dairy has two processing plants, in Gajuwaka, Vishakapatnam and Sangampet, close to Rajamundry in East Godavari. The dairy procures and sells about 6.5 lakh litres of milk a day, of which 3.5 lakh litres are procured from the Vishakapatnam region. It sells milk in tetrapacks in cities like Hyderabad, Raipur and other towns in Odisha23. The Vishaka Dairy dominates 95% of Vishakapatnam’s milk market, selling 3.5 lakh litres a day in Vishakapatnam city and surrounding areas.

According to the Manager of Vishaka Dairy, “There has been no change in the milk prices. In June 2015, we increased the procurement price of milk by Rs. 2.

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23 Interview with Dr AV Prasad, Manager, Vishaka Dairy.
We pay the farmer around Rs. 23.5-27/litre for cow milk and Rs. 30-40/litre for buffalo milk, based on fat and SNF levels. In addition to that, we give farmers one month bonus every year. In fact, our requirements are not met by the farmers, so additionally we procure milk from other cooperatives outside AP”.

According to the company, they subsidise the cost of concentrate feed to their farmer members, selling 50 kgs at Rs. 450-500, compared to the market price of Rs. 750. They offer fodder at subsidised prices, as well as insurance cover for animals, and health and life insurance cover for farmers’ families. They also provide jobs for farmers’ children with a college degree.

In Rebaka village, in Nakkapalli Mandal of Vishakapatnam district, about 205 farmers have buffaloes and a few own cows. The farmers provide milk to Vishaka, Agrigold and Sri Chakra dairies. Nearly 75 farmers collectively pour 200-220 litres of milk a day to Vishaka Dairy. This works out at an average of 3 litres per farmer per day. During the summer months, when production falls, they provide 100-120 litres/day. In 2015, unlike the general trend in other regions, in Vishakapatnam the Visakha Dairy increased the procurement price for buffalo and cow milk by an average of Rs 2/litre. This meant that other private dairy companies were compelled to increase their procurement prices too.

Despite the increase in procurement prices, farmers are extremely unhappy as they are not seeing the benefits due to ‘low fat content’ readings of their milk made by dairy collection centres. The final price received by the farmers is based on the fat and SNF content of their milk, which is tested each day at the milk collection centre. Several farmers complain of huge day-to-day variations in the fat content test readings of their milk, resulting in payments far lower than the maximum possible. They question how there can be such dramatic variations in fat content within a period of 24 hours, when they have not changed the diet of the animal. One farmer, for instance, got her buffalo’s milk tested at another centre on the same day, and it showed a higher fat content than the results at the Vishaka Dairy collection centre.

“I have one buffalo. In July, I was pouring around 1 litre of milk to Vishaka Dairy. One day, they told me the fat is 7.2% and I would get Rs. 38/litre and a few days later, the milk contained 12% fat and I was paid Rs. 54/litre. How can milk show such a drastic decrease or increase of fat percentage? They often write low fat content in my book. So one day, I got it tested at another dairy’s lactometer and it showed high fat percentage, whereas it shows low fat percentage by Vishaka dairy. These milk companies are duping us farmers in the name of fat and SNF as they are not calculating the fat properly.” Bapanamma, Rebaka village.

Some farmers, unhappy with this treatment, shifted to another dairy, but the story was the same:

“I shifted from Vishaka Dairy to Sri Chakra Dairy. The agents collect milk in our village. 2-3 months ago, the fat reading ranged between 8-9 % and I was paid Rs.
The Milk Crisis in India: The story behind the numbers

42-48/litres but now, they say the fat in the milk is around 4-5 %, and I am paid Rs. 25-30/litre. This is very low. I thought shifting will be helpful, but it is just like the old system.” Nooka Rao, Rebaka village.

At the same time production costs continue to increase:

“I had 1 buffalo. It was difficult to maintain the animal as one has to constantly take it out to graze, feed the animal, take care of it. It’s a day’s work. The money I earn from milk is equivalent to the amount I spend on feed, fodder. I am paid Rs. 200/day if I go out to work. Hence I sold my animal and started to work as a labourer as I was ensured my day’s pay.” Nagaratamma, Rebaka village.

“I have one local cow and it gives around 1 litre of milk. I sell it to Vishaka Dairy and they pay me Rs. 17-20 based on the fat percentage ranging between 3 to 3.3% and there has been no increase or decrease in the price. But the cost to take care of the cow has increased.” Papa Rao, Rebaka village.

If people want to buy milk in the village, they generally buy it at the collection centre at Rs. 50/litre.

“Earlier I could buy milk priced reasonably, as we bought milk from one another. Today we sell milk to the collection centre for a low price, and we have to buy milk from the collection centre at a very high price. The cost of milk at Tirumala or Sri Chakra collection centres is Rs. 50/litre and Rs. 60/litre at Vishaka collection centre. Then what is the point of this marketing? It was better when we organised our own market.” Ramani, Rebaka village.

Tuni town is situated about 10 kms away from Rebaka village. Around seven or eight years ago there used to be around 1,000 milk traders on bicycles. They collected milk from farmers in nearby villages, and sold the milk in Tuni. Today only 50-60 such traders remain. One of the primary reasons for the decline of these milk traders is because the cooperatives and private dairies procure milk through agents in the villages.

Today, a milk trader sells about 50-60 litres of milk every day and procures milk from villages located 5-6 kms away from the town. The trader advances loans to farmers to purchase animals, and deducts the repayment of the loan from the payments for milk.

“The dairy pays according to fat/SNF, and we do not earn more than Rs. 32/litre. I prefer to sell milk to the private trader as we get interest free loans as well as they collect the milk from our homes. I am paid Rs.30-31/litre of milk”, said one farmer who sells milk to the trader.

Most consumers in Tuni town buy Vishaka milk. Some also buy Thirumala Milk, which sells around 7,000 litres of milk/day. Heritage sells 5,000 litres every day. Vijaya milk and Sri Chakra began selling milk in March 2015. City Dairy, the oldest local dairy, has been supplying milk to Tuni and surrounding towns for close to 10 years (Table 7).
There are around 40 tea stalls in Tuni; they each buy 10-15 litres of milk every day from traders and vendors. The Rajasthani tea shops purchase Tirumala Milk as it is cheaper than Vishaka milk. They used to purchase milk from vendors till about 10 years ago. Most of the other tea stalls buy Vishaka milk. They used to buy milk from the traders on bicycles but they stopped. According to them this was because they felt that the milk was diluted with water, whereas Vishaka milk was thick and did not spoil easily. Packaged milk can be stored easily and is also convenient to use. Other small hotels buy milk from the cycle vendors. They buy 40 litres of milk/day at Rs. 30/litre, and undiluted milk at Rs. 45-60/litre. Sweet shops require around 250 litres of milk per day. They mainly purchase pure milk from local milk vendors or from smaller dairies that own their own animals, who sell milk based on lactometer readings. Their litmus test for ‘good milk’ is that one litre of milk should produce 200 gms of khowa (thickened solid milk obtained from boiling down milk). They buy milk at Rs. 45/litre and generally do not like packet milk, which does not produce khowa.

In summary, whilst the main dairy, Vishaka, states that they have increased rather than reduced their procurement prices, farmers question their erratic fat content readings, and ask how fat percentages can vary so drastically from day to day. Could it be that this is being used as a means by which payments can be reduced?

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Table 7. Milk sales prices in Tuni Town (Rs./litre)

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<td>40 (2015)</td>
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<td></td>
<td>36 (2014)</td>
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<td>Whole milk (6% fat)</td>
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<td>UHT processed toned milk (3% fat)</td>
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*Source: Primary data collected by FSA from retail shops selling different milk brands in Tuni Town. August 2015*
2.4 Consumer perspectives from Chittoor and Hyderabad

Price and value for money are often proclaimed to be what drive consumers' brand choices. In August-September 2015 some of SGRS’s customers in Madanapalle town and in the Rishi Valley Education Centre, Chittoor district were discussing the fall in prices of packaged milk and enquiring whether the SGRS would also reduce its milk price. At around the same time, milk vendors selling milk from villages in Medak to customers in Hyderabad were being asked by consumers to reduce their prices.

To get some insight into consumers' perspectives, anecdotal evidence was collected through a random survey and interviews of 49 people: 27 living in Madanapalle Town and in the Rishi Valley Education Centre (where SGRS supplies milk), and 22 in various parts of Hyderabad. The survey was designed to understand: (1) whether consumers were concerned about the source of milk; (2) the basis on which they choose their milk vendor or brand; (3) their preference for fresh milk over packaged (if the former was easily available in their neighbourhood); (4) their willingness to try new brands of milk; and (5) changes in milk prices over the last year (2014-15).

The survey was by no means exhaustive, but it did indicate that price is not the overriding factor in decision making by consumers in towns and in rural areas. The following sections summarises the findings.

2.4.1 Perspectives from Chittoor district

- 75-80% of respondents were particular about their source of milk. They indicated a marked preference for milk supplied by SGRS since it was non-packaged, fresh and came from a trusted source. These consumers also indicated that they would prefer to buy fresh milk from a neighbouring farmer rather than packaged milk, even from a well-established brand. Some of them said that often they had no alternative and were forced to buy packaged milk. They were skeptical about the quality of packaged milk since they did not know its source.

- 10% of respondents indicated a preference for packaged milk. They felt since it was pasteurised it was safe, hygienic and of good quality.

- The remaining 10-15% did not have a strong view as long as they were getting a regular supply of milk.

- One of the respondents (a school teacher) stated that he was not ideologically against packaged milk, but he wanted to emphasise that Amul and other large companies are destroying the structure of cooperatives.

- 65% of respondents were willing to pay a higher price for fresh milk. Some of them emphasised that whatever price is paid it must be ensured that the money go directly to the farmers. Therefore they felt it is better to buy directly from a farmer than a dairy.

- Brand did not seem to be a significant factor for 90% of respondents.
• 80% of respondents stated that they had noticed an increase in the price of fresh milk over the last two years. They attributed this price rise to lack of rain and the increasing price of fodder. A few of the respondents added that this was reasonable since farmers had to make ends meet.

2.4.2 Perspectives from Hyderabad

• 32% of respondents buy fresh milk from the milkmen. Freshness, assured quality, and knowing the source of milk was important. Some of those who buy fresh milk only buy packet milk if they need extra milk.

• 64% of respondents would be willing to pay a higher price for fresh milk if assured that it is fresh, hygienic and unadulterated; 23% would be willing to buy fresh milk if it cost the same as packaged milk. 13% of respondents are unsure if they would buy fresh milk.

• 64% of respondents buy packet milk. Dilution of milk with water, unavailability of a genuine milkman, lack of availability of fresh milk, the higher cost of fresh milk, irregular delivery, varying quality and the fear of adulteration were the main reasons given for buying packet milk rather than fresh milk. One of the interviewees felt strongly that raw milk is unhygienic and adulterated.

• 53% of those who buy packet milk claimed their choice of milk depends on quality. Others are guided by cost, and finally some go by brand. Half of those who buy packet milk buy Vijaya milk, with the rest buying Amul, Heritage, Jersey, Dodla etc.

• 73% of respondents had noticed a decrease in the price of packaged milk over the past few months; 23% of people were not bothered by the change.

Some significant points emerge from this survey. Firstly, consumers want fresh milk from a ‘trusted’ source, and they connect quality and safety to health. Some also believe that the increasing price of milk is necessary and that the increase is passed on to farmers. It became very clear even from this anecdotal evidence that consumer awareness and education will be critical for the peoples’ market to survive.
The Milk Crisis in India: The story behind the numbers

Buffalos drinking water, Ramchandrapuram village, Medak, Telangana November 2015

Crossbred cow, Rebaka village, Vishakapatnam, Andhra Pradesh September 2015
The Milk Crisis in India: The story behind the numbers

Milch buffalos grazing, Rebaka village, Vishkapatnam, Andhra Pradesh September 2015

Buffalo calves, Ramchandrapuram village, Medak, Telangana November 2015
The Milk Crisis in India: The story behind the numbers

Consumers wait for fresh milk, A S Rao Nagar, Hyderabad, Telangana November, 2015

Collecting milk for Balaji dairy, Thettu village, Chittoor, Andhra Pradesh, August 2015
The Milk Crisis in India: The story behind the numbers

Consumer buying fresh milk in A S Rao Nagar, Hyderabad, Telangana, November, 2015

Sri Gopi Rythu Paraspara Sahakara Sangham (SGRS) Dairy - pouring milk in the morning, Mandemvaripalli village, Chittoor, Andhra Pradesh, August 2015
Agent of Balaji dairy company placing filled milk cans in the van, Thettu village, Chittoor, Andhra Pradesh, August 2015

Local milk and curd vendor, Narsapur, Medak, Telangana November 2015
The Milk Crisis in India: The story behind the numbers

Woman shopkeeper selling milk packets, Addagutta, Hyderabad, Telangana November 2015

Morning milk sales, Addagutta, Hyderabad, Telangana November 2015
The Milk Crisis in India: The story behind the numbers

Empty milk trays stacked after milk distribution, Addagutta, Hyderabad, Telangana, November 2015

Members of Sri Gopi Rythu Paraspara Sahakara Sangham, Mandemvaripalli village, Chittoor, Andhra Pradesh, August 2015
The Milk Crisis in India: The story behind the numbers

Farmers’ Movements Discuss Milk Crises, Chennai, October 2015

Woman farmer leader speaking at the dialogue, Chennai Tamil Nadu, October 2015
From global to local: what’s driving the sudden drop in milk prices?

FSA’s research has tried to understand what was behind the sudden fall in milk sales and procurement prices. The industry blames the falling procurement prices and procurement volumes on two developments:

1. the crash of world prices of skimmed milk powder (SMP) and decline in SMP exports from India; and
2. the increase in the total volume of milk produced in 2015 compared to 2014.

FSA research – which has involved detailed exploration from the perspective of the farmer right up to the global context – reveals a more complex chain of events. This section discusses (1) the responses of cooperatives and private dairies and their impact on small dairy farmers; (2) the response of the state and national government to the crises; and (3) the role of national factors such as government policy in shaping the crises and the response, particularly by state-supported cooperatives.

The sequence of events that led to the severe impact on small farmers is summarised below and depicted in Figure 4:

1. Reduced procurement of milk by private dairy processors in North India who are unable to export SMP, due to the slump in global SMP prices.
2. Increased pressure on cooperatives to procure more milk from producers in North India.
3. High domestic SMP and butter fat stocks push dairy processors to search for new domestic markets to offload stocks.
4. Cheap liquid milk (recombined from SMP and butter fat) floods markets, and a price war ensues between dairy brands, resulting in a massive fall in milk sales prices. This benefits consumers in terms of price, for the moment, but not health.
5. To maintain their margins, dairy processors drastically slash procurement prices.
and volumes of milk procured from producers. Procurement prices fall well below the cost of production per litre of milk.

6. Farmers are left with too much milk, and the price paid does not cover their critical milk cost. Costs of production increase, primarily due to rising feed costs.

7. Dairy processors blame increased production of milk (Rathor, 2015), but Indian farmers differ, saying the quantity of milk produced is the same. Evidence from Chittoor district and SGRS data support this proposition (see Sec 2.1.2, Table 4 and Figure 3).

8. The informal sector is also affected as consumers put pressure on traders to reduce sales prices. While the informal sector has still not reduced their procurement prices to farmers, they fear they will be unable to increase procurement prices in the next year, as they do each year. They fear a decline in their consumer base.

9. The crisis is affecting all small farmers globally, with protests held worldwide.

3.1 The global price slump in skimmed milk powder and its impact on domestic markets

In March-April 2014, global prices of SMP began to fall, driven by a glut in SMP stocks reportedly brought about by a sharp fall in imports from China and Russia which other buyers were unable to absorb (Section 4). This resulted in a slowdown in SMP exports from India (Das and Damor, 2014). SMP prices in India were hovering between Rs.180 and Rs. 200/kg, marginally higher than the global prices in November 2014 (Kulkarni, 2014). SMP rates at Global Dairy Trade24 averaged USD 2,467 a tonne (~ Rs.160 /kg) on April 1, 2015, down from USD 4,126 (~ Rs. 267 /kg) the previous year and well below the peak of USD 5,142 (~ Rs. 333/kg) in 2013. The rates crashed to USD 1,419 (~ Rs. 92 /kg) on August 4, 2015 (Figure 5). Mirroring this trend, in early 2015 SMP prices in India fell to Rs. 160-180/kg from their 2014 peak of Rs. 290/kg (Sally, 2015). In 2013-14, India exported nearly 1.3 lakh tonnes of SMP, valued at Rs. 2,717.56 crore. Yet during the fiscal year 2014-15, barely 30,000 tonnes of SMP were exported (Figure 6 and Box 3) (Global Dairy Trade, 2015; Zauba, 2015a). Low global prices thus affected domestic exports, and in turn affected domestic markets. In April 2015, SMP was being sold by private dairies at Rs.180 per kg, compared to Rs.270 in April 2014.

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24 Global Dairy Trade (GDT) is an auction platform for internationally traded commodity dairy products. It provides a means for buying and selling dairy commodity products from around the world through an online auction process. Sellers are based in the USA, Europe, India and Oceania.
The Milk Crisis in India: The story behind the numbers

Figure 4. India's milk crisis: a chronology

**July 2014 to date**
- Slump in global SMP prices. Decline in SMP exports from India.
- Crash in milk procurement prices and volumes

**November-December 2014**
- Private dairies in North India reduce procurement. Increased pressure on cooperatives to increase procurement.
- Plenty of fresh milk with no buyers

**December 2014**
- Dairy retailers (led by cooperatives) slash liquid milk sales prices. Expand their domestic markets
- Exporting private and cooperative dairies project inability to export SMP and express intent to dispose SMP stocks in domestic markets
- Price war among dairy brands
- Continued reduction in milk procurement prices and volumes
- Temporary price benefit (not quality and health) to consumers in some states
- Severe impact on small producers and informal markets
The Milk Crisis in India: The story behind the numbers

Figure 5. Skimmed milk powder prices, globally and in India, 2013-2015


Figure 6. Total volume and value of SMP exports from India, 2013-2015

Key: Black line is quantity in million kgs (M) and graph bars are value in USD

With the global slump in SMP prices in 2014, large cooperatives and private dairy companies which had been exporting SMP projected that they would be unable to continue to export SMP (e.g. see Box 4) and would instead focus on the domestic market (Das, 2014). The ‘focus’ on the domestic market entailed dumping the excess SMP.

Box 3. Amul’s exports mirror the global crash in SMP prices

Amul contributes about 15% of India’s total SMP exports. Analysis of its SMP export data shows that SMP exports peaked at 2,243 tonnes in January 2014, compared to 256 tonnes in January 2013. This was followed by a steady decline, to 38 tonnes by August 2015 (Zauba, 2015a). This mirrors the trend in global SMP prices. The average price per unit of SMP exported in January 2014 was Rs. 218, and by August 2015 it was Rs. 216. Amul’s primary destinations for its SMP exports in 2015 were Pakistan and Bangladesh.

India produces an estimated 6 lakh tonnes of SMP annually, equivalent to about 70 lakh tonnes of milk. Of the total 6 lakh tonnes of SMP, roughly 4.5 lakh tonnes (75%) are produced by private dairies in North India and Maharashtra. The rest is produced by cooperatives and South India-based private dairies like Hatsun Agro Product and Heritage Foods, which market branded milk (Table 10 in Section 4.3). The massive fall in exports to a mere 30,000 tonnes resulted in a surplus of 1 lakh tonnes of SMP.

Indian dairy processors attempted to dispose of these domestic SMP stocks as recombined liquid milk in different parts of the country, rather than procuring milk from farmers at fair prices, as illustrated in Section 3.2. A critical ingredient of recombined milk is butter fat. A review of butter fat import and export data (Figures 7 & 8) shows a sharp spike in imports of subsidised butter fat into India in 2015 (from 25,000 kg in April 2014 to 704,167 kg in November 2015), primarily from the EU and USA. One possible reason for this could be the additional demand for butter fat to recombine SMP stocks into liquid milk, particularly because India is usually deficient in butter fat (Zauba, 2015b). As in the past, cheap butter fat imports risk further depressing internal domestic procurement prices offered by dairy processors (Paasch, et al., 2011).
The Milk Crisis in India: The story behind the numbers

Figure 7. Total volume and value of butter fat imports into India, Jan 2014-October 2015

Key: Black line is quantity in kgs (volume) and graph bars are value in USD

Figure 8. Total volume and value of India’s exports of butter fat, Jan 2014-March 2016

Key: Black line is quantity in million kgs (M) and graph bars are Value in USD
3.2 From glut to slashed domestic prices (2014-2015)

North India, which makes the greatest contribution to Indian SMP exports, was first to experience the impacts of declining SMP exports in the winter of 2014. Huge falls in procurement prices of milk were reported during this period (Sections 3.2.1 and 3.2.2). Higher milk production in winter (as reported by the media) contributed to declining procurement prices. The situation in November 2014 in the southern Indian states was reportedly stable. Here the impacts of the decline in SMP exports, resulting in declining procurement prices, were felt only in early 2015.

3.2.1 Response of private and cooperatives dairies and its impact on small farmers

In November 2014, private dairies in Maharashtra and in some of the north Indian states began to reduce their milk purchases from farmers, citing the weak global SMP prices. This was followed by a 20-25% fall in procurement prices of milk in these states. The procurement price for buffalo milk dropped to Rs. 31-32/litre from Rs. 38-40 in 2013. The procurement price for cows' milk was lowered by Rs. 8 to Rs. 23-24/litre. By March 2015 the average procurement price of buffalo milk was Rs. 28-29 per litre and Rs. 19 per litre for cow's milk (Kulkarni, 2014).

In March 2015, dairy processors across the country reported their inability to raise the procurement prices of milk in the summer months as their margins were 30-40% lower than in the previous financial year. Producers usually expect a 3-4% rise in procurement prices during summer months to meet higher production costs (Das, 2015a). The dairy processors blamed the slim margins on low demand for exports, due to weak international SMP prices, resulting in a build up of domestic SMP stocks. For example, Sterling Agro Industries Ltd. explicitly stated that although during the export boom they could afford to pay farmers Rs.40/litre, in today’s situation they had no option but to reduce procurement prices. Their economics for arriving at their current procurement price were presented as follows: “At Rs.180/kg for SMP and Rs. 260/kg for fat, dairies realise slightly over Rs. 3,300 from processing 100 litres (103 kg) of buffalo milk containing 6.5% fat and 8.5% SNF. After excluding Rs.200-250 of processing and packaging costs, they can barely pay Rs. 3,100 or Rs. 31 per litre for milk delivered at the dock.” (Damodaran, 2015a). In March 2015 the company reported a 30% fall in profit margins. In March 2015, dairies had to dispose of a surplus stock inventory of 50,000 tonnes of skimmed milk powder.

In April 2015, private dairies across North India, whose business is centred on manufacturing SMP, ghee and other bulk products, were paying farmers Rs. 30-31 per litre for buffalo milk, compared to Rs. 39-40 in 2014.
As a result of private dairy processors and milk powder manufacturers reducing their procurement prices and volumes towards the end of 2014 (Kulkarni, 2014), cooperative dairy processors such as Amul were under pressure to increase their procurement of fresh milk. The Gujarat Cooperative Milk Marketing Federation (GCMMF), which owns the Amul brand, saw an 18% increase in daily milk procurement over the first few weeks of November 2014 (Indian Express, 2015). GCMMF said that all excess milk would be converted into SMP. Similarly, in Maharashtra the cooperatives with processing capacity stepped up their purchases as farmers were forced to sell to the agents of private dairies at lower prices. Cooperatives like Amul admitted to being unable to increase procurement prices beyond 3-4% due to what they called ‘stable production’ (Damodaran, 2015a).

Karnataka is one of the few remaining states to sustain the original three-tier structured dairy cooperative institutional model set up under Operation Flood (see Section 3.2.3). Karnataka Cooperative Milk Producers’ Federation Ltd. (KMF) heads the three-tier organisation. At the bottom of the pyramid are the smallest units – 13,000 milk co-operative societies with a combined membership of 23 lakh dairy farmers. These societies are governed by 14 milk unions (Ahiraj, 2015).

Due to state government incentives to farmers selling milk to the cooperative dairy, the milk procurement rate in Karnataka has been growing annually by 5% since 2008. This increased to 11% when the government offered an additional Rs. 2 per litre incentive to farmers in 2014 on top of the existing payment of Rs. 2 per litre. This meant the state government was providing an incentive of Rs. 4/litre to dairy farmers. At that time the procurement price for milk by KMF was Rs. 23-24 per litre, excluding this Rs. 4/litre government subsidy. In addition, the KMF also decided to give a Sankranti (a local festival) incentive of Rs. 1/litre for a limited period (from 16 January to 31 March 2015) (Ahiraj, 2015).

In July 2015, the Mandya Milk Union Limited (Manmul), one of the union members of Pradeshi Cooperative Dairy Federation webpage: http://paragmilkup.in/Static/AboutPCDF.aspx.
the KMF, decided to slash the procurement price of milk by Rs. 1.90 (from Rs. 21.07 per litre to Rs. 19.17), shocking the farmers of the district, who were already debt-ridden with falling prices for crops like sugar cane, paddy and sericulture produce. Despite the rise in production costs since November 2014, the milk union cited the same reasons (global slump in SMP, rising stocks of domestic SMP, increased production of milk) for the slash in procurement prices. Mandya district stands first in milk production in the state. Milk production, which was 6.50 lakh litres in 2014, has increased to 7.60 lakh litres. While 2.5 lakh litres are sold as milk sachets, 28,000 litres as curds, and 80,000 litres as Goodlife packets, the remaining milk is converted into SMP (Havalder, 2015).

In October 2015, representatives of the Karnataka Rashtra Rythu Sangha (KRRS) confirmed that despite the various announcements of incentives, the procurement price for milk by KMF was Rs. 26.55/litre for buffalo milk with a fat content of 6% and SNF of 9%, and Rs. 23/litre for cows’ milk with fat of 3.5% and SNF of 8.5%, compared to Rs 27-28/litre of cows’ milk, indicating no change in the real price received by the farmers. They also complained of how collection centres cited low fat content as the reason for farmers receiving low prices.

A glance at KMF’s growth provides insights into their actions. In 2011, KMF had set a target of achieving 65 lakh litres per day by 2015; this has now been realised, and is more than double the quantity in 2008. KMF reports that of the average of 60-65 lakh litres of milk procured every day, the daily consumption of liquid milk in the state is 35-40 lakh litres. The remaining 20-25 lakh are converted to skimmed and whole milk powder. The four conversion plants in the state can only convert about 10 lakh litres into milk powder, necessitating another 10 lakh litres of liquid milk to be sold in neighbouring states like Maharashtra, Andhra Pradesh and Tamil Nadu. The remaining liquid milk (around 15 lakh litres) is converted to ultra-heat treatment (UHT) milk which has a shelf life of three to six months, unlike the ordinary packaged milk which has a shelf life of only 24 hours. The UHT is sent to 17 states, including the north-eastern region, Jammu and Kashmir. Because of its long shelf-life, UHT milk is also purchased by the Indian armed forces. Despite all of these outlets, KMF has been unable to sell a considerable amount of the UHT milk as there is not enough demand.

KMF’s cost of producing milk powder is Rs. 240-250 per kilogram, whereas the market price in 2015 was Rs. 140. This gap is stretching KMF’s financial resources. KMF now has a surplus of SMP for which it needs to find a market, putting it under further financial strain. As a result of the large stock of milk powder, there have been delays in paying farmers. KMF is tackling this by taking out commercial loans. KMF explains that it would be able to overcome this ‘financial stress’ by offloading its excess milk in other states, which have milk shortages due to drought. KMF is also exploring various other schemes to manage this surplus milk to avoid a further crash in procurement prices (Box 5).
In 2015 Maharashtra dairies were procuring milk from farmers at Rs. 18-19/litre and delivering it to the processing plant at Rs. 20-21/litre. In 2014, these prices were Rs. 26-27 and Rs. 29-30 per litre respectively (Damodaran, 2015a).

In April 2015, Business Standard reported that the unorganised milk sector producers in Mumbai had raised their milk sales prices by Rs.2/litre to Rs. 57 to pass animal feed price rises on to consumers (Jha, 2015). The Aarey Milk Colony Producers Association, with 17,000 animals and 360 members, stated they had no choice due to a 25% increase in the cost of animal feed: paddy straw had increased by Rs. 2/kg and green grass brought from 100 kms away had become costlier by Rs. 2.5–3/kg. Animal feed-grade pulse prices had also risen by Rs.20/kg in the past year (Business Standard, 2015a).

Farmers in Andhra Pradesh and Tamil Nadu had to resort to pouring milk down the drain since state cooperatives and private dairies reduced procurement volumes. In May 2015, farmers across Chittoor District in Andhra Pradesh poured milk down the drain to draw attention to the crisis. A large number of farmers in Tirupur district of Tamil Nadu poured milk into the open, near the Aavin plant at Veerapandi in protest against the refusal of cooperative societies to buy from them. The situation was similar in Coimbatore and Salem. The Tamil Nadu Milk Producers Welfare

Box 5. KMF tries various “schemes” and expansion plans to manage surplus

FKMF is relying on the state government’s help to use the surplus milk effectively. It has sent a proposal to extend the Ksheera Bhagya programme from three days a week at present to five days. Under this programme, milk is given to children from Class I to 10 and also to village child-care centres. This, according to KMF, is a win-win situation for children and for KMF, who can ensure that the excess stock is fully used.

KMF is also embarking on a pilot project to market indigenous cows’ milk, in the hope that this will attract more buyers and consumers. The project is being implemented in Bhalki under the Gulbarga Milk Union, through a Rs. 2-crore centrally-sponsored project. Deoni cows, reared in parts of Karnataka, Maharashtra and Telangana, have at present largely sentimental value for farmers as their milk yield is too low for commercial viability. Indigenous cows’ milk reportedly “fetches a minimum of Rs. 50 a litre in market, which can go up to Rs. 80 a litre that can provide sustainability to farmers.” The proposal before the government is to provide Rs. 10 per litre as a support price to these farmers, compared to the support price of Rs. 4 per litre that farmers currently get. KMF seems to be making a case to value local cows’ milk more, which is able to hold its price in the long run in the wake of any domestic and global milk price fluctuations because of its cultural and health benefits.

Association (TNMPWA) and other farmers’ organisations reported that Aavin was returning 10% of the milk supplied by the farmers, citing lack of quality. According to several small farmers, Aavin is also declaring milk holidays in primary societies (The Hindu, 2015a, 2015b).

Farmers’ unions from North India reported with anger and concern that farmers in Uttar Pradesh (UP) were moving into dairying since the state government was guaranteeing them an assured income\(^{26}\). They feared that these farmers would be pushed into debt, given the wider dairy crises. In January 2015, Punjab farmers also complained bitterly of how falling procurement prices with no change in input costs were pushing them out of their livelihoods (Brar, 2015).

Table 8. Production costs of milk versus procurement prices, 2015

<table>
<thead>
<tr>
<th>Breed</th>
<th>Buffal local</th>
<th>Buffalo local</th>
<th>Buffalo Graded Murrah</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total cost of production per buffalo over 365 days (excluding family labour) (Sept 2015)</td>
<td>21,880</td>
<td>27,230</td>
<td>37,000</td>
</tr>
<tr>
<td>Total milk produced per animal (10 months)</td>
<td>810 litres</td>
<td>1,140 litres</td>
<td>960 litres</td>
</tr>
<tr>
<td>Avg cost/litre of milk</td>
<td>Rs 26.1/litre</td>
<td>23.88/litre</td>
<td>38.54/litre</td>
</tr>
<tr>
<td>Procurement price local vendors</td>
<td>Rs 30-32/litre</td>
<td>Rs 30-31/litre</td>
<td>Rs 23/litre (buffalo milk)</td>
</tr>
<tr>
<td>Procurement price cooperative dairy (August 2015)</td>
<td>Rs 35-55/litre</td>
<td>As above</td>
<td>Rs 29/litre-Rs 32/litre</td>
</tr>
<tr>
<td>Procurement price private dairies (August 2015)</td>
<td>Rs 30-45/litre</td>
<td>As above</td>
<td>Rs 27/litre</td>
</tr>
</tbody>
</table>

Source: Primary data collected during study

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\(^{26}\) Bharatya Kisan Union, pers comm. at the Livestock Dialogue in October 2015, Chennai.
By April 2016, it was the turn of farmers in Orissa to pour milk onto the roads, protesting the decision taken by the Orissa State Cooperative Milk Producers’ Federation Limited (OMFED) to reduce milk procurement by 30% from 1st April 2016. The Federation's decision resulted in a steep decline in milk procurement and procurement prices (Pradhani, 2016).

Private dairies such as Parag, which only deal in cow milk, reported how their absolute expenditure on milk procurement went down by 10% in the FY 2015-2016 as compared to FY 2014-2015. Their procurement price ranged from Rs 20/litre to Rs 26/litre (Parag Milk Foods Limited, 2016).

A comparison of production costs of milk (see Annex 2) with procurement prices says it all: costs of producing milk are much higher than procurement prices, especially for cows’ milk (Table 8). This is of serious concern to farmers, as the difference

<table>
<thead>
<tr>
<th>Cow</th>
<th>Chittoor (Madanapalle)</th>
<th>Chittoor (Madanapalle)</th>
<th>Chittoor (Kalahasti)</th>
<th>Chittoor (Kalahasti)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breed</td>
<td>Crossbred HF</td>
<td>Crossbred HF</td>
<td>Crossbred HF</td>
<td>Crossbred HF</td>
</tr>
<tr>
<td>Month</td>
<td>September 2015</td>
<td>January 2015</td>
<td>November 2015</td>
<td>August 2015</td>
</tr>
<tr>
<td>&quot;Total cost of production per cow over 365 days&quot;</td>
<td>Rs 30-32/litre</td>
<td>Rs 30-31/litre</td>
<td>Rs 23/litre</td>
<td>(buffalo milk)</td>
</tr>
<tr>
<td></td>
<td>(excluding family labour) (Sept 2015)</td>
<td></td>
<td>Rs 37,380</td>
<td>Rs 37,380</td>
</tr>
<tr>
<td>&quot;Total milk produced per animal&quot;</td>
<td>Rs 30-45/litre</td>
<td>As above</td>
<td>Rs 29/litre-Rs 32/litre</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(10 months)&quot;</td>
<td></td>
<td>1,365 litres</td>
<td>1,365 litres</td>
</tr>
<tr>
<td>Avg cost/litre of milk</td>
<td>Rs 30/litre</td>
<td>Rs 26/litre</td>
<td>Rs 27.8/litre</td>
<td>Rs 27.8/litre</td>
</tr>
<tr>
<td>Procurement price local vendors</td>
<td>Rs 22/litre</td>
<td>Rs22/litre</td>
<td>Rs 20/litre</td>
<td>Rs 20/litre</td>
</tr>
<tr>
<td>Procurement price SGRS collective</td>
<td>Rs 25/litre</td>
<td>Rs 26/litre</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Procurement price cooperative dairy (August 2015)</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Procurement price private dairies</td>
<td>Rs 18-22/litre</td>
<td>Rs 27-30/litre</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Procurement price Balaji (NDDB) dairy</td>
<td>Rs 18-24/litre</td>
<td>Rs 24-30/litre</td>
<td>Rs 23/litre</td>
<td>Rs 23/litre</td>
</tr>
</tbody>
</table>

*Source: Primary data collected during study*
between production and procurement prices means that they are unable to sustain their livelihoods, and are often driven into debt.

The emerging picture is self-evident: small farmers producing milk all over the country have been hardest hit by these global and national events. Procurement prices are not even close to meeting the cost of production, as described by farmers in Andhra Pradesh and Telangana (Table 8). This is driving the farmers into ever deepening debt. The situation is not very different in all the other states, evident from FSA’s secondary research as discussed above. This was validated strongly during dialogue in October 2015 with farmers’ movements from Tamil Nadu, Karnataka and the milk producing states in the north. Private and cooperative dairy processors are wrongly blaming small farmers for the crisis, citing poor quality of milk and excess production; yet in reality the source of the crisis is squarely located in the integration of Indian dairies into global markets through SMP exports.

3.2.2 Response of states and national government

Neither state nor central government have taken serious heed of the devastating impact of this crisis on small milk producers. Some state governments – such as Telangana, Tamil Nadu and Karnataka – did respond by providing short-term price support to the small milk producers supplying state cooperatives (as described in Section 3.2.1). However, the subsequent reduction in procurement prices and procurement volumes by the state cooperatives has not been regulated. No concerted effort has been made by the government to provide any sort of safety net or protection for the small producers in the face of this crisis.

In January 2015, Amul’s entry into Telangana led the Telangana state government to believe that this would affect their own Vijaya Dairy (Deccan Chronicle, 2015). The Telangana Government began to explore ways in which it could regulate the milk sales prices. It was also reported that a government order had been issued a few months prior, constituting district-level committees to control prices of essential commodities, including milk (Sukumar, 2015).

In December 2014, falling milk procurement prices in Maharashtra were raised by opposition party members in the Maharastra Legislative Assembly (Paranjpe, 2014). On average, Maharashtra State produces 242 lakh litres of milk per day. But in April 2015, this dropped to 122.5 lakh litres. Of this, 37.3 lakh litres were sold as milk powder, 85.3 lakh litres as milk in plastic bags, while about 5-6 lakh litres were surplus (Indian Express, 2015). The Maharastra Dairy Development Minister vowed to bring out an ordinance to ensure that farmers are not paid less than Rs. 20/litre of milk by private or cooperative dairies, and that milk sales prices should be reduced by between Rs. 2-5/litre and that they should be regulated. Representatives of milk federations demanded government support of Rs. 4-5/litre for surplus milk, on the

28 In India, animal husbandry and dairying is a state responsibility and the state governments are primarily responsible for the growth of the sector.
same lines as the policy adopted by the Karnataka Government.

In September 2015, the Chairman of NDDB finally responded to this dire situation. He stated that the falling prices of milk at the farmgate were becoming a cause for concern, and would not only affect farmer incomes, but also the industry’s ability to invest and survive. He pointed out that this was largely occurring where cooperatives are not present, and that cooperatives have managed to hold prices. In Maharashtra he described how the declining farmgate prices have not been passed off to the consumers, unlike the situation in Hyderabad and Chennai where their sales prices had declined. He pointed to the vulnerability of the small farmer, particularly those with one or two cows (Kurmanath, 2015).

What the Chairman failed to highlight was how in order to survive, dairy processors – cooperatives and private companies – are dumping their cheap SMP recombined milk in other regions of the country, undermining the livelihoods of small farmers in those regions. Similarly the ‘larger’ enterprises are out-competing the local small enterprises and peoples’ markets.

Concerned about the decline in India’s exports of SMP, the Government of India asked the dairy industry to prepare a strategy paper, based on which it will act upon its recommendations to boost Indian exports. This follows concerns that its exports of dairy, meat and poultry products declined by 32% in February 2015 (Economic Times, 2015b).

3.2.3 Role of the national dairy policy in the making of this milk crisis

The question to be asked is what is the role of Indian public policy in the construction of this domestic dairy crisis and its debilitating impact on small farmers? In what way has public policy shaped the makings of this crisis?

Prior to 1960, farmers sold their milk predominantly through localised markets. India’s policy to develop organised dairying through farmers’ cooperatives began in the second half of the 1960s, coinciding with its third Five Year Plan (Planning Commission, 1960). Farmers were organised through milk producer cooperatives to market milk to urban consumers. The policy was institutionalised through the establishment of the National Dairy Development Board (NDDB) in 1965, with the mandate to make “dairying the means for a better future for millions of grassroots milk producers”29. The three-tier dairy cooperative institutional model consisted of village-level dairy cooperatives, which then clustered together into a dairy union. Several dairy unions federated into a state-level dairy federation, with the NDDB being the apex national body to implement the Dairy Development Programmes financed by the Government of India. Operation Flood was a 26-year programme implemented by NDDB and financed by the World Bank to operationalise the growth of the dairy cooperatives, and dominated dairy development through the 1970s, 80s and up to the mid-90s. It was reflected in India’s 5th, 6th and 7th five year plans.

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29 www.nddb.org
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(Planning Commission, 2014):

Phase I (1970-1980)\(^{30}\) was financed through the sale of SMP and butter oil gifted by the European Union (then EEC) through the World Food Programme. It linked 18 Indian milksheds (or the geographic region where milk was sourced/procured) to consumers in India’s four major metropolitan cities: Delhi, Mumbai, Kolkata and Chennai.

Phase 2 (1981-85) saw the milk sheds increase from 18 to 139, and urban markets to 290. By the end of 1985, there were 43,000 village cooperatives covering 4.25 million milk producers across the country. Domestic milk powder production increased from 22,000 tonnes in the pre-project year to 140,000 tonnes by 1989, with all of the increase coming from dairies set up under Operation Flood.

During Phase 3 (1985-1996), dairy cooperatives strengthened the infrastructure required to procure and market increasing volumes of milk. Veterinary first-aid health care services, feed and artificial insemination services for cooperative members were extended, along with intensified member education and 30,000 new dairy cooperatives were added to the existing societies. Milksheds peaked to 173 in 1988-89\(^{31}\). The pioneering cooperative union which symbolised the success of this model was Amul, the brand name today for products marketed by the Gujarat Cooperative Milk Marketing Federation.

In 1984, the three-tier structure of the dairy cooperatives was further consolidated at the national level with the creation of the National Cooperative Dairy Federation of India (NCDFI), an apex organisation for the cooperative dairy sector. Its members include federal dairy cooperatives of states and union territories. Its primary objective was to facilitate the working of dairy cooperatives through coordination, networking and advocacy\(^{32}\).

Significant public investment built the centralised cooperative dairy system that protected producer prices and regulated consumer prices. Domestic production under cooperatives grew by protecting the sector from cheap subsidised imports of dairy products (milk powder and butter oil) through various import restrictions, as well as by the state financing dairy processing capacity. India adopted an import substitution policy in 1989\(^{33}\), protecting the domestic dairy sector from imports by imposing

\(^{30}\) www.nddb.org/about/genesis/flood.

\(^{31}\) In the 1980s Operation flood was criticised by academics for its negative socio-economic impact on small farmers, who formed the base of production. A concern raised was how, by commoditising milk, it became too expensive to be consumed at home, with farmers selling almost all their milk in exchange for money (Shanti, 1986; Doornboos and Nair, 1987; Doornboos et al., 1988; Doornboos et al., 1990).

\(^{32}\) www.indiadairy.coop/index.html

\(^{33}\) Adopted in 1989 with the launch of the Technology Mission on Dairy Development during the Eighth Five Year Plan (www.fao.org/wairdocs/lead/x6170e/x6170e2z.htm).
quantitative restrictions (QRs)\textsuperscript{34} and other non-tariff barriers such as the canalising\textsuperscript{35} of imports and exports of dairy products. All imports were channelled through the National Dairy Development Board (NDDB) and the Agriculture and Processed Food Exports Development Authority (APEDA). Competition with the cooperative sector was controlled through provisions of industrial licensing under the Industrial Development and Regulation Act of 1951 to prohibit new entrants into the milk processing sector (Sharma and Gulati, 2003).

3.3 The national shift from protectionism to liberalisation

All of the above was completely disbanded by the mid-1990s with the onset of India’s neo-liberal capitalist economic reforms, which identified dairy as one of the country’s high growth engines, and saw policies introduced to liberalise the dairy sector\textsuperscript{36}.

It was repeatedly argued and advocated by international and Indian policy makers that liberalising the sector would benefit the small farmers, who could capture the profits that presented themselves within a context of growing demand for milk and other dairy products in domestic markets (World Bank, 1996; Delgado et al., 1999; Government of India, 2002). The small farmers would be released from the exploitative clutches of the middleman in the ‘unorganised’ markets, and have diversified avenues to sell their milk both to private and cooperative dairy processors, provided they improved their production practices on their farms, and organised to vertically integrate into downstream dairy processing and input supply units. The “production improvement package of practices” included increasing their production by shifting to high-yielding breeds, specialising in dairying, expanding herd sizes, improving feed and health care, and investing to modernise their production. The National Livestock Policy announced in 2013 merely re-iterated and endorsed the neo-liberal capitalist model of dairy development (Box 6; GoI, 2013b).

National dairy policy interventions focused on supporting the organised dairy sector to grow and expand domestically, regionally in South Asia and globally (see Section 4). Key policy changes included: (1) de-licensing the dairy industry; (2) reducing public financing and support to dairy cooperatives and the animal husbandry sector at large and enhancing support for privatisation and intensification of production; (3) introducing new cooperative legislations; and (4) liberalising trade and investment.

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\textsuperscript{34} According to the WTO website (www.wto.org), QRs are limits imposed on the volume or value of goods traded by a WTO member. They are considered to have a greater protective effect than tariff measures. Article XI of the GATT requires the general elimination of QRs. India had to remove QRs on several agriculture goods once it signed onto WTO. QRs are typically enforced through quotas, import or export licences or other measures, such as voluntary export restraints.

\textsuperscript{35} According to the Indian Trade Classification-Harmonized systems, canalised goods are items which may only be imported using specific procedures or methods of transport. Canalised goods may be imported only through designated canalising agencies (see www.india-briefing.com/news/import-export-licensing-procedures-india-6804.html).

\textsuperscript{36} For example, in the 1990s, Chandra Babu Naidu’s Vision 2020 for the then united Andhra Pradesh, scripted by McKinsey & Co, identified dairy as one of the eight growth engines of the state.
De-licensing of the dairy industry

De-licensing in 1991 encouraged private investment, private capital inflow and new technology into the sector. In 1992, the Milk and Milk Products Order (MMPO) was promulgated under the Essential Commodities Act of 1955 to continue to regulate milk and milk product production in the country. However, in 2002 the Indian Government amended the MMPO, removing restrictions on milk collection and on setting up milk processing units, abolishing the milkshed concept, but retaining food safety and hygiene requirements. A World Bank study on India’s livestock sector...
strongly advised the GoI to liberalise the markets and create a level playing field for private dairies to compete with cooperatives, without giving any ‘partial’ treatment to the latter (World Bank, 1996).

**Reducing public financing while financing privatisation**

India’s public investments in animal husbandry and dairying fell drastically from the 10th plan onwards (2002-2007). A comparison of India’s first and 9th five year plans indicates that overall national plan budget allocations for animal husbandry and dairying fell from 1.2% of the entire plan to 0.2%, which is completely disproportionate to the contribution of this sector to GDP (5.4% in 2004-05). From the 3rd to the 9th plan, while 91% of the plan budgets in animal husbandry had been to the dairy sector, in the 10th five year plan, the investments to the dairy sector were drastically reduced and comprised 14% of the entire budgetary allocation.

In 2012, under the aegis of the 12th five-year plan\(^{37}\), the Government of India launched the National Dairy Plan, which is being implemented by the NDB (Box 7). This aims to double the country’s milk production over the period 2012-2027. The Union Budget 2015-16 provides an outlay of Rs. 4.82bn for the National Dairy Plan, Dairy Entrepreneurship, National Programme for Dairy Development and Delhi Milk Scheme and Rs. 4.88bn for Dairy Vikas Abhiyan. The industry continues to benefit from reduced excise duty on machinery used for packaging dairy. Indian Ratings & Research expects higher government support to the dairy sector in the medium term, which will help both co-operative and private dairy players, according to their predictions (India Ratings & Research, 2015).

**Introducing new cooperative legislation**

New cooperative legislation has been introduced at state level along the lines of the Model Co-operative Law\(^{38}\) and national levels\(^{39}\). The aim is to enable cooperatives to run and be managed on commercial lines and to compete in an open market environment. These reforms were supposedly to free cooperatives from bureaucratic and political control.

**Liberalising trade and investment**

Internationally, India joined the World Trade Organisation (WTO) in 1995, which saw the country abolish QRs in 1999. The removal of QRs resulted in bound tariffs\(^{40}\) for

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\(^{37}\) The Planning Commission and five-year plan framework was disbanded by the right-wing Bharatiya Janata Party (BJP) which came to power in 2014. However the programmes and plans of the dairy sector under the 12th plan, which were laid out and formulated under the previous government (the Indian National Congress Party), have continued. Both political parties are strong advocates of the reforms and liberalisation economic agenda.

\(^{38}\) For example Andhra Pradesh enacted the Andhra Pradesh Mutually-Aided Cooperative Societies Act 1995.

\(^{39}\) The legislation was amended to the Multi-State Co-operative Societies Act, 2002 Act No. 39.

\(^{40}\) According to the WTO website (www.wto.org): “the Bound tariff rate is the most-favored-nation tariff rate resulting from negotiations under the General Agreement on Tariffs and Trade (GATT) and incorporated as an integral component of a country's schedule of concessions or commitments to other World Trade Organization members. Under the WTO, countries have to be committed to cut tariffs and to “bind” their customs duty rates to levels which are difficult to raise. Tariffs on all agricultural products are now bound. Almost all import
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<table>
<thead>
<tr>
<th>Box 7. How the NDDB is implementing the government's privatisation and liberalisation agenda</th>
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</thead>
<tbody>
<tr>
<td>Since 2011, the NDDB has been implementing the National Dairy Plan in key milk producing states of India. It focuses on increasing animal productivity through:</td>
</tr>
<tr>
<td>• genetic improvement: importing Holstein Friesian and Jersey bulls to improve local livestock genetics; producing 2,500 high genetic merit bulls and import 400 exotic bulls and embryos; raising high quality semen production to 100 million straws per year by 2016-17; strengthening artificial insemination delivery services</td>
</tr>
<tr>
<td>• animal nutrition improvements: through ration balanced programme and fodder development programmes</td>
</tr>
<tr>
<td>• strengthening village-based milk procurement systems: milk weighing, testing, collection, cooling; and promoting milk producer companies (MPCs) to expand the milk procurement network of the organised sector (MPCs are being established in Rajasthan, Gujrat, Andhra Pradesh, Punjab, Uttar Pradesh).</td>
</tr>
<tr>
<td>• According to the Gain Report 2015, NDDBs current efforts are aimed to assist cooperatives to build capacities of milk producers and to help milk producers to become better organised, more vertically integrated, and able to take advantage of downstream processing. Phase I (2012-2017) has a total financial outlay of $416 million (FAS, 2015d).</td>
</tr>
</tbody>
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milk powder (SMP) dropping to zero. The sector became exposed to the world market, and SMP imports immediately increased. This resulted in a huge decline in domestic milk prices, which in turn forced many small farmers out of production, as the price they were paid was much lower than their production cost (Paasch, et al, 2011). In the face of huge pressure from farmers and dairy cooperatives, in 2000 India renegotiated a bound tariff in the WTO of 60% for all imports of SMP. Additionally a lower tariff for SMP within an annual quota of 30,000 tonnes has been in force since 2009.

The second wave of reforms, in the 2000s, allowed 100% foreign direct investment in dairy processing to encourage global players to invest in India. Simultaneously trade liberalisation has encouraged massive exports of animal concentrate feeds such as groundnut cake, corn and soya. Today nearly 14% of India’s total corn restrictions that did not take the form of tariffs, such as quotas, have been converted to tariffs — a process known as “tariffication”. Previously more than 30% of agricultural produce had faced quotas or import restrictions. The first step in “tariffication” was to replace these restrictions with tariffs that represented about the same level of protection. Then, over six years from 1995-2000, these tariffs were gradually reduced. The market access commitments on agriculture also eliminate previous import bans on certain products. In addition, the lists include countries’ commitments to reduce domestic support and export subsidies for agricultural products.”
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Production is exported, pushing up domestic prices of feed (FAOSTAT, 2015; FICCI, 2015). Liberalised policies have also enhanced the ability of larger dairy processors – both private and cooperative – to export their milk products (as we have seen in this report). India exports dairy products to its immediate neighbours Pakistan, Bangladesh, Nepal, Afghanistan, Bhutan and the United Arab Emirates (FAS, 2016).

3.4 Immediate impact of the reforms agenda

3.4.1 Growth of the private sector

The first phase of reforms and legislative changes facilitated the mushrooming of a huge number of domestic private dairy processors, which directly began to procure milk from small farmers, set up dairy processing plants, and package and sell milk and other milk products to urban consumers. Within a year of de-licensing, over 100 new dairy processing plants emerged in the private sector. The private dairy processors were driven entirely by the logic of maximising company profits, and paying producers far below their cost of production. The impact of this is best illustrated by the collapse of the much-hailed Chittoor District Cooperative Milk Producers Union in Andhra Pradesh due to the withdrawal of state support, and the parallel phenomenal rise of the private Heritage Dairy Company. Heritage Dairy virtually captured the entire supply chain and producer base of the cooperative. Some of the other big private entities, which emerged in the erstwhile Andhra Pradesh state, include Jersey, Thirumala, Dodla and Agri-Gold.

As of March 2012, there were 1,065 dairy processing units registered in India at central and state levels, which process around 30% of the milk produced in the country (Government of India, 2013). Of the total dairy processing units registered under the MMPO, 765 are private processing units, 263 are cooperative milk processing units and the government controls the remaining 37. Milk processing capacity has grown at an annual rate of 4% over the last 15 years, with most of the new capacity being set up by the private sector while the capacity of the public sector declines.

Several big global dairy players and investors entered the fray to profit from the projections of huge growth in India’s dairy sector. Most players, rather than getting involved in direct procurement, are forming joint venture partnerships with local dairy processors – both ‘cooperative’ and private (Box 8).

3.4.2 Corporatisation of cooperatives

Cooperatives were advised to enhance their competitiveness and rise to the challenges of these liberalised markets⁴¹. Changes suggested included expanding procurement, processing and sales; diversifying product ranges; modernising the supply chain from producer to consumer – especially improving sanitation and phytosanitary measures; and cutting costs through economies of scale, expansions and mergers, to name but a few. Institutions like the NDDB, which pioneered the cooperative movement,

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have taken the position that unions and federations need to ‘shape up or ship out’, and become ‘business savvy’. NDDB was created as the key institution through which government-financed programmes were implemented, and thus it comes as no surprise that NDDB became a key body through which the liberalisation agenda of the GOI was advanced, post Operation Flood. For instance, the NDDB implemented a ‘Perspective Plan’ to strengthen cooperative businesses, dairy production, quality control, manpower development and training, and creating a national information network. All of this is clearly in tune with preparing cooperatives for the liberalised world. Estimates as of March 2014 show that NDDB provided around US$233 million (at current dollar value) in assistance to approximately 100 dairy cooperatives (FAS, 2015d). Assistance was provided to those cooperatives who agreed to restructure their own enterprises to become business-oriented.

There were inevitably fall outs. In several states, dairy unions unilaterally disassociated from state federations, and declared themselves as independent dairies. They re-registered under the new cooperative acts, and subsequently as producer companies, which are institutional forms that favour market competitiveness and free the organisation from welfare concerns for their members. These moves provoked legal battles between federation workers and unions over the legality of what they were doing, as well as over the use of brand names to market products (Srimali, 2007). Almost all large cooperatives crossed state boundaries to procure, process and sell

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their milk and milk products (see Section 4.3): witness the GCCMF with their brand Amul, KMF with its brand Nandini, Tamil Nadu Cooperative Milk Producers Federation with its brand Aavin, and NDDB with its wholly owned subsidiary Mother Dairy. Many of them (like Amul) began to export milk products like SMP and butter fat. In 2015, the Apex National Cooperative Dairy Federation of India launched an e-marketplace “for the efficient buying and selling of dairy/agri products across India”. Interestingly its objectives too changed from “improving the functioning of dairy cooperatives” (see above) to promoting, coordinating, developing and facilitating the workings of the dairy industry43. Growth and expansion have clearly been the path taken by cooperatives in the era of liberalisation, as discussed in depth in Section 4.3.

3.4.3 Crisis for small farmers

According to industry estimates, dairy cooperatives comprise 15.1 million dairy farmers, and account for approximately 60% of processed fluid milk. They market an average of 23.7 million litres of fluid milk per day (USDA Gain, 2015). The entire dairy growth strategy of the past 25 years was to benefit the small farmers. However facts tell a different story as we have seen thus far: be it the crises of 2000 or the current crises in 2015.

In 1999 when QRs were lifted facilitating huge imports of subsidised SMP and butter fat into the country, domestic milk procurement prices tumbled, throwing a large number of small farmers out of their livelihood (Ashalatha et al., 2007). The current crises, triggered by the inability of Indian dairy processors to export SMP, saw SMP being offloaded as cheap liquid milk in domestic markets, resulting in plummeting procurement prices. This once again hit small farmers, displacing many from their livelihood. The response of the large private dairy processors has been to secure and protect their profits and interests. The response of cooperatives has not been very different. In attempting to keep themselves afloat, they have not hesitated in taking actions that have severely undermined the livelihoods of small farmers elsewhere in the country. Players such as Amul have gone all out to protect their profits and dominant position in the dairy sector by dumping milk in other states (Shashidhar, 2016), undercutting other brands, forcing them to reduce their procurement prices, thereby severely affecting small farmer livelihoods in those regions (see Section 4.3 and Box 11). This is the reason why, unlike other cooperatives where member-farmers reported a decrease in procurement price or rejection of milk, Amul has been able to maintain the procurement price for members (Vora, 2015). Gradually the larger cooperatives push out the smaller ones, and end up monopolising the entire trade. Cooperatives have also attempted to garner state financing and tax exemptions (Basu, 2015), without changing the basic script whereby they can only address the problem of over production by producing more and monopolising the business from ‘udder to glass’ (see Section 5). Their search for overall robustness and profitability and the production of cheap

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43 See the NCDFI e-market webpage: www.ncdfiemarket.com/viewFAQsFAQAction.action.
milk and milk products for the consumer is used to justify the negative impact on small farmers.

The membership of cooperatives is changing too – from purely small farmers to a growing proportion of farmers who own large herds (50-1,000 animals). Large dairy farms are being projected as critical for the next stage of India’s dairy growth story (Das, 2015b). Dairy cooperatives are no longer structured around protecting the common and collective concerns of all small farmers. Instead they are driven by the need to maximise milk quantity through protecting the interests of ‘their farmer-members’. They are also not averse to reaching these milk volumes via fewer but larger dairy farms. This again is identical to the capitalist model of development that has occurred worldwide. The many diverse players in the market in the Global North some 40 years ago have rapidly been replaced by a handful of large dairy processors. Today several of the top 20 global dairy companies are ‘cooperatives’ – but mostly large farmer-owned dairy cooperatives (Moran, 2014). Cooperatives today are driven by a need to survive in the midst of cut-throat market competition (Shashidhar, 2016), and follow the mantras of growth and expansion, rather than protecting the common and collective concerns of small farmers.

Small farmers who followed the government’s prescription of expanding their production through replacing their local breeds with high-producing milk breeds, enhancing their production, and expanding their herd sizes, far from decreasing their cost of production, find they have no takers for their milk at remunerative prices. In all the states where farmers have been pouring milk on the road and protesting the fall in prices – from Chittoor in Andhra Pradesh to Tamil Nadu, Karnataka and Maharashtra – farmers rear high-yielding Holstein Friesians and Jersey cows, and feed their animals high protein concentrate feed. The reality facing these farmers challenges all policy reforms that have recommended and actively financed and promoted intensification and moving up the value chain as the foolproof profit-making livelihood strategy for farmers. Instead, this policy has pushed small farmers into complete distress and debt.

The National Sample Survey Office (NSSO) data on household dairy animal ownership reveal declining numbers of households owning livestock (Table 9). Ironically they do not even carry disaggregated data on in-milk bovines (cattle and buffaloes) in the most recent of the 10-yearly surveys (2013, published in December 2014). There are no reasons provided for the lack of disaggregated data.

The enormous decline in household animal ownership strongly indicates a structural shift in the production base from small to large-scale, which backs our earlier analysis. Recent reports suggest the emergence of a new class of dairy farmer members of cooperatives like Amul. Such farmers manage large numbers of stall-fed and machine-milked animals on an industrial scale (Das, 2015b). Of Amul’s nearly 32 lakh plus farmer-members, nearly 4,293 own 30 milch animals or more, and provide nearly one-tenth of Amul’s average milk procurement (Damodaran, 2015b).
It is evident that this crisis is a clear consequence of India’s overall policy trajectory, which has over the past 25 years relentlessly aimed at increasing milk production through a strategy of market liberalisation that favours the capture of markets by corporations, displacing the so-called informal and ‘unorganised’ markets. Public policy decisions taken over the past four decades in the name of improving accessibility and quality of milk in India have systematically destroyed localised systems of milk production, procurement and distribution. The ‘expand and grow’ government vision for the dairy sector has served to protect and grow the private, at the expense of small farmers.

It is also a strategy that is deepening gender injustice, with the burden of this entire extractive and exploitative industry ultimately falling on women. It is women who

Table 9. Livestock ownership is in decline

<table>
<thead>
<tr>
<th>Year</th>
<th>Total number of livestock owned across 100 households</th>
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<tbody>
<tr>
<td></td>
<td>In milk bovines</td>
</tr>
<tr>
<td>----------</td>
<td>------------------</td>
</tr>
<tr>
<td>2012-13a</td>
<td>Nos. not available (na)</td>
</tr>
<tr>
<td>2002-03b</td>
<td>23</td>
</tr>
<tr>
<td>1991-92c</td>
<td>41</td>
</tr>
<tr>
<td>1981-82d</td>
<td>33</td>
</tr>
<tr>
<td>1971-72e</td>
<td>46</td>
</tr>
</tbody>
</table>


provide up to 75% of all labour in livestock production, as pointed out at the outset of this report (Section 1.3). It appears that the growth of the industry is being hugely subsidised by the labour of women. When a small farmer earns less than the critical price of milk, it is the gradual disappearing of women and their labour that is at play, and is at the heart of ‘cheap’ milk production. States like Punjab that boast of specialised (read industrialised) dairying with ‘stall-fed animals’ run primarily on the labour of women (GOI, 2012). As long as women continue to provide cheap labour that is unaccounted for, milk will continue to be procured at prices that are less than a litre of bottled mineral water.\footnote{A litre of bottled mineral water in India costs Rs 30, whereas a litre of cow’s milk is procured by dairies at Rs 19-Rs 25/litre.}

The arguments for expansion and growth were and continue to be justified by the need to augment India’s milk production to meet growing consumer demand. However, the rising demand for high-value milk products stems from a small class of wealthy Indians (Shashidhar, 2016). Their rising consumption of milk and meat products is alarming – from both a health and environmental perspective. This consumption drives an industrial corporate production system, which in turn forces farmers into monocropping and intensive animal production. The industrial system is built on huge hidden subsidies in the form of energy, land, water and labour accorded to these companies. As for the majority of poor consumers: the argument is that economies of scale make cheap milk available for poor urban consumers. This may be true only as long as international prices are low, as the analysis of the most recent crisis of 2014-2015 has demonstrated.
Pressure on small dairy farmers is a global phenomenon

The increased and rapid integration of India’s organised dairy sector into the global dairy industry is clearly eroding the resilience of small farmer producers and rapidly making them more and more vulnerable. An analysis of global prices of SMP and butter fat indicate a highly volatile global market for dairy products (Figure 9). As we have seen, the current crisis was triggered by a surplus in SMP stocks brought about by a sharp fall in imports from China and Russia which other buyers were unable to absorb (Box 9) (Levitt, 2015). Another global development that is likely to further exacerbate the volatility of the dairy sector is the abolition of the European Union (EU) milk quota system. This section describes some of these global phenomena and their impact on national milk industries, before moving on to demonstrate how India is pursuing a strategy of increasing global integration.

Box 9. Russia and China make global ripples in milk prices

China has begun buying up dairy processing plants in New Zealand to meet its milk requirements, rather than importing milk and milk products from the dairy surplus regions such as the EU (India Ratings & Research, 2015). Reports also point to the recession in China, which is contributing to depressed demand for milk products (Knowles, 2015). Russia’s continued import embargo on dairy products from the EU, USA, Australia, Canada and Norway due to the Ukrainian crisis has added to the build up in stocks.
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### Figure 9. Global trade in SMP and butter fat

<table>
<thead>
<tr>
<th>Main Exporting Third Countries</th>
<th>Jan-Jun 2015 compared to 2014</th>
<th>BUTTER(OIL)</th>
<th>CHEESE</th>
<th>S.M.P.</th>
<th>W.M.P.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Qty in ktons</td>
<td>% 2015 /14</td>
<td>Qty in ktons</td>
<td>% 2015 /14</td>
<td>Qty in ktons</td>
</tr>
<tr>
<td>New Zealand</td>
<td>237</td>
<td>-12%</td>
<td>165</td>
<td>+18%</td>
<td>201</td>
</tr>
<tr>
<td>EU-28</td>
<td>93</td>
<td>+17%</td>
<td>343</td>
<td>-10%</td>
<td>357</td>
</tr>
<tr>
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<td>14</td>
<td>-73%</td>
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<td>-12%</td>
<td>290</td>
</tr>
<tr>
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<td>20</td>
<td>-9%</td>
<td>86</td>
<td>+11%</td>
<td>106</td>
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<tr>
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<td>30</td>
<td>+38%</td>
<td>80</td>
<td>+19%</td>
<td>55</td>
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<tr>
<td>Argentina</td>
<td>5</td>
<td>-25%</td>
<td>19</td>
<td>-24%</td>
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</table>

<table>
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<tr>
<th>Main Importing Third Countries</th>
<th>Jan-Jun 2015 compared to 2014</th>
<th>BUTTER(OIL)</th>
<th>CHEESE</th>
<th>S.M.P.</th>
<th>W.M.P.</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>Qty in ktons</td>
<td>% 2015 /14</td>
<td>Qty in ktons</td>
<td>% 2015 /14</td>
<td>Qty in ktons</td>
</tr>
<tr>
<td>Russia</td>
<td>up to May</td>
<td>33</td>
<td>37</td>
<td>+2%</td>
<td>109</td>
</tr>
<tr>
<td>Japan</td>
<td>Qty in ktons</td>
<td>+38%</td>
<td>66</td>
<td>-65%</td>
<td>40</td>
</tr>
<tr>
<td>United States</td>
<td>Qty in ktons</td>
<td>+18%</td>
<td>125</td>
<td>+12%</td>
<td>30</td>
</tr>
<tr>
<td>Mexico</td>
<td>Qty in ktons</td>
<td>++</td>
<td>86</td>
<td>+27%</td>
<td>0</td>
</tr>
<tr>
<td>Algeria</td>
<td>Qty in ktons</td>
<td>+89%</td>
<td>52</td>
<td>+29%</td>
<td>89</td>
</tr>
</tbody>
</table>

4.1 Abolition of the European Union milk quota system

To date, dairies in India have been able to export SMP thanks to the EU quota system that has been in existence for the last 30 years. The abolition of the EU quota system in April 2015 is set to create a new context for international trade in milk products. Research analysts predict an increase in EU milk production by 3.5 million tons (18.4%) to 22.6 million tons in 2022. Correspondingly, EU exports of milk products are also expected to increase to 15.74% from 13.7% over the same period. According to EU Commission forecasts, exports of SMP from the EU will go up from 450,000 tonnes to 625,000 tonnes in 2017. After the lifting of the quota restrictions, the EU member countries are set to dominate the global market in milk production and exports owing to their favourable climatic conditions, with green fodder available all year in plenty and high milk yields (Krishnamoorthy, 2015).

Introduced in 1984, the quota system was aimed at regulating and restricting overproduction of milk (Box 10). The EU ended milk quotas so that EU farmers could benefit from the increased global demand for milk and milk products, particularly in Asia, which the quota regime was preventing. To quote from the European Commission's website:

“... EU exports of dairy products to Korea have more than doubled between 2010 and 2014 from €99mn to €235mn. This corresponds to an increase in the EU's share of Korean dairy imports from 28% to 37% over the same period. With close to €55bn, the dairy sector represents 15% of the total EU agricultural output. Milk is produced in every single EU Member State without exception in around 650 000 dairy farms. On top of that, there are about 5400 dairy processing companies in the EU employing 300 000 people. They should be given the possibility to fully benefit from the growing global consumer demand, particularly in Asia.” (European Commission, 2015a).

The removal of quotas is accompanied by continued subsidy support to EU dairy farmers: direct payments to farmers (94% of which are decoupled from production), support for rural development, and market support (Box 10).

The impact of lifting the EU quotas in April 2015 was evident within five months (European Commission, 2015b). EU SMP production between January and June 2015 was 3.2% higher than January to June 2014, and butter fat was 1.2% higher. The period April-June 2015 witnessed a 4% increase in milk deliveries from its member countries compared to the identical period in 2014, with several member countries experiencing a 4-8% increase. The cows' milk collected between January and June 2015 was 0.8% higher. EU raw milk prices reached an all-time low in July 2015. The EU milk equivalent price (considering butter fat and SMP) was €25.5/100 kg. Compared to 2014, across all countries, the price of milk was uniformly lower in 2015 and ranged from €20.7/litre to €55.8/litre. The price of 100 kgs of SMP was

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Box 10. The EU’s Common Agricultural Policy and dairying

The US, EU, Australia and New Zealand – the big global dairy players – continue to subsidise farming, including dairying. For decades, European dairy farmers have been given massive subsidies under the EU’s Common Agricultural Policy (CAP). Up to 1984, farmers were paid a guaranteed price at a level well above world market prices. This led to a structural surplus, with the European Commission obliged to buy large volumes of butter and SMP through public intervention. Occasionally these “mountains” exceeded 1 million tonnes for both SMP and butter (European Commission, 2016). CAP reforms introduced in 1984 brought in milk quotas, a tool for overcoming structural surpluses by restricting the production of milk. They also involved fining high producing farms which overshot their quota. The guaranteed payments were phased out and replaced by direct payments to farmers. Successive reforms of the EU’s CAP have provided a range of other, more targeted instruments to help support producers in vulnerable areas, such as mountain areas, where the costs of production are higher. Whilst up to the mid-2000s the subsidies to dairying were in the form of export subsidy support and direct payments coupled to production, thereafter they have primarily been in the form of decoupled direct payments and rural development (European Commission, 2013).

This has resulted in consistent surplus production of dairy products and has led the EU to export cheap milk powder and butter fat, among other products, at prices lower than production costs. In these countries, regardless of demand, dairy farmers have been guaranteed a price for their milk that has been much higher than on world markets. England’s dairy farmers, for instance, receive around one-third of their income in EU subsidies (Stewart, 2006). The EU also supports the prices of dairy products by paying processors to hold stock when wholesale prices drop. In addition the dairy farmers are protected by high EU import tariffs, sanitary and phyto-sanitary measures for the import of dairy products from outside the EU. It must be noted here, however, that most of the subsidies go to large dairy companies, processors and exporters in the EU and not small farmers, as direct payments are made on the basis of hectares of land owned.

EU ministers agreed to lift milk production quotas by 1% a year before dropping them completely by 2015. Even with quotas, EU dairy exports have increased by 45% in volume and 95% in value over the last five years. Market projections indicate that the prospects for further growth remain strong – in particular for added-value products such as cheese, but also for ingredients used in nutritional, sports and dietary products (EurActiv, 2015).

In 2009 farmers protested against the lifting of quotas, fearing a massive price slump in milk (Deutsche Welle, 2009). However EU policy makers did not heed their farmers. To manage this surplus, SMP, butter fat and other dairy products are dumped into the global markets, at very cheap prices.

€165-170. Overall milk production from January to June 2015 was up in all the main regions. The data on the major dairy players and their exports clearly indicate that the EU exports of butter fat and SMP were higher (+10% for butter fat and +9% for SMP) in the period Jan-June 2015 than in Jan–June 2014. It seems clear that this is the impact of lifting of quotas. Between January and June 2015 the US, Australia and New Zealand all had an increase in milk production compared to Jan-June 2014. Meanwhile China had a massive reduction in imports of both SMP
(-28%) and butter fat (-38%), and Russia saw a decline in butter fat imports (-58%). All of this added to the excess of SMP in global markets, resulting in depressed prices. In the EU, lower-cost producers like Ireland and Poland will increase milk production, and the heavily subsidised dairy sector in other EU countries like Germany, Denmark and the Netherlands will also continue to increase production. This will further depress global prices and will flood the developing countries’ markets with dairy products – both SMP and other value-added products.

4.2 Impacts on small farmers around the globe

The explosion of production unleashed by the removal of the quota system has already begun to affect the procurement price of milk (Figure 10), and in turn small European farmers. In some cases in Germany, the procurement price is reportedly 30% lower than the minimum needed by small farmers to break even (Cook, 2015).

In February 2014, the German newspaper Der Speigel reported that most smaller dairy farmers in Germany were unable to cover their costs. In Germany 85% of the grocery market is controlled by the supermarket chains of Edeka, Rewe, Aldi and the Schwarz Group (Kaufland and Lidl). These supermarkets demand low prices from the dairies (only 10 dairies control almost the entire market), and they in turn pass on


**Figure 10. The volatility and crash in EU raw milk prices**

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the price pressures to the farmers. As a result, in 2013 3,300 dairy farmers gave up dairy farming (Stock and Würger, 2014).

A similar story is reported from the UK, where farmers began protesting the collapse of milk prices in August 2014, blaming supermarkets that purchase their milk for falling procurement prices and their price wars. They also flagged the Russian blockade against EU products as a contributory factor (Pells, 2014). In June 2014, supermarkets paid dairy suppliers 31.66 pence or Rs 33 per litre (US$0.48). A year later and the price had plunged to 23.66 pence or Rs 23 (US$0.36), according to the farming watchdog, the Agriculture and Horticulture Development Board AHDB (Congregalli, 2015).

Through July, August and September 2015, farmers across the EU – in France, Spain, UK, Germany and other countries – poured out onto the streets protesting the slump in procurement prices, and demanding that the EU counter it. They warned that over 20,000 farmers could go bankrupt (Knowles, 2015; Al Jazeera, 2015). In July, French farmers blocked the entry of farm produce from Germany and Spain, blocking roads along their borders with Germany and Luxembourg. The French are also leading an ‘Eat French campaign’. The German and Spanish dairy federations have protested against this, saying it disadvantages their produce (Euronews, 2015; Ruddick, 2015; Deutsche Welle, 2015a, 2015b).

On September 7th, the European Commission announced a €500 million aid package for farmers, but did not announce increasing the intervention price for dairy products, provoking criticism from farmers’ groups. The €500 million fund is being taken from fines or ‘super-levies’ imposed on farmers for over-quota production, and will be used to boost income. More than €400 million is expected to be targeted at the dairy sector, distributed through ‘national envelopes’ for each country. A ‘distribution key’ for calculating the percentage to be allocated to each country is still being worked out. In addition, 70% of direct payments will be received by farmers in October instead of December.

The EC also announced the Private Storage Scheme, whereby dairies can store more produce to wait for a price recovery. This was immediately criticised by the Australians (Locke, 2015). This is not the first time that Europe’s farmers have been in crisis. Each time there is a slump in dairy prices, European farmers come out on the streets in protest. The previous protests were in 2009 (Spiegel, 2009) and in 2012 (Thring, 2012; BBC News, 2012).

It is not just EU farmers who are feeling the pinch: in June 2015, Chinese farmers poured milk on the road and killed their cows to protest against low milk prices (Economic Times, 2015c). The Ministry of Agriculture asked the major dairy firms, including Inner Mongolia Yili Industrial Group and Mengniu Dairy Group, to procure more milk and stabilise the situation so as to safeguard farmers’ interests.

Dairy production in the Global North is dominated by retailers (supermarket chains)
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and large dairy multinational corporations. Farmers are being forced to expand and grow, or be forced out of production. Volatile prices are the name of the game (Figure 11).

Government policy interventions promote this kind of production, to protect the interests of the large corporations that control global dairy markets. This in turn forces farmers into intensifying production, through increased investments, only to experience a glut in the market. The glut pushes down prices, and pushes small farmers into debt and out of production. The mantra is to expand and grow to keep afloat. The greater the distance between production and consumption, the more vulnerable is the farmer.

Another alarming development is the move towards creating a dairy futures market. The UK’s National Farmers’ Union and the European farmers’ federation Copa Cogeca want the EU to raise the price at which it intervenes in the market, so that it is closer to the cost of production, and consider creating a dairy futures market to protect them against price volatility (Peter, 2015). New Zealand, a major global player in whole milk powder (WMP) and skimmed milk powder, exports 99% of its milk production in the form of dairy commodities. Nearly half of all WMP exports come from New
Zealand. To counter the price volatility in the global dairy industry the NZX Global Dairy Futures and Options was launched to provide the dairy industry “with a forward view of dairy prices and a cash settled instrument for managing price risk simply and efficiently” (NZX Futures, 2016). This then converts milk and other dairy products from food into just more economic commodities.

The futures market stands to further aggravate an already grim situation and destroy small dairy farmers in developing and developed countries. It is also a threat to global food security – just as speculations in food prices were one of the triggers for the global food crisis in 2008.

4.3 Large Indian dairy processors play the same game

Liberalisation of the dairy sector in India (Section 3) has pushed the organised cooperatives to adopt the identical strategy of expansion and growth as their European, US, and Oceania counterparts. This is seen as necessary in order to sustain their profits. The larger cooperatives and private companies have begun to depend on monopolising milk markets through expanding domestically and internationally. This is playing an important role in their procurement and sales price decisions to farmers. Indian primary producers are, without their knowledge or their informed consent, becoming integrated into the highly volatile global dairy markets.

The Gujarat Cooperative Milk Marketing Federation (GCCMF) is the apex body of the Dairy Cooperatives of Gujarat State, and is popularly known as Amul. It is the exclusive marketing organisation for Amul and Sagar brands. At the GCMMF’s 41st Annual General Body Meeting in May 2015, the Chairperson of GCCMF confirmed that the global price crash in dairy commodities in 2014 was resulting in a continued slump in farmgate prices for milk in the EU, Australia and New Zealand, which are all heavily dependent on exports (Amul, 2015). He also flagged how elimination of milk quotas in the EU from 1st April 2015 would definitely trigger further growth in milk production within Europe, continue to depress farmgate prices in the EU, and create massive exportable surplus stocks of dairy commodities. The EU is providing European milk producers with very high subsidies for exports of dairy products, which results in lower prices for milk powder and fat-based products such as ghee (clarified butter) and butter. They can dump such subsidised products in India at low prices if market access is granted to the EU at concessional or zero import duty. He acknowledged that this was one of the primary reasons why the EU has been insistent on free access to Indian dairy markets in the free trade area negotiations. He argued strongly for India to continue to protect its dairy markets by ensuring that dairy is kept out of all free trade and bilateral agreements, and advocated against any import duty concessions and geographical indicators (GI) protection on dairy products, vehemently desired by the EU and Australia.

Whilst most dairies were reporting a fall in procurement prices, and cutting back in procurement volume, dairy cooperatives affiliated to the GCCMF reported a hike in milk
Box 11. Some facts about Amul

Amul is the foremost dairy brand in India and leads the bulk dairy commodities market, which includes whole and skimmed milk powder and ghee. The total milk procurement by Amul’s member unions during financial year 2014-15 averaged 152.9 lakh kilograms (15.29 million kg) per day, 12.7% up from the daily rate achieved during 2013-14. The highest procurement was recorded during February 2015 at 184.38 lakh kilograms (18.44 million kg) per day. Over the last five years, Amul’s milk procurement has increased by 65%. This is attributed to the high milk procurement price paid to farmer-members, which has increased by 75% over this period, in turn (according to Amul) encouraging farmers to invest in increasing milk production. Over the same period the GCMMF’s sales registered a 159% growth, or a cumulative average growth rate (CAGR) of 21%. The growth in 2014-2015 was 14.3%, to reach Rs. 20,733 crores (Rs. 207.33 billion), compared to the turnover of Rs. 18,143 crores (Rs. 181.43 billion) in 2013-2014. Amul liquid milk in pouches registered a 28% growth, with positive launches in Hyderabad and Punjab in 2014-2015. However Amul’s bulk commodity sales fell by 77% in 2014-2015 due to the drastic decline in bulk dairy product prices on the international market. Amul’s growth in 2014-15 was the slowest in the previous eight years, a direct outcome of the slump in milk prices globally, which has dented Amul’s revenue growth rate to a marked degree.

Amul has continued its expansion policy, opening several new branches in 2014-2015: in Jodhpur, Mangalore and Gwalior. Amul has 56 branches across India managing distribution, including 170 super-stockists covering 3,200 interior rural markets. It is not clear whether the liquid milk sold at these outlets is “fresh milk” procured from farmers in those states, or chilled milk transported, or recombined milk from SMP and butter fat.

Amul experienced an overall slump in exports in 2014-15, which fell by 53% to Rs. 250 crore. Amul aims to dispose of this surplus in domestic markets while also expanding exports to focus on the SAARC (South Asian Association of Regional Cooperation countries) and the Middle East. Amul projected achieving a turnover of Rs. 25,000 crore in 2015-16 and it nearly reached that figure, posting a growth of 67% with a turnover of Rs 23004 crores in 2015-2016. It has grown 187% in the last 6 years with a cumulative average growth rate of 19.2% (Business Standard, 2016).

According to the most recent IFCN data, which ranks dairies according to milk intake volume, Amul is ranked 13th of 20, which is higher than its ranking in 2014, where it was ranked 15 (IFCN, 2016).

Sources:

procurement in May 2015 (Vora, 2015). At the recent 42nd GCMMF Annual General Meeting, the Chairperson proudly announced how it was only farmer-members of the Amul Cooperative ‘family’, who experienced a 17% hike in milk procurement prices in the last two years, whilst farmers in the rest of the world suffered huge declines in farm-gate prices. This clearly reflects Amul’s market monopoly in domestic markets. Ironically, the Chairman fails to mention the steep falls in procurement prices and the extreme losses experienced by millions of small farmers in other parts of India who are not ‘part of the family’, and does not for a moment consider how Amul’s own actions within the country mimic and replicate those of the EU, and have been instrumental in pushing those millions of other small farmers into huge losses and out of livelihoods. While Amul involves lower volumes, its strategy is essentially the same: to capture local markets and destroy local production with economies of scale. The direction Amul is embarking upon (Box 11) will make it a national oligopolic cooperative. Whilst at this point in time it needs high import duties on SMP, it may not mind a lower import duty on butter fat. The cheaper butter fat will enable it to recombine SMP into milk which will be better for profit margins. At the same time it would like greater support from the government to subsidise its growth and export aspirations to regional markets in the sub-continent.

Large private dairy processors such as Parag Food Ltd, acknowledge that they continue to make profits (as they too did in 2015-2016), due to sourcing semi-finished products such as butter fat and milk powder from the market, which they convert into finished products. This protects them from volatility in prices of liquid milk (Parag Milk Foods Limited, 2016). Their current ratio is 80% raw milk and 20% semi-finished products, and they may further reduce their procurement of liquid milk.

Analysis by the Indian Ratings & Research validates the direct correlation between and impact of international prices and demand on Indian dairy markets (Figure 12). It suggests that a sluggish international market leads to domestic private players reducing their milk procurement from milk farmers, prompting farmers to sell their milk to dairy cooperatives. The latter are obliged to procire the milk, even if they are already running in surplus. This results in most of their plants operating beyond their installed capacity. However, a bullish international market leaves dairy cooperatives with milk shortages. In such times, the government imposes export/import bans on the dairy products to iron out the supply and demand mismatches. For instance in FY 2011 and FY 2012, the Government of India imposed an export ban on milk products such as SMP, whole milk powder (WMP), dairy whitener, infant milk foods, and casein and casein products due to shortages in the domestic market (Figure 13). The ratings state that private dairies have been operating on single digit margins (5-8%) for the last five fiscal years. India Ratings & Research (2015) projects that companies operating in value-added products have slightly better margins. Private companies face stiff price competition from cooperatives.
Industry predicts that there will be no improvement in their margins in the foreseeable future, as they do not expect a pick up in exports. They project 2016 to be a very bad year for their margins (India Ratings & Research, 2015).

Figure 12. Correlations between EU prices and India’s dairy trade


Nevertheless, Indian Ratings & Research expects the dairy industry to expand and achieve a turnover of Rs. 5,547 bn in FY 2016, up from Rs. 3,592 bn in FY 2013 (India Ratings & Research, 2015). Milk production is expected to increase to 151 million tonnes by FY 2016 (compared to 138 million tonnes in FY 2014). The government is striving to expand milk production to 180MT-200MT by 2022 to meet growing domestic demand and supposedly address the country’s nutritional requirements. Indian Ratings & Research estimates that if the industry continues to grow at 2014 levels (4.21%), it will be able to achieve this target. Citing data from the OECD and FAO, Indian Ratings & Research states that production increased to 18.4% in 2013 from 14.72% in 2005, and is likely to increase to 21.78% by 2023 (India Ratings & Research, 2015).

The organised dairy market is expected to more than double from the current USD 10 billion (approx Rs. 60,000 crore) to USD 24 billion (Rs. 144,000 crore) by 2020, largely driven by the growing demand for value-added milk products (ice-cream, yoghurt etc.) (Suruchi Consultants, 2014). Business mergers and acquisitions are very much part of this projected growth story. Private equity players have invested over 900 crores in the dairy industry over the past few years. Crisil Ratings estimate that investments worth Rs 15000 crores will be made in milk in the next two years (Shashidhar, 2016).

Almost every dairy processor, whether private or public, talks about expanding domestically and has indeed been growing (Figure 14). They plan to do so through
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Investing in more processing plants, expanding sales networks and in some instances procuring from new regions. Take the example of Amul, which sells around a third of its milk production in Gujarat and the rest in other states, including Maharashtra (Box 11). Amul already operates more than 50 milk processing plants in India. It intends to invest Rs. 50,000 crore to expand its network and set up at least 10 new processing plants across the country in the next two years (Jha, 2015).

The story is the same for private companies such as Kwality Ltd (Mondal, 2015), Britannia (Tandon, 2015), Jersey (Creamline Dairy, n.d.) and large cooperatives like Nandini (Business Standard, 2015b), Aavin, Parag (FnB News, 2015), Vijaya and Mother Dairy (Jhimli, 2015; Bhaskar, 2015) (see Table 10 for a summary). Almost

Figure 14. Cooperative or private?

all the leading players in the organised industry have been growing, with CAGRs ranging between 10 and 24%, and making profits (Shashidhar, 2016).

To augment the transportation of milk, Indian Railways is adding three dedicated trains to the existing three between Palanpur and Baraut. It will add 30 specially designed, higher capacity milk tankers of 44,600 litres each (present capacity: 40,000 litres) for NDDB and Amul. It also plans to add another 30 milk tankers over the next three years. Indian Railways has also identified locations to refrigerate milk and other perishable dairy produce before transportation (India Ratings & Research, 2015).

Indian dairy processors are also expanding to other emerging markets, such as Korea, Japan, Taiwan, West Asia and East and North Africa (Kesireddy, 2015). The biggest export challenges are Russia (Box 12), the EU, Oceania and the US, where Indian exporters have to meet strict sanitary and phyto-sanitary standards (Indian Cooperative, 2015).

Africa's food and beverage consumption is projected to reach USD 544 billion by 2020, up from USD 175 billion in 2010, according to the World Dairy Summit 2012, held in Cape Town (Kesireddy, 2015). India's Dodla Dairy (from Hyderabad) and Amos Dairy have recently entered African markets. Dodla Dairy raised Rs. 100 crore (USD 15 million) from private equity firm Black River in 2012, and in 2014 acquired milk processing assets in Uganda for Rs. 30 crore. It now sells around 10,000 litres of milk daily in Uganda. The company reportedly sees Africa as an opportunity for the next level of growth, especially at a time when it was witnessing margin pressure in the Indian market owing to price wars in the liquid milk market (Kesireddy, 2015).

Parag, which already exports products to Africa, is contemplating setting up a processing plant in Africa. Similarly, Amul has emerged as a global brand and is top in Asia. It is expanding by setting up plants in the developed world and is the first Indian dairy company to become part of the global dairy trade network (Amul, 2015).

Whilst advocating strongly for government support to advance exports to regional neighbours, it is very clear that powerful players such as Amul are strongly opposed to any reduction in import duties on milk products, and are strongly advocating against any attempt by the government to reduce import duties under any free trade agreements or bilateral agreements being negotiated between India and the big dairy players of the global North (EU, Australia, USA, New Zealand). These include the EU-India FTA and the Regional Comprehensive Economic Partnership (RCEP) (Amul, 2015). The Indian Ratings and Research FY16 outlook predicts that the government is likely to continue to keep existing import duties on dairy products to prevent imports.

46 According to other reports, Indian billionaire Ravi Jaipuria, whose Devyani Food Industries sells Cream Bell ice cream, was among the first businessmen from India to enter Africa's dairy sector nearly a decade ago. The company, however, recently sold its stake in its Uganda dairy joint venture, Sameer Agriculture & Livestock, to Kenya's largest milk producer, Brookside Dairy, which is controlled by President Uhuru Kenyatta's family.
Box 12. The demands of exporting to Russia

Dairy players who are faced with the international slump in prices view Russian markets as critical for their currently depressed margins. The Indian Ratings and Research FY16 outlook suggests that in 2016 India may find Russia to be a new export market for SMP; however, the share of dairy exports in total exports will be low (India Ratings & Research, 2015). In April there were announcements of negotiations going on between India and Russia, possibly to allow two Indian companies - Amul and Parag - to export their milk products to Russia (Business Standard, 2015c; Novosti, 2015). In December 2015, however, there were reports of an indefinite delay in Indian cheese being exported to Russia, due to disagreements between the two sides on quality criteria. Russia insists on cheese being produced from milk sourced from farms that have a minimum herd size of 1,000 animals. Only two Indian dairy companies (Parag Milk Foods and Schreiber Dynamix Dairies) meet this criterion. Reports suggest that India is not in any hurry to sign the final protocol with Russia, as the current criteria would exclude even India's largest dairy Amul (Sanzhiev, 2015). In April 2016, India and Russia were reported to have signed a dairy products export protocol (Jha, 2016).

(India Ratings & Research, 2015).

So whilst pushing for closed borders to keep out the more powerful global players, the organised dairy cooperatives such as Amul and Parag are pushing for open borders with India's immediate less powerful neighbours to facilitate movement of their voluminous milk stocks, thereby adopting the identical measures and strategies as their counterparts in the global North.

The large dairies, whether domestic or multinational, therefore have the same approach: address the problem of overproduction by producing more, expanding, growing, capturing consumer markets around the world, and pushing out producers from those regions.

In the name of reducing regional milk inflation and building the milk production capacity of the region, the Government of India is once again mooting the need for a South Asian regional milk grid. The milk grid is expected to facilitate the flow of liquid milk between countries of the region, and ostensibly link milk surplus countries with milk deficient countries. The Government of India is therefore proposing a tariff reduction to less than 5% within the South-Asian Free Trade Agreement (SAFTA) region. The government points to how its neighbours are unnecessarily importing milk powder when a milk grid would facilitate the transportation of liquid milk among nations (Seth and Sikarwar, 2015). It also appears, however, to be a way in which the government could potentially offset the cyclic export slumps which are cutting into the margins of domestic dairy processors (India Ratings & Resarch, 2015).

This milk grid should not end up being another means of compromising the sovereign local production and consumption networks of each country, however. For example, it
Table 10. Private and cooperative dairy processors: expansion and growth (region-specific table of important dairies)

<table>
<thead>
<tr>
<th>Dairy</th>
<th>Procurement domestic</th>
<th>Sales domestic</th>
<th>Exports / global presence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amul Dairy (Gujarat Cooperative Milk Marketing Federation (GCMMF) markets its products under the Amul Brand)</td>
<td>Procures 16.97 million litres per day from 18,545 village cooperatives, 18 member unions covering 33 districts, and 3.6 million milk producer members. They have a total handling capacity per day of 28 million litres.</td>
<td>Major products are sold across India. Sales growth of 187% in the last 6 years. In 2015-2016 GCMMF registered a growth of 11%, to reach Rs. 229.72 billion. The turnover in the previous year was Rs. 207.33 billion.</td>
<td>GCMMF is India's largest dairy products exporter. It exports its products to SAARC countries, South-East Asia, and the Middle East.</td>
</tr>
<tr>
<td><a href="http://www.amul.com">www.amul.com</a></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother Dairy</td>
<td>Fresh milk is sourced directly from state-level cooperatives and Mother Dairy's own new generation cooperatives.</td>
<td>Mother Dairy markets 3.2 million litres of milk daily in Delhi, Mumbai, Saurashtra and Hyderabad. Market share of 66% in branded sector in Delhi where it sells 2.5 litres milk/day, through 1,400 retail outlets and over 1,000 exclusive Mother Dairy outlets.</td>
<td>No exports</td>
</tr>
<tr>
<td><a href="http://www.motherdairy.com">www.motherdairy.com</a></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dodla Dairy</td>
<td>Dodla Dairy collects 9 lakh litres of milk per day from about 250,000 farmers through 10,000 agents, covering more than 5,000 villages across Tamil Nadu, Karnataka, Andhra Pradesh.</td>
<td>Dodla Dairy's milk products are available in Andhra Pradesh, Telangana, Tamil Nadu, Karnataka, Maharashtra, Madhya Pradesh, Rajasthan, Gujarat and West Bengal states.</td>
<td>Lakeside Dairy Ltd. was incorporated by Dodla on 15 July 2014 to acquire the business of Hillside Dairy &amp; Agriculture Ltd., wholly owned subsidiary of Dodla Holdings Pte Ltd, Singapore. The company invested around US$4 million.</td>
</tr>
<tr>
<td>Source <a href="http://www.dodladairy.com/index.html">http://www.dodladairy.com/index.html</a></td>
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<tr>
<td>Private</td>
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<tr>
<td>Jersey brand Creamline dairy</td>
<td>From Telangana, AP, Tamil Nadu and Karnataka and Nagpur, Maharashtra 5 lakh litres/day</td>
<td>Sales in 5 states: Tamil Nadu, Maharashtra, Andhra Pradesh, Telangana, Karnataka.</td>
<td></td>
</tr>
<tr>
<td>Source: <a href="http://www.creamlinedairy.com">www.creamlinedairy.com</a></td>
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<tr>
<td>Private</td>
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</tbody>
</table>
### The Milk Crisis in India: The story behind the numbers

<table>
<thead>
<tr>
<th>Dairy</th>
<th>Procurement domestic</th>
<th>Sales domestic</th>
<th>Exports / global presence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hatsun Agro Product Ltd.</td>
<td>India's largest private sector dairy. Hatsun procures fresh cows' milk directly from the farmers. Hatsun has around 5,600 ‘Hatsun Milk Banks’ (HMBs) covering over 9,500 villages. Hatsun procures around 2.5 million litres of liquid milk per day, directly from over 3.2 lakh farmers in south India. They have 87 chilling centres and 9 processing dairies. Procurement is from 10 districts in Tamil Nadu, 3 districts in Karnataka, 1 district in Maharashtra and 5 districts in Telangana &amp; Andhra Pradesh.</td>
<td>Sales under the brand names of Arokya Milk, Arun ice creams, Hatsun products (ghee, paneer, butter etc), Ibaco ice cream, Santosa Dairy Feed.</td>
<td>Dairy ingredients exported to Middle East and Southeast Asia.</td>
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<td>Private</td>
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<tr>
<td>Private</td>
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</tr>
<tr>
<td>Heritage</td>
<td>It procures in total around 9.6 lakh litres/day, 16% of which is used for products. Chilling capacity of 1.68 million litres/day. Processing capacity: 1.06 million litres/day. 3 lakh farmers sell milk twice a day. In Telangana- Nalgonda, Khammam districts (around 94,000 litres); Andhra Pradesh-Guntur, Krishna, West Godavari, Vijayanagaram, Chittoor, Nellore, Prakasham, Anantapur, Vishakapatnam, East Godavari districts (around 5 lakh litres); Maharashtra-Kolhapur, Belguam districts (around 1.8 lakh litres); Tamil Nadu-Krishnagiri district (1.65 lakh litres); Karnataka (around 1.55 lakh litres); Haryana and Rajasthan (around 15,000 litres) 142 bulk milk coolers, mini chilling centres,</td>
<td>Presence in Andhra Pradesh, Telangana, Tamil Nadu, Karnataka, Kerala, Maharashtra, Odisha and Delhi. 1.5 million families purchase its products</td>
<td>One of two dairies in South India exporting dairy products. Export of butter, ghee, SMP and WMP to Gulf and Asia.</td>
</tr>
<tr>
<td>Private</td>
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</table>
## The Milk Crisis in India: The story behind the numbers

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<thead>
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<th>Procurement domestic</th>
<th>Sales domestic</th>
<th>Exports / global presence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Parag Milk Foods Ltd.</strong></td>
<td>One of India’s largest private dairy companies with a milk processing capacity of up to 2,000,000 litres per day, in Maharashtra and AP. Procures milk from 3,400 villages in 29 districts in 4 states – Maharashtra, Andhra Pradesh, Karnataka and Tamil Nadu. It holds 4,300 village level collection centres. Milk and milk products sold under the brands ‘GO’, ‘Gowardhan’ and ‘Top Up’. Average daily milk procurement for the financial years 2015 and 2014 was approximately 1.05 million litres and 0.77 million litres, respectively.</td>
<td>Value added products constitute more than 60% of sales. It owns one of the largest integrated cheese plants in Asia with capacity of 40 tons per day. Pan-India distribution network. Sales and distribution network covers approximately 14 depots, 103 super-stockists and over 3,000 distributors as of June 30, 2015, spread across most states and union territories in India. In Nov 2015, they announced a tie-up with German cheese giant Hochland Group to market Go Almette, a new cream cheese variety. They also supply food industries like Pizza Hut and Dominos Pizza.</td>
<td>Export ghee, butter, paneer, cheese, skimmed milk powder to Africa, Asia; ghee to America, Australia and Europe.</td>
</tr>
<tr>
<td><strong>Mukunda Dairy producers Pvt Ltd.</strong></td>
<td>Procures milk from 10,000 villages from Prakasam, Guntur, Khammam, Kadapa, Karnataka, Tamil Nadu.</td>
<td>Sales operations are spread across Hyderabad and Bangalore.</td>
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</tr>
<tr>
<td><strong>Aavin Dairy (Cooperative)</strong></td>
<td>There are 17 District Co-operative Milk Producers’ Unions functioning in Tamil Nadu, covering 30 districts. Milk is processed and packaged in 4 dairy plants. On average 23.62 lakh litres per day are procured from across the state.</td>
<td>Sales of 11.8 lakh litres of milk per day in Chennai.</td>
<td></td>
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<tr>
<td><strong>Vijaya (Cooperative Dairy)</strong></td>
<td>In Telangana: Nizamabad, Medak, Mahaboobnagar, Warangal (approximately 4.5 lakh litres of milk) In Andhra Pradesh: Chittoor, Anantpur, Cuddapa, Eluru district (around 2 lakh litres of milk). In case of shortage, they buy milk from Karnataka Milk Federation and private dairies in Andhra Pradesh and Telangana.</td>
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The Milk Crisis in India: The story behind the numbers

<table>
<thead>
<tr>
<th>Dairy</th>
<th>Procurement domestic</th>
<th>Sales domestic</th>
<th>Exports / global presence</th>
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<tbody>
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<td><a href="http://www.kmfnandini.coop">www.kmfnandini.coop</a></td>
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</tr>
<tr>
<td>Parag Dairy Pradeshik Dairy Cooperative (Uttar Pradesh)</td>
<td>6.5 million milk producers pour their milk in 13,000 primary village level dairy cooperatives, in 59 Unions. 6 lakh litres/day milk procured. Largest milk producing state, 17% of India's milk.</td>
<td>Across UP, Delhi. Supplies milk to Mother Dairy in Delhi.</td>
<td></td>
</tr>
<tr>
<td><a href="http://paragmilkup.in">http://paragmilkup.in</a></td>
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</tbody>
</table>

could well mean a “milky grave” for local milk producers in countries like Nepal, Bangladesh and Pakistan. In 2009 Bangladesh farmers poured their milk into the streets in protest at the dumping of cheaper milk powder from India, which was depressing local procurement prices. They demanded that the government raise its import tariffs, cut to 35% in 2008, back up to 75% (Reuters, 2009).

A recent visit by the Prime Minister to Mongolia resulted in an agreement between India and Mongolia for Amul to assist Mongolia in reconstructing its milk business (Ministry of External Affairs, 2015). The GCMMF has signed an agreement with the Institute of Technology of Mongolia and will work with the country’s co-operative sector and milk processors to restructure the dairy industry. It remains to be seen if this is truly only limited to technical support, or also includes offloading milk products whenever required. It must be noted that in the early 1970s the EU dumped its excess mountains of milk powder and butter fat as food aid in India, starting Operation Flood.
The Milk Crisis in India: The story behind the numbers
Hope for the future: resilient peoples’ markets and agro-ecological livestock farming

While the reports from the ground (Section 2) clearly illustrate the severity of the ongoing crisis, they also bring stories of hope. These stories of peoples’ milk markets, dairy cooperatives and organised milk processors, built on local production, distribution and consumption, have shown their resilience even as other milk markets have been severely affected by the volatility of the global dairy sector. The peoples’ markets are founded on integrated agro-ecological livestock-based food cultures. Here animal rearing and production of milk are important parts of the lives, livelihoods and food cultures of local communities. The other characteristic of peoples’ milk markets is the short length of the ‘farm to home’ chain. Milk production, distribution and consumption typically occurs through a network that includes collectives of self-organised small farmers, small vendors who are an important link between the producer and consumer, and a diverse range of customers – from homes to sweet shops, tea stalls, small hotels and local dairies. The market for this milk is usually within a radius of 10-30 km.

In this section we expand on several examples – drawing from the on-the-ground narratives presented in Section 2 – to illustrate how milk markets’ degree of resilience decreases as the distance between the producer and consumer increases (from local to regional circuits).

The evidence is clear: the only hope for the future lies in localised peoples’ milk markets built from agro-ecological livestock-based cultures in which animals are reared not as machines to produce single commodities, but as an important and multifaceted component of food and farming.
5.1 Local peoples’ milk markets: models of social and ecological resilience

Section 2.2.2 described how 50 to 60 farmers from Achampet village in Medak district sell buffalo milk in Narsapur town – a few kilometres from their village. Almost all the households in Narsapur buy milk from these farmers at Rs. 40-45/ litre, and these consumers are not asking farmers to reduce the price of milk. They value the milk for its cream for making butter/ghee. This direct connection between the farmers and their customers ensures quality milk for the customer and a fair price for the farmer. The crisis that has gripped small farmers supplying dairies in nearby Hyderabad city had minimal, if any, impact on these farmers in Achampet.

Twenty kilometres from Narsapur is the small town of Daulatabad. The town has a successful and popular sweet shop – Balaji Sweet shop. The owners purchase approximately 100 litres of fresh whole milk every day from nearby villages. They pay the farmers Rs 40/ litre, and the sweet shop owners have recently increased the price by one rupee per litre. The price increase was mutually decided by the sweet shop and the farmers. The sweet shop makes a variety of sweets from their own khowa. In this case, despite the crash in milk procurement prices, farmers have actually seen their income increase. Together the sweet shop and supplier farmers have evolved their own quality standards to which each adheres. Because the farmer is assured a price that substantively covers production costs, and which is based on the quality of milk, there is no temptation to adulterate the milk.

The well-established local links between small farmers and informal milk traders/vendors from eight villages in Medak district and consumers in Hyderabad (around 60 kms away) are another example of the resilience of peoples’ markets (see Section 2.2.2 for details). The vendors procure milk from the farmers at the rate of Rs. 30-34/litre and support them by offering small loans to purchase local indigenous buffalo breeds. As the cost of producing milk from these breeds is lower than from a graded Murrah buffalo (see Annex 2), this arrangement has allowed these communities to keep private dairies and cooperatives out of the area, thus retaining their market. The vendors/traders sell the milk in Hyderabad city to sweet shops and individual households with whom they have no formal contract. This relationship – which has endured for over 15 years – is built on trust and a payment-on-supply basis. The consumers recognise the greater quality and value of fresh milk over the packaged milk sold by various dairies. These strong but increasingly tenuous links continue to survive and provide livelihoods for farmers and vendors; they do not contribute to greenhouse gas emissions (vendors piggyback on the existing public bus service); and ensure healthy, quality milk to customers. They are models of social and ecological resilience.

The experience of the Sri Gopi Rythu Paraspara Sahakara Sangham (SGRS) in the hamlet of Mandemvaripalle in Chittoor district (Section 2.1.2) also shows how

47 Khowa is thickened solid milk obtained from boiling down milk.
cohesive local production, distribution and consumption networks can reduce the impact of the volatile global market. Even when the private dairies procuring some of the surplus milk from SGRS slashed procurement prices and volumes, their main local customers (Rishi Valley Education Centre and individual residents in Madanapalle Town) continued to pay the same rate (Rs. 32/litre) as they did prior to the price crash. SGRS also continued to procure milk at Rs. 26/litre from its member farmers at a time when private dairies were paying farmers Rs. 18-22/litre. SGRS has been affected, however, by the larger dynamics at play in the dairy sector. As discussed above, the availability of cheap SMP lost them a significant customer, an ice-cream shop which was buying 100 litres of milk per day. As a result SGRS continues to be dependent on selling part of their milk to a private dairy processor, which pays them substantially lower than their cost of production. Nevertheless, SGRS did not pass on this loss to its member farmers – choosing instead to absorb it in its margins. Other small milk producers in the area who only supplied milk to private dairies were severely affected by the price and volume crash. Some of them were forced to sell their animals. Members of the SGRS collective have begun discussing taking a step down the production ladder by gradually changing from rearing the more vulnerable high-yielding Holstein Friesian cross cattle breeds to local indigenous breeds, such as the Hallikar. This would also pave the way for more resilient and just ecosystems for milk production. This story shows how collectivisation and a cohesive local peoples’ market are keys to building social resilience, which is so critical for the small farmers living in such resource-fragile areas.

5.2 Cooperatives: keeping it local

At a time when the cooperative structure in India is being corporatised to pave the way for greater integration into the industrialised global dairy sector, the Kalahasti Cooperative Milk Supply Society Ltd. (TKCMSSL) in Chittoor District, Andhra Pradesh continues to support its small farmer members through strengthening its presence in local markets. This cooperative of dairy farmers – established in 1952 with about half a dozen farmers – has expanded to 5,067 farmer members in the Srikalahasti and Thottambedu mandals of Chittoor district. The cooperative procures a total of around 10,000 litres of raw milk, twice a day, from 45 milk collection centres in 28 surrounding villages. In May 2015, TKCMSSL reported milk procurement prices of Rs. 26/litre for cows’ milk and Rs. 38/litre for buffalo milk (The Hindu, 2015c). Even in the summer of 2015, when private dairies were slashing procurement prices, TKCMSSL paid their member farmers Rs. 27/litre for cows’ milk. Around 8,000-9,000 litres of milk are sold as ‘raw’ milk directly from the collection centres since TKCMSSL has no cooling units. The remaining milk is converted into various milk sweets, ice cream and khowa and sold locally in Kalahasti town through a vibrant ice-cream and sweet parlour. Milk is sold through TKCMSSL’s own network of vendors. The success of TKCMSSL over the last six decades is attributed to the consistent quality of its milk and milk products and the social security that it provides to its
member farmers. Annual bonuses are provided to all the milk producers, along with loans, cattle and life insurance. Although a number of private dairies have tried to set up operations in the region they have been unsuccessful due to the presence of TKCMSSL. The long-term sustainability of TKCMSSL and its ability to consistently pay fair prices to member farmers and to provide quality and fair-priced milk to customers even in a volatile market are powerful testaments to the resilience of the cooperative model built on a local production, distribution and consumption network.

5.3 Organised dairy processors: regional reach

The case of Visakha Dairy – discussed in detail in Section 2.3 – is an example of how a dairy processor from the organised sector is able to minimise the impact of the crisis on its member farmers by keeping its milk market regional rather than expanding nationally. Visakha Dairy is based in Visakhapatnam in Andhra Pradesh. It procures 6.5 lakh litres of milk daily from farmers in the coastal region of Andhra Pradesh, with at least 50% of its milk coming from farmers in the Vishakapatnam region. It sells almost half of its milk in Vishakapatnam town and surrounding areas, with the remaining being sold in cities like Hyderabad, Raipur and other towns in Odisha. This regional footprint seems to have contributed to the minimal impact experienced by the farmers who supply Vishaka Dairy. As discussed in Section 2.3, there were no changes in milk procurement prices at a time when procurement prices and volumes were crashing in the rest of Andhra Pradesh, Telangana and other states. In June 2015 Vishaka Dairy was able to increase the procurement price of milk by Rs. 2/litre, paying farmers between Rs. 23.5 and 27/litre for cows' milk and Rs. 30-40/litre for buffalo milk depending on fat and SNF levels. Although many of the farmers feel that they should get better prices and do not trust the fat and SNF readings provided by the collection centres, this market is more stable than the volatile situation faced by farmers in other parts of the state and the country.

Telangana’s Vijaya Dairy procures on average between 4 and 6 lakh litres milk per day. Of this it sells approximately 3.8 lakh litres/day in Hyderabad city, almost entirely as liquid milk. It uses about 50,000 litres to produce value-added products, and converts the remaining into milk powder. It procures its milk locally and markets all its milk locally in the state. The dairy took a recent decision to withdraw its subsidy of Rs 4/litre of milk to farmers who sell more than 25 litres of milk/day to the dairy, to ensure that the subsidy benefits small farmers and not large farms (Kurmanath, 2016). The dairy however has announced its intentions to “expand and grow”, from its current procurement of 4 lakh litres/day to 20 lakh litres/day, which is worrying, keeping in mind the growth trajectories and its impacts that we have witnessed thus far (The Hans India, 2016).

These experiences clearly show that the more local the production and market, the less affected it has been by the ‘global system’. Of the various models discussed above, Medak experienced the least impact. This was also partly because production is mainly buffalo milk, which has been far less affected by this global crisis than
cows’ milk. Although they have suffered some losses, SGRS and its members have been able to withstand the crisis. In the case of the medium-sized TKMSSL, despite having over 5,000 farmer members resilience was possible because the market is local. For cooperatives operating at a regional level the impact has been greater, but even organised dairy processors such as Vishaka Dairy exhibit a degree of resilience as a result of the cooperative structure which is not dependent on the national or global market.

However, while these examples are comparatively more resilient, they have still been affected by the 2014-15 crisis. Small vendors were worried about not being able to raise the procurement prices for producers in January 2015, and possibly not even in 2016. As a result they are not sure their livelihoods can survive.

India’s recently enacted National Food Security Act 2013 commits to ensure “access to adequate quantity of quality food at affordable prices to people to live a life with dignity and for matters connected therewith or incidental thereto”48. Section 32 of the act notes that states shall strive to advance food and nutritional security through the provisions of Schedule III, which focuses on revitalising agriculture and decentralised procurement. Whilst it does not specifically refer to milk, the act can creatively be interpreted to include decentralised local production, procurement and distribution of fresh milk from and to communities in areas where milk is culturally and ecologically appropriate. This would be another avenue for revitalising the local production and consumption of fresh milk.

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48 The act itself is available in The Gazette of India, No. 29, 10 September 2013, at http://egazette.nic.in/ReadData/2013/E_29_2013_429.pdf.
Recommendations: protecting the peoples’ milk market

This study was undertaken by peoples’ movements to make sense of the milk crisis confronting small farmers. What it starkly reveals is that the very foundation on which the success of the Indian dairy sector is built – the millions of small dairy farmers – is severely threatened.

Every dairy processor – regardless of whether they are cooperative or corporate – is trapped within the logic of the capitalist industrial commodity market model. They are convinced they have to expand and grow to keep their ‘margins’ in good health.

To survive and make profits in this capitalist structure of production, the approach taken is to:

• grow bigger, and control production along the value chain from farm to plate
• expand, and out-compete any other local processes
• forge strategic alliances, negotiate mergers and partnerships
• morph and homogenise/standardise diverse tastes
• diversify the product portfolio
• make people experience an absence or void in their existing consumption habits and begin to desire products. This means investing in a ‘blitzkrieg’ of advertising and messaging
• most importantly, ensure state support to advance this growth and expansion. This role is being played effectively by the Indian state, just as by other states from the EU to Australia and the USA.

This path of rapid growth on which the organised dairy sector has embarked is possible only with active national and global policy and financial support. The growth is fuelled by the capture and exploitation of the labour, land, resources, knowledge and time and – ultimately – the destruction of small farmers and the resilient local peoples’
markets (the informal 60%). These farmers – who are the backbone of India’s milk production – are being rapidly alienated from their means of production. Instead of deciding how much to produce based on local needs, processes and resources these farmers are being transformed into workers for large companies. This is driving them to adopt ecologically unsustainable production strategies and leaving them, their environment and lives extremely vulnerable. They are being forced either to grow big, or to leave.\textsuperscript{49} The model involves a mad merry-go-round of dairy processors rushing their milk stocks in powder or liquid form from one part of the globe to the other. This is bad for producers, consumers and the planet – a planet that is being assaulted by this relentless thirst for energy-intensive, consumptive lifestyles.

The small dairy farmer depends on milk for his or her livelihood, milks the animal for at least 10 months in the year, and needs an assured market to sell this milk. The costs of feeding, taking care of the animals, medical care, labour and water are ongoing. They cannot be closed off like a tap at the whim and demand of the larger global cycles of milk – cycles that demand fewer producers in the business some years, alternating with years when they need more farmers to invest in dairying to enhance production.

The impact is evident: the smaller farmers (regardless of where they are situated on the globe) end up selling their animals, and cease to produce. There is little chance (save through debt-based systems), of their being able to re-enter the livelihood thereafter. Industry, meanwhile, is oblivious. Its cycles of production, highs and lows, shift away from small producers to larger producers. In the process, across the board – from Telangana to Tamil Nadu, and from Nepal and Bangladesh to Uganda and Kenya, the UK and Poland – small farmer milk producers are succumbing to grim pressure on their livelihoods.

In all of this the government of India (of the people, by the people and for the people) is doing nothing to protect the interests of small farmers and their livelihoods. It is not making any efforts to re-orient policy or the financial support to enable small farmers to re-diversify their farming systems. Support of this kind would prevent farmers from depending on a single commodity for their livelihood (e.g. milk) and to re-orient their production to be in balance with local needs. This kind of dependence is forcing them to expand, intensify, and think only in terms of higher production. Regrettably, government support does little more than set up a debt trap. This has been the story worldwide of industrial capitalist production and commodity markets for dairy, meat and eggs.

The following specific recommendations for a way forward have emerged from this investigation and the dialogue with various farmers’ movements from across the country:

\textsuperscript{49} In a recent overview and projection of the Indian dairy industry, Rabobank International essentially argues that the organised sector will grow steadily, displacing the informal sector, and will need large and medium dairy farmers to supply their milk. They view the demise of small farmers as inevitable, unless they intensify, expand and become ‘big’ (Rabobank International, 2014).
1. Farmers’ organisations unanimously urge the state to protect the interests of small farmers and their livelihoods.

2. The state must play a proactive role to stabilise the system with a guaranteed minimum procurement price for milk to farmers. This price must cover their cost of production (critical milk price) and should be executed through public-sector cooperatives (see the example of Telangana State’s Vijaya Dairy outlined above).

3. Sales prices must be regulated to forestall the depressive effect on procurement prices that will ultimately follow dumping of milk outside their state of origin by large cooperatives and other dairies. The regulation of sales prices must of course ensure that milk prices for low-income consumers remain affordable. A system of inter-state taxation is recommended to prevent the value chain being monopolised.

4. Policies must support and strengthen local peoples’ markets and small producers to organise themselves into non-centralised and localised milk production and consumption collectives.

5. Public financial support must be provided to encourage farmers to adopt diversified agro-ecological multifunctional livestock rearing practices and move away from intensive production.

6. The National Food Security Act, with its commitment to revitalise agriculture (including dairy) through non-centralised local dairy markets, must be operationalised immediately.

7. Resources (land, water, air, forests, biodiversity and seeds), agricultural produce and the dairy, meat and eggs and milk sector must be excluded from all bilateral, multilateral and/or regional free trade agreements being negotiated by India with various countries.

8. The reduction of import tariff duties on milk and milk products must be prevented in India. Pressure must be stepped up on the EU, US, Australia, and New Zealand to halt and reverse their export-driven dairy industries, and to withdraw huge subsidies that distort the dairy markets.

9. Foreign direct investment in animal farming, dairy and dairy processing must be revoked.

10. Consumer awareness and education is critical for the peoples’ market to survive.

11. Whilst organising towards the above actions, small farmers also need to step away from intensive, specialised industrial production, a dependency on fossil-fuel and industrial-based farming and commit to rediversify production, and organise to protect the holistic, multifunctional roles of animals in food and farming systems.

12. Small farmers need to organise into non-centralised and localised milk producer collectives that link directly to local consumers. Only this will enable them to step away from an extremely volatile and vulnerable global system of commodity production which is not controlled by people.
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Bibliography


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## Annex 1. Fact-finding Programme Schedule

<table>
<thead>
<tr>
<th>District Details</th>
<th>Chittoor</th>
<th>Chittoor</th>
<th>Vishakapatnam</th>
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<td>July-August November</td>
<td>July-August</td>
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<td>Mandal</td>
<td>Kurabalahota</td>
<td>KVB Puram</td>
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<tr>
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<td>Oluru</td>
<td>Rebaka</td>
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<td><strong>Farmers: men and women</strong></td>
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<td><strong>Milk vendors who buy and sell milk</strong></td>
<td></td>
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<td>4 from Tuni (August 2015)</td>
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<td></td>
<td>5 from Thethu (July 2015)</td>
<td>(August, Nov 2015) from Rayapedu (August, Nov 2015) from KVB Puram</td>
<td>1 from Rebaka (August 2015)</td>
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<td><strong>Dairy agents who procure milk on behalf of specific dairy processors</strong></td>
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<td><strong>Dairy agents who sell packaged milk</strong></td>
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</tr>
<tr>
<td><strong>Hotels/ice cream parlours/milk shakes</strong></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Government officials</strong></td>
<td>Assistant Director, Animal Husbandry Dept, Madanapalle District Rural Development Agency</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Consumers</strong></td>
<td>27</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# The Milk Crisis in India: The story behind the numbers

<table>
<thead>
<tr>
<th>Medak</th>
<th>Hyderabad</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>August-September</td>
<td>August-November</td>
<td>Total</td>
</tr>
<tr>
<td>Narsapur</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shivampet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hathnoora</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ramchandrapuram</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peddagottimukula</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avancha</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tikya Tanda</td>
<td></td>
<td></td>
</tr>
<tr>
<td>men-11 women-4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21 from Peddagottimukula (September 2015), 4 from Avancha (August 2015)</td>
<td>4 from Marredpally (August 2015), 4 from Addagutta (August 2015)</td>
<td>33</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 from Narsapur (July-Aug 2015)</td>
<td>14 (August-November 2015)</td>
<td>28</td>
</tr>
<tr>
<td>General Manager Vijaya Dairy, Medak</td>
<td>Assistant Engineer, Vijaya Dairy, Sales Head, Creamline Dairy, Hyderabad, Al Safa Dairy</td>
<td>7</td>
</tr>
<tr>
<td>2</td>
<td>12</td>
<td>22</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>1</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>22</td>
<td>49</td>
<td></td>
</tr>
</tbody>
</table>
Guiding questions: enquiry with farmers, dairy processors, milk vendors, government departments, consumers

1. Which agencies/companies are sending back the milk? (Names)
2. What reasons are they stating?
3. What is the current price of milk they are offering?
4. Since when did this begin?
5. What was the situation prior to this date?
6. What are the milk sales prices of these companies?
7. Were these sales prices different prior to the onset of the decline in procurement prices?
8. What is the current cost of production of a litre of milk?
9. What are the existing regulations/criteria on milk procurement, and sales as declared/announced by AP/Telangana Government?
10. Are there any new players (procurement and marketing of milk) in the region?
11. Which brands are the consumers purchasing? Milk sales prices across brands and milk types (e.g., 0 fat milk, skimmed milk, 2% milk, 3.5% milk, whole milk, etc)
12. The current prices at which milk is being sold by vendors in Madanapalle/nearest towns
13. Is this the situation only with cow milk or is it also the case with buffalo milk?
14. What about the wholesale price of cream? What are the trends?
15. How many small milk sellers (pal gopals/cycle pal/pal vyaparasthulu) are supplying milk in the town?

Enquiry with independent milk sellers:

1. How much milk do you supply per day to the town? (how many ltrs)
2. Where do you procure the milk? (villages, avg distance of the villages from where you procure milk to the town where you deliver). From how many farmers and how many villages do you procure milk every day?
3. At what price do you procure milk from the farmer?
4. Do you also procure milk from private or cooperative dairies? At what price, and on average how much per day?
5. Who are your main customers for the milk?
7. What categories of milk do you sell? e.g. whole milk with full cream, milk diluted with water > 50% water, < 50% water.

8. At what price do you sell the milk to your customer/s? and which categories of milk do they purchase?

9. Has there been any change since January 2015 in your procurement and sales cycle and prices?

10. Do you also sell milk to private or cooperative dairies? (e.g. to Vijaya/Heritage/Dodla etc.)? At what price do you sell your milk to them? Has there been a change in this since Jan 2015?

11. Since when have you been involved in this business? What changes have you witnessed over the years? What are the challenges you face?

12. Do you advance loans to the farmers who sell milk to you? What are the terms of the loans and for what purpose? How do you recover the loan from the farmers?

Enquiry with small hotels/tea shops/sweet shops

1. Where do the small hotels, tea shops and sweet shops purchase their milk?

2. Do they have any preferences?

3. At what rate do they buy their milk?

4. Have they seen any change in the cost of milk (Rs/litre) since January 2015?

5. Has the entry of cheaper milk brands (if any) in the market changed their purchase policy?

Enquiry with consumers

1. Where do you buy milk from? Do you know where that milk comes from? Does it matter to you or are you just happy getting milk?

2. On what basis do you choose your milk vendor/source? Brand, cost, quality, freshness. packed/raw? Is it important to you that the milk be pasteurised and packaged?

3. Would you buy milk if it was fresh, from your neighbourhood villages but more expensive than the packaged milk?

4. Have you noticed any new milk brands in the market recently? If so would you try these new brands?

5. Has there been a change in the price of milk you purchase? When did it happen?
Annex 2. Milk production costs in the study areas

Costs involved with a local breed of buffalo. Village Peddagottimukula, Medak district

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost details</th>
<th>Annual costs for one animal (Rs)</th>
<th>Total annual cost (Rs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice bran (thaudu) (240 days)</td>
<td>Rs 20/kg, feed 250 gms/day for 9 months</td>
<td>1,350</td>
<td></td>
</tr>
<tr>
<td>Paddy straw (Bhusa)</td>
<td>Rs70/day, 6 months supplied from their fields, the remaining 6 months is bought</td>
<td></td>
<td>12,600</td>
</tr>
<tr>
<td>Green fodder (240 days)</td>
<td>50 kgs, costs Rs 1,130 (6*50kgs), feed 1 kgs/day for 9 months</td>
<td>6,102</td>
<td></td>
</tr>
<tr>
<td>Total feed costs</td>
<td></td>
<td></td>
<td>20,052</td>
</tr>
<tr>
<td>Artificial insemination</td>
<td>150</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>Medical</td>
<td>1,000</td>
<td>1000</td>
<td></td>
</tr>
<tr>
<td>Labour</td>
<td>Own labour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>21,202</td>
</tr>
<tr>
<td>Average annual milk production*</td>
<td>11 months</td>
<td>810 litres</td>
<td></td>
</tr>
<tr>
<td>Average total cost of producing milk, Rs/litre (2015)</td>
<td></td>
<td>26.17</td>
<td></td>
</tr>
</tbody>
</table>

*Calculating the average annual milk production/buffalo: 11 months

5 litres * 3 months= 450 litres
3 litres * 2 months= 180 litres
2 litres * 2 months= 120 litres
1 litre * 2 months= 60 litres
Total milk= 810 litres of milk/buffalo
The Milk Crisis in India: The story behind the numbers

Costs involved with a local breed of buffalo. Kalahasti, Chittoor district

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost details</th>
<th>Annual costs for one animal (Rs)</th>
<th>Total annual cost (Rs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concentrates (Dhana) (240 days)</td>
<td>Rs 40</td>
<td>14,600</td>
<td></td>
</tr>
<tr>
<td>Dry straw (Bhusa)</td>
<td>Rs 60</td>
<td>21,900</td>
<td></td>
</tr>
<tr>
<td>Green fodder, Pachchi Gaddi (240 days)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Jaggery

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost details</th>
<th>Annual costs for one animal (Rs)</th>
<th>Total annual cost (Rs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total (feed only)</td>
<td></td>
<td></td>
<td>36,500</td>
</tr>
<tr>
<td>Artificial insemination</td>
<td>200</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Medical</td>
<td>300</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>37,000</td>
</tr>
<tr>
<td>Average annual milk production*</td>
<td>11 months</td>
<td></td>
<td>960 litres</td>
</tr>
</tbody>
</table>

Annual average cost of production per litre of milk, Rs/litre

*Calculating the average annual milk production/buffalo:  11 months

6 litres * 4 months = 720 litres
3 litres * 2 months = 180 litres
1 litre * 2 months = 60 litres
Total milk = 960 litres of milk/buffalo
The Milk Crisis in India: The story behind the numbers

Costs involved with a graded Murrah buffalo, Rebaka Village, Vishakapatnam

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost details</th>
<th>Annual costs for one animal (Rs)</th>
<th>Total annual cost (Rs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concentrate (Dhana) (240 days)</td>
<td>Rs 30</td>
<td>7,200</td>
<td></td>
</tr>
<tr>
<td>Dry straw (bhusa)</td>
<td></td>
<td>10,000</td>
<td></td>
</tr>
<tr>
<td>Pachchi Gaddi (green fodder) (240 days)</td>
<td>Rs 35</td>
<td>8,400</td>
<td></td>
</tr>
<tr>
<td>Jaggery</td>
<td></td>
<td>480</td>
<td></td>
</tr>
<tr>
<td>Total (feed only)</td>
<td></td>
<td></td>
<td>26,080</td>
</tr>
<tr>
<td>Artificial insemination</td>
<td>150</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>Medical</td>
<td>1,000</td>
<td>1,000</td>
<td></td>
</tr>
<tr>
<td>Interest on loan for buffalo</td>
<td>12,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>27,230</td>
</tr>
<tr>
<td>Average annual milk production*</td>
<td></td>
<td>1,140 litres</td>
<td></td>
</tr>
<tr>
<td>Average annual cost of milk production (Rs/litre)</td>
<td></td>
<td>Rs 23.88/litre</td>
<td></td>
</tr>
</tbody>
</table>

*Calculating the average annual milk production/buffalo:

7 litres * 3 months= 630 litres
5 litres * 2 months= 300 litres
2.5 litres * 2 months= 150 litres
1 litre * 2 months= 60 litres
Total milk= 1,140 litres of milk/buffalo
Costs involved with a dairy cow (HF cross), Chittoor District, KVB Puram Mandal

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost details</th>
<th>Annual costs for one animal (Rs)</th>
<th>Total annual cost (Rs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concentrates (Dhana) (240 days)</td>
<td>Rs 40/day for 8 months</td>
<td>14,600</td>
<td></td>
</tr>
<tr>
<td>Dry straw (Bhusa)</td>
<td>&quot;Rs 60/day&quot;</td>
<td>21,900</td>
<td></td>
</tr>
<tr>
<td>Green fodder, Pachchi Gaddi (240 days)</td>
<td>Locally available</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Jaggery

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost details</th>
<th>Annual costs for one animal (Rs)</th>
<th>Total annual cost (Rs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total (feed only)</td>
<td></td>
<td></td>
<td>36,500</td>
</tr>
<tr>
<td>Artificial insemination</td>
<td>300</td>
<td></td>
<td>300</td>
</tr>
<tr>
<td>Medical</td>
<td>580</td>
<td></td>
<td>580</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>37,380</td>
</tr>
</tbody>
</table>

Average annual milk production* 9 months = 1,365 litres

Average Annual Cost of production per litre of milk Rs/litre 27.88

*Calculating the average annual milk production/cow: 9 months

7 litres * 4 months = 840 litres (4 morning – 3 evening)
5 litres * 2 months = 300 litres (3 morning – 2 evening)
3 litre * 2 months = 180 litres (2 morning – 1 evening)
1.5 litres * 1 month = 45 litres (1 morning – 1/2 evening)
Total milk = 1,365 litres of milk
The Milk Crisis in India: The story behind the numbers
For centuries, livestock has been a critical component of the lives and livelihoods of India’s small and marginal farmers, pastoralist and indigenous peoples (Adivasis). Yet today, there is a grave crisis underway in the Indian milk market which is threatening to undermine the multifunctional role of livestock and the way of life of entire communities. A large number of milk producers are small and marginal farmers, whose livelihoods depend on selling milk. They are the backbone of the Indian milk market but have been hardest hit by the price war being waged by dairy processors. This has also severely affected the peoples’ milk market, commonly referred to as the “informal” or “unorganised” milk market. Building on research in the Indian State of Telangana and Andhra Pradesh, the Food Sovereignty Alliance (FSA) shows how this crisis extends well beyond the small farmers of Telangana and Andhra Pradesh State in South India to affect small farmers nationally as well as globally. This book tells the story of how global trends are driving countless small dairy farmers into debt and ultimately out of farming. It calls for a solution based on nurturing the resilience of the small, localised networks of milk producers, cooperatives and consumers. The authors provide clear evidence that the only hope for the future lies in localised peoples’ milk markets based on agro-ecological livestock cultures: cultures where livestock are reared not as machines to produce single commodities, but as sentient beings playing a multifaceted role in food farming production systems.

The Reclaiming Diversity and Citizenship Series seeks to encourage debate outside mainstream policy and conceptual frameworks on the future of food, farming, land use and human well-being. The opportunities and constraints to regenerating local food systems and economies based on social and ecological diversity, justice, human rights, inclusive democracy, and active forms of citizenship are explored in this Series. Contributors to the Reclaiming Diversity and Citizenship Series are encouraged to reflect deeply on their ways of working and outcomes of their research, highlighting implications for policy, knowledge, organisations, and practice.

The Reclaiming Diversity and Citizenship Series was published by the International Institute for Environment and Development (IIED) between 2006 and 2013. The Series is now published by the Centre for Agroecology, Water and Resilience, at Coventry University.