

# **Improved Market Access and Smallholder Dairy Farmer Participation for Sustainable Dairy Development.**



## **Lessons Learned Sri Lanka**

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# Improved Market Access and Smallholder Dairy Farmer Participation for Sustainable Dairy Development

## Lessons learned<sup>1</sup>

### Sri Lanka

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### Chapter 1.0 Background

1. The dairy industry has a potential in contributing to the development the economy of Sri Lanka. Milk production has been a traditional industry which has survived thousands of years, playing a key role in infant feeding and alleviating nutritional poverty in all age groups. The dairy sector is important due to the extensive employment opportunities the industry offers.
2. Sri Lanka is largely self-sufficient in most animal products apart from dairy. The consumption of dairy products increased dramatically since the country adopted open economic policies in the mid 1970s. Sri Lanka is currently about 15 – 20% self-sufficient in milk, been mostly achieved with use of imported milk powder. The Government at the same time has an ambitious target for growth in dairy production, to increase towards 50% self sufficient target in milk products by 2015. At the current growth rate of 1 – 2% p.a., the sector will need to grow at about 15% annually for the next eight years with no increase in total consumption. This is an uphill task given the current state of the industry
3. Prior to the opening of the economy in 1977, the domestic sources of milk provided nearly 80 percent of Sri Lanka's consumption needs. Given the current levels of malnutrition in the country, particularly among pre-school children and pregnant mothers, milk production is an important activity both for improvement of nutrition, saving foreign exchange and creation of employment opportunities.

### Chapter 2.0 Situation Analysis

4. The contribution of the agriculture sector, including plantation crops, livestock, forestry and Fisheries, to Gross Domestic Product (GDP) which was 21.3% in 1998 dropped to 16.8% by 2006 (Central Bank of Sri Lanka, 2007). Almost 90% of the population is considered rural (Central Bank of Sri Lanka, 2006), and, Agriculture provided employment to 30.7% of the population in 2005. Livestock accounts for only about 1.2% of GDP but, is an integral

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<sup>1</sup> Paper presented on Improved Market Access and Smallholder Dairy Farmer Participation, For Sustainable Dairy Development (CFC/FIGMDP/16FT), Lessons learned studies, Sri Lanka

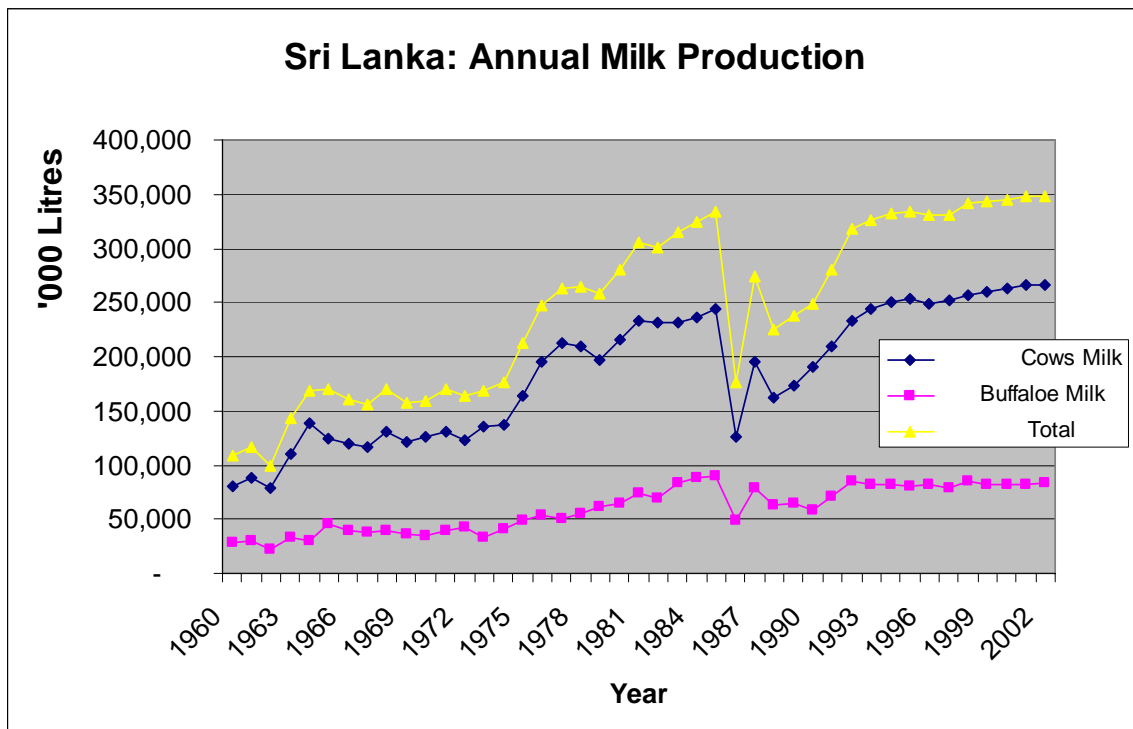
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part of many other agricultural enterprises providing draught power, transport and dung for fertilizer.

- Total Milk Production in 2005 was estimated at 192 million liters with approx. 13.5 million liters supplied from neat cattle. It is estimated that total milk production has grown by 3 per cent to 162 million liters in 2004 (CBSL, 2004). Of this 98 million liters (47%) of local milk entered the formal market. However, the total consumption of milk (funneled through the formal milk market) was 528.2 million liters of Liquid Milk Equivalent (LME), showed a decrease of 76.0 million liters of LME compared to 2003.

**Fig.1.0 Annual Milk Production by Different Sources, 1960-2004**



**Source: Ranaweera and Attapattu 2006**

The production and availability of milk in Sri Lanka is presented in Table 1

**Table 1. 0 Production and Availability of Milk 1998 – 2005**

Year	Fresh Milk			Per Capita Availability (Kg/Yr)
	Cow Milk ('000 MT)	Buffalo Milk ('000 MT)	Total Milk ('000 MT)	
1988	124.48	25.09	149.57	4.80
1999	126.42	25.50	151.92	4.99
2000	127.74	25.52	153.26	4.96
2001	129.02	25.58	154.58	4.90
2002	129.09	25.64	154.73	5.3
2003	132.22	25.56	157.78	5.47
2004	134.88	25.84	160.72	5.34
2005	136.67	26.12	162.79	5.37

**Source: Department of Census and Statistics, Sri Lanka.**



6. In 2004 dairy product imports were 429.3 million liters of LME (provisional data) valued at Rs.12.26 billion. This was a decrease of around 122 million liters of LME or 22.1%. However, compared to 2003, the value of imported dairy products increased by Rs, 1.53 billion, due primarily to the substantial increase in world market prices for dairy products, and, devaluation of the rupee during 2004.

## 2.1 Production areas

7. Milk is produced in all districts of the country, with the lowest being in the conflict-affected northern districts. According to the 2002 Census of Agriculture, the largest cattle populations are reported from the dry and in the intermediate zones. The wet mid - and up-country areas are often perceived as the main dairy producing areas of Sri Lanka. The dry and dry intermediate zones produce 50% more milk than the wet and wet intermediate zones.

**Table 2.0 Milk Production Zones in Sri Lanka**

Zone Features	Dry Zone	Coconut Triangle	Mid-Country	Up-Country & Estate	Wet Zone & Urban
Location	Dry zone districts in the NC, North and East Provinces and parts of Central, South and NW Provinces	Intermediate and Wet zone areas of the NW Province, and Gampaha district of the Western Province	Wet zone areas in the Central Province – Kandy & Matale districts	Nuwaraeliya district in the Central Province and Badulla district in the Uva Province	Districts in the Western, Southern and Sabaragamuwa Provinces and Cities
Animal Types	Indigenous cattle, Zebu cattle and crosses, Buffaloes	Crosses of exotic breeds, Zebu types, crosses of indigenous animals and Buffaloes	Pure Exotic animals and crosses, and Zebu crosses	Pure Exotic animals and crosses	Crosses of exotic breeds and Zebu type and indigenous animals and Buffaloes
Husbandry	Free grazing, or nomadic-type Large herds or sedentary small-medium herds	Medium sized herds, limited grazing tethered under coconut palms	Small herds, some tethering, stall feeding	Small herds, zero grazing	Limited grazing, medium size herds or small herds, Zero grazing
Herd size	Few to 10-25	5 cows and followers	2-3 cows	1-2 cows	2-3 cows
Av. Yield	2.1 lit/cow/day Total 300-400 lit./cow over 180-200 day lactation	3-4 lit/cow/day Total 500-800 lit./cow over 200-day lactation	2-4 lit/cow/day Total 1300 lit./cow	6 or more lit/cow/day Total 1700 lit/cow	3 lit/cow/day Total 1500-1600 lit./cow

**Source: Ranaweera and Attapattu 2006**



## 2.1.1 Cattle

8. ]The average cattle / buffalo farm is about five head of stock with herds in the Dry Zone being significantly larger. In the Wet and Intermediate Zones it is 2 – 3 Head per farm. Only about 12% of the cattle are found in Wet Zone with the majority of the higher dairy breed stock being found in that area. The rest of the cattle are spread equally between the Dry and Intermediate Zones. 32% of the total cattle population is in the four Dry Intermediate Zone Districts, and, as such over three quarters of cattle are in either the Dry or Dry Intermediate Zones. Of the 2.2 million cattle and 0.98 million buffalo reported in 1989 has reduced to a combined 1.2 million 2004. There is now an increasing trend in the percentage of upgraded dairy animals, including dairy buffalo, in the country

**Table 3 .0 Number of Neat Cattle**

		Year			
		2003	2004	2005	2006
<b>Milk Cows</b>	Milking at Present	211,800	216,050	222,300	229,230
	Milking not at Present	277,400	284,420	288,570	295,840
	Other Cows	207,600	211,640	215,620	220,990
	Bulls	178,800	182,290	185,720	189,110
	Calves	263,100	266,500	272,810	279,480
	<b>Total Cattle</b>	<b>1,138,700</b>	<b>1,160,900</b>	<b>1,185,020</b>	<b>1,214,650</b>

**Source: Agriculture and Environmental Statistics Division, Department of Census and Statistics, Colombo, Sri Lanka**

9. Nuwara Eliya district has the highest average production per head and the wet zone average production of 278 liters / head is over double that achieved in the intermediate zone (130 liters/ head) and two and a half that of the dry zone (102 liters / head). Per head productivity reflects the proportion of improved dairy genetics and the proportion of adult female stock in the herd.

## 2.2 Location and scale of livestock operations

10. Many factors influence the distribution of livestock in Sri Lanka dominant among them being the agro-ecological zoning and proximity to markets and feed resources. The majority of livestock are reared in small-scale operations. Some important topographical and climatic information regarding these systems are given in Tables 3 and 4.

**Table 4.0 Main Dairy Production Systems In Sri Lanka.**

No	Production systems	Average daily milk production per cow (liters)	Popular management system
1	Hill country	6–8	Intensive
2	Mid country	4–5	Semi-intensive
3	Coconut triangle	3–3.5	Tethered
4	Low country dry zone	1–1.5	Extensive
5	Low country wet zone	3–3.5	Tethered

**Source : Bandara, 2007**



**Table 5.0 Cattle and Buffalo Systems: Topography, Climate And Animal Types**

No	Production system	Rainfall (mm)	Temperature range (°C)	Animal species
1	Hill country	>2000	10–32	Pure exotic and crosses
2	Mid country	>2000	10–32	Pure exotic and crosses; some zebu crosses
3	Coconut triangle	1500–2500	21–38	Crosses of exotic breeds, zebu types, indigenous animals, buffalo
4	Low country dry zone	1000–1750	21–38	Zebu types, indigenous animals and their crosses, buffalo
5	Low country wet zone	1875–2500	24–35	Crosses of exotic breeds, zebu types, indigenous animals, buffalo

**Source: Ibrahim et al. (1999a and b)**

## 2.3 Marketing

11. Marketing of milk in Sri Lanka is complex and varied. There are individual farmers who sell direct to processors, consumers, hotels, cafeterias and canteens. Co-operatives are organized primarily for the purpose of collecting and selling milk to either hotels or processors. The formal, or processed dairy market consists of small primary dairy co-ops, larger local co-ops, district-level dairy co-ops, dairy co-operative unions, and networks of collection points and milk chilling centers operated by co-ops or the main dairy processors. Most farmers are not members of cooperatives or farmer societies. There are a few large scale processors who have organized farmers to sell their milk to them.
12. Contributing to the informal market are small private milk collectors, small local processors of traditional dairy products, retailers and dairy producers themselves, who sell directly to hotels and restaurants, or to consumers. Small local processors of modern dairy products also play a role.

### 2.3.2 Marketing Institutions

13. Institutionally, the marketing of milk is through a combination of private and public organizations, working in tandem with each other. Historically the marketing of milk by farmers was to the National Milk Board (NMB) created in 1957 as the main outlet for milk purchases. It continued to function as the main marketing organization, until 1981, under the policy of liberalization and privatization, Nestle bought 80 % of the shares and since then has been operating in the country as a major player. . Nestlé's milk collection network at present involves more than 25,000 farms, and an estimated 40% of the total fresh milk collected nationwide is with Nestlé Lanka.
14. Also in 1981 through the Government owned Co-operative Wholesale Establishment (CWE), Lanka Milk Foods (LMF) Ltd., was established to packet and distribute imported milk powder in Sri Lanka. Presently LMF maintains an important market position in the milk food industry, with its key brand of Full Cream Milk Powder 'LAKSPRAY' and a capacity of 48,000MTs per year. In 1991, 51% of the share holding of LMF was purchased by the Stassen Group of Companies, one of the largest conglomerates in Sri Lanka, and presently LMF achieves an annual turnover of around Rs.2 billion.



15. FONTERRA another private company with New Zealand investment marketing the Anchor brand has been in Sri Lanka for many years. When first introduced, the only product in Anchor's portfolio was Anchor Full Cream Milk. Presently, the range has extended to include a number of products.
16. A major involvement by the Government is with the fully state owned milk processing company "MILCO" which is engaged in milk collection from the major farming areas. It also processes fresh milk, marketing it under the name brand HIGHLAND.
17. The formal private sector stakeholders have milk powder and other processed milk product imports as their primary line of business, except Nestle which undertook a substantial milk powder processing operation based on locally procured milk. In theory, all of them extended their operations to procure fresh milk locally to cater to the developing market segments such as liquid milk, both pasteurized and sterilized milk, flavored milks, and yoghurt. Moreover, locally procured milk is being used in processes such as ice cream making and mixed/flavored fruit drinks.
18. Overtime there have been changes in the composition of the milk processing organizations with collaboration with Indian investment as well as with World Bank assistance. The amount of milk collected by the main milk processors in the formal milk market in 2004 was 98.9 million liters.
19. A number of other private sector processors are involved in the milk processing industry. Some of them are extremely small.. The private sector is also engaged in milk collection and processing, but due to the low volumes in the production areas there is wasteful competition by the different milk collecting agencies fighting for the available milk in a given area. In addition to this lack of other marketing infrastructure such as milk chilling tanks and milk transport vehicles compound this problem.
20. An earlier study (Ranaweera and Attapattu 2006) indicated the total milk collection increased by 13 per cent in 2004 due to an increased price being paid for milk (from Rs. 15 per liter to Rs. 16 per liter and further to Rs. 18 per liter), along with an improved collection network, This encouraged dairy farmers to produce more milk.
21. In 2004 the number of active primary dairy cooperatives was 245, along with 6 cooperative unions which were active with a total membership of around 57,000 members out of which around 30,000 were active members (including the dairy federation). However it should be noted that the number of dairy cooperatives has declined during the period 2001 to 2004.
22. Since most of the processors use imported milk powder for their products except Nestle, which purchases significant quantities of milk powder using locally procured milk, the other processors use imported milk. Imported milk powder has been quite controversial as it is subjected to low tariff measures in order to keep consumer prices low. The only way to increase dairy productivity is for the GoSL to increase the tariff on imported milk powders from the present 10% to 30% which is unlikely due to commitments under the WTO. However, higher international dairy commodity prices appear set to push powder prices even higher than such tariff increases would deliver.
23. The informal milk market plays a larger role than assumed. It is an important outlet for many smallholder farms and is critical to ensuring economic viability of dairy production for many producers, as it typically provides higher prices. It provides many viable income-generating opportunities for small entrepreneurs. The public health risks in informal market channels, however, are uncertain, and will depend on consumer practices, such as boiling of milk before consumption. Growth in the informal market is likely when retail powder



prices increase and fresh liquid milk becomes more competitive. That growth will probably continue, partly at the expense of the formal sector, until the formal market of liquid milk is better able to reach consumers

24. Significantly, however, even after 25 years of a number of activities within the dairy sector there is no fresh milk available in the market, and the entire milk food industry is in the hands of just two or three large companies, namely, Nestle, Anchor and Maliban, which primarily market only imported and locally processed milk powders.

## 2.4 Milk Price

25. Pricing systems prevailing in the country are biased towards satisfying millions of consumers rather than producers of milk and milk products. Relatively, the high opportunity cost of labor relative to the farm gate price of milk discourages farmers from being involved with intensive dairy farming. A rough estimate of farm gate price of milk to wage ratio is 1:13 at present. Consequently, the value of one liter of milk sold at farm gate is only 1/13th of a daily casual wage. As a result farmers are unwilling to spend time on activities related to intensive dairy farming
26. Unlike milk powder, the consumption of fresh milk appears to increase with income suggesting that as incomes increase over time demand could shift toward liquid milk. This presents good opportunities for smallholders who are involved in domestic dairy production. Domestic producers have a comparative advantage in the liquid milk market as reconstituted milk is not a good substitute. Awareness to increase the market for such sales need to be considered
27. World market prices for milk powders have increased dramatically over the past year and are now more than double what they were in June 2006. This is already being felt in the wholesale market and in the cost of raw materials used by some companies to recombine for manufacture of some 'fresh' products such as yoghurt and flavored milk. These companies are also struggling to increase local milk procurement as milk becomes more cost competitive. Payment of premiums to secure that milk is likely to become more common.
28. As the profit margin is very low there have not been adequate incentives offered to the producers to invest in dairy herds. Adequate recognition has not been given in the past to the important role played by smallholders despite the difficulties they experience in operating at near subsistence level. Due to the limited economic opportunities many of them will continue to remain in dairy farming for many more years to come (SLVA 1995).
29. Farm-gate milk price is largely determined by MILCO processing and marketing costs, both of which are reputed to be relatively high. Government uses the farm-gate price as a political tool as it has still to be related to MILCO's ability to meet the cost. Reducing the amount of milk diverted to powder production at MILCO will reduce the downward pressure on farm-gate prices caused by relatively inefficient processing and marketing. The large private firms engaged in milk product manufacturing follow the purchasing prices offered by MILCO. They admitted paying a premium above MILCO depending on the competition in the local market they operate. While this appears to serve the interests of the suppliers favorably, there is low inclination for them to buy the surpluses available during months of high milk production due to capacity constraints. In such instances, MILCO has to step in to buy the excess milk.



30. Up to now the milk price increases have not been reflected in increased local retail market prices. Consequently, there has not been any financial incentive for consumers to favor liquid or fresh milk products made from local milk. When the retail price of powder reflects the changes in international commodity prices it is likely that the retail market price for fresh products will increase also fuelling the upward pressure on farm-gate price. This scenario may provide a unique opportunity for development of the dairy sector.

**Table 6.0 Average Cost of Milk Production and Producer Price, 2006 (Rs./Lit.)**

Zone	Wet Lowland		Mid Country	
	Village 1	Village 2	Village 1	Village 2
Excluding Family Labor	5.56	4.10	4.97	4.10
Including Family Labor	16.77	12.67	13.99	11.47
Announced Purchase Price	11.29		11.29	

**Source : Ranaweera and Attapattu 2006**

### Chapter 3.0 Smallholder Dairy Farmers

31. The livestock industry is dominated by smallholders with an estimated 3.5 million (including dependants) being provided a livelihood within the sector. The sector contributed Rs. 22.5 billion to the GDP (0.8 percent of the national GDP and 8.5 percent of the agricultural GDP) in 2004.
32. Dairy sector plays a crucial role in the rural economy with 17.9 percent households owning livestock and approximately 70 percent of them owning cattle (SLIS, 1999-2000). The dairy animal population consists of 1.21 million Cows (Dept of Census and Statistics 2006)
33. Dairy farming is predominantly a smallholder mixed crop–livestock farming operation. They mostly feed their animals on natural grasses available in common lands such as on road sides, railway banks, fallow paddy fields, tank beds and other vacant lots, all maintained under rain fed conditions (Presidential Sub-Committee Report 1997).
34. Presently hundreds of thousands of smallholders operating at near subsistence levels, dominate local milk production in these systems. The number of dairy farmers is estimated to be about 400,000 of which 200,000 provide milk to the formal sector
35. Dairying is part of a partially closed mixed farming system at the small holder level. Some of the waste of the dairy unit such as dung, urine and wasted feeding materials are used as manure for crop farming and some of crops and crop wastes are fed to the animals. In addition the cultivation of forages has helped to control soil erosion and improve soil fertility. Hence dairying at smallholder level is an environmentally friendly activity when it is properly managed within the farming system (SAEC 1998). This production system in the country can be classified into five main sub-systems as shown in Table 3.
36. According to the cost of milk production, a minimum of 15 liters daily production is needed to earn a reasonable income from dairy farming at the smallholder level. Three cow equivalents of upgraded dairy animals with an adequate cattle shed and a fodder plot of over twenty perches are needed to allow a smallholder to make this profit.



37. However, the majority of smallholders do not have these minimum requirements. There is a need to improve their dairy farms. On average a minimum of Rs.50, 000 (US\$ 500) of new investment is needed for each smallholder. This is beyond the capacity of most farmers at present due to their subsistence living conditions. Credit programs are available in commercial banks. However, farmers have to pay back these loans within 3–4 years with an annual interest of 18–20%. More concessionary credit programs are needed that take into account the prevailing returns and profit margins of smallholder farmers.
38. Furthermore, dairying is not the main source of income for most of the smallholders, and, in most instances, is not the activity of the husband in the family. In fact housewives do most of the dairy related activities while also attending to their other family obligations. Although nearly 40% of the members of registered dairy co-operatives are women they are rarely represented in the management or executive committees of these organizations. However, when housewives do have a role in managing household dairy activities and their dairy co-operative, a substantial improvement can be seen in the economy of the family.
39. A limited stakeholder survey carried out in 2006 by Ranaweera and Atapattu with the objective of validating the continued relevance of the constraints frequently cited in the various sector studies, assessed the strength of the current service infrastructure to serve needs of the small dairy farmers.
40. The survey covered 25 dairy farmers from the Badulla district in the upcountry which is a high producing area. Most farmers in this region are smallholder, commercial dairy producers who supply milk to the collectors. The sample for the survey was selected from a Dairy Cow Record keeping program to identify superior animals for use in the calf supply programs and to monitor responses to changing conditions by the Department of Animal Production and Health (DAPH). Twenty five farmers from the farmer list were selected randomly and interviewed by visiting them. Data collected focused primarily on the cost of milk production and delivery of services by the state and other parastatals.
41. The results are summarized as follows:
- The dairy farmers in the sample, being participants of a milk yield monitoring program received closer attention from the veterinary services maintained by the state and hence privileged than the average farmer. Except for 2 farmers who did not have a single visit by a vet surgeon during the year, others were well served with the veterinary services.
  - Nearly 90 percent of the farmers were keen to expand their dairy operations and 45 percent cited difficulty to obtain young animals as the major constraint.
  - Another 40 percent identified financial constraints part of which was due to the cost of animals.
  - Only 24 percent of the farmers had any significant investment undertaken in the previous year in the form of buying new animals or improving sheds etc. In all these instances, they had participated in a sponsored program with funds made available as a grant.
  - Twenty eight percent of the farmers were located within 2 km distance from a vet office with 64 percent located within 5 km distance. All the farmers who had new calves born in the previous year had used A.I services.
  - Only 36 percent of the farmers had obtained membership of a dairy cooperative. Sixty two percent of the farmers not belonging to a dairy cooperative cited



management problems as the reason for not participating in cooperatives, whereas 18% considered it a hassle to work with and another 18 percent cited poor pricing.

- Milk marketing appeared to be happening in an orderly manner with the production of 52% collected by a local collector with another 40% supplying to MILCO. Forty four percent had their milk collected at the farm with another 36% transporting it less than 1 km. Only one farmer transported milk more than 5 km.
- However, 60% of the farmers complained that the price paid for their milk was too low. An increase in price could encourage them to invest in more animals.

## Present survey

42. Another survey was undertaken in 2007 with a sample of 9 farmers from 03 districts representing a cross section of the dairy farming community. The objective of the survey was to assess the production and marketing structure in the field and identify issues facing the dairy farmers. Essentially, they were case studies of dairy farmers. Two groups of farmers, namely one group that sold their milk to Nestle; a private processor and the others group to the informal sector.

**TABLE 6.0 Survey on Dairy Industry and Cost of Fluid Milk Production 2007**

### SUMMARY RESULTS

#### A. RESOURCES BASE

Farmer No.	No. of Animals					Grazing (perches)	Pasture Land (perches)	Grass Land (perches)
	Cows in milk	Pregnant	Heifers	Bull calves	Female Calves			
1	07	05	03	02	02	-	40	10
2	14	10	05	06	02	-	-	-
3	03	04	02	01	01	20	20	-
4	09	05	02	02	02	20	20	-
5	20	17	06	08	07	20	-	-
<b>Nestle farmer</b>								
6	03	01	-	01	02	-	08	20
7	02	01	01	01	01	-	04	14
8	02	-	01	01	01	-	04	26
9	04	01	01	01	03	-	20	100

**B. PRODUCTION**

Farmer No.	Milk liters per day	Total liters per year	Home consumed spoilt (Liter) per day	Quantity of milk sold-liters	Price per liter Rs.	In-come from milk Rs.	Income from sale of fertilizer Rs.	Income from sale of animal Rs	Income from sale of manure Rs.	Total Income Rs.
1	47	16,920	360	16,560	50	828,000	12,000	-	-	840,000
2	75	27,000	108	26,920	50	1,344,600	25,000	-	65,000	1,434,600
3	16	5,760	360	3,600	22	118,800	-	-	-	118,800
4	40	14,400	360	14,040	45	631,800	-	-	8,000	639,800
5	100 *	36,000	11,160	24,840	32	794,880	-	-	20,000	814,800
<b>Nestle farmer</b>										
6	21	7560	360	7200	21	151,200	-	22,000	-	173,200
7	12	4320	-	4320	20	86,240	-	-	-	86,240
8	10	3650	360	3285	19	62,415	-	-	-	62,415
9	26	9490	360	9130	20	183,600	-	27,000	-	209,600

\* Buffalo

**C. OPERATIONAL COSTS (RS)**

Farmer No.	Concentrates	Minerals	Drug fees	Stud fees	Labor costs	Total cost
1	51,000	2,400	6,000	3,300	109,500	172,200
2	87,600	2,400	6,000	3,800	10,800	110,600
3	10,080	960	-	2,500	7,200	20,740
4	63,510	3,240	12,000	2,000	39,000	119,740
5	255,500	32,400	24,000	-	328,000	639,400
<b>Nestle farmer</b>						
6	16,200	1,200	3400	1050	6,000	20,670
7	14,400	1,200	3000	800	6,000	25,400
8	10,800	600		600	3,500	15,500
9	21,900	2,400		1,000	6,000	31,300

**D. INCOME /EXPENDITURE (RS.)**

Farmer number	Operational cost	Capital cost	Total cost	Gross Income	Net income
1	172,200	75,000	247,000	840,000	593,000
2	110,600	55,000	165,600	1,434,600	1,269,000
3	20,740	72,500	93,240	118,800	25,560
4	119,740	95,000	214,740	639,800	425,060
5	639,400	75,000	714,400	814,800	103,400
<b>Nestle farmer</b>					
6	20,670	60,000	80,670	173,200	92,330
7	25,400	40,000	65,400	86,240	20,840
8	15,500	23,000	38,500	62,415	23,915
9	31,300	75,000	106,300	209,600	103,300



43. The highlights of the survey are the following:

- The sample farmers own significant numbers of animals (except those who market with Nestle). Considering the fact that they are small time farmers, with most of them having grazing land or pasture land.
- The Production of milk is reasonable varying from 10 – 75 liters per day.
- Very little milk is consumed at home – average 1 liter per day, and the rest is marketed in the open market or with Nestle.
- Price obtained is reasonably high varying from Rs.22 /- to Rs.15 per liter. In addition a few farmers obtain income from sale of fertilizer and manure.
- Most of the operational cost are for concentrates and labor as the average daily wage rate is Rs.500/-.

### Income

- The net income of most of the farmers are reasonably high and it meets all costs that are incurred
- Consequently it could be concluded that small scale dairy farming is profitable.
- However it is not adequate to improve and expand the operation as the capital costs including the cost of animals are quite high

### Farmer perceptions on :

- Increasing Herd size
  - Majority reaction among farmers was to increase the herd size. However, due to the shortage of grazing land (3/9) and difficulty in obtaining good animals (5/9) farmers are not in favour of it.
  - Another constraining factor is the lack of private capital (3/9) and in availability of credit facilities particularly soft loans for use by the farmers.
- Veterinary services
  - All farmers commented that the Veterinary services were useful and available on time. The VS is visited often and in the worst instance at least once an year. A few farmers (4/9) had visits of more than 03, while a few (3/9) visited the VS twice an year.
  - The distance of the VS office is in close proximity to the farms (1 to 5 KM). This enables the farmers to have the VS visit without much difficulty.
- Financial services
  - Most of the farmers are self-financing and keep their operational costs low. Excepting for 02 farmers others have not incurred any significant capital cost.
  - All farmers complained that the financial services were difficult to obtain with soft loans not being available.
  - This is a major constraint to increase the herd and also maintain the nutritional requirements of the herd.
  - All attempts to convince the authorities including the processors to provide credit facilities have not been successful.



- Marketing
  - Most of farmers sell to private consumers, hotels and canteens. This enables them to obtain a better price. Farmers did not have any difficulty in marketing their milk as they had a variety of openings which included private processors (Nestle) and hotels, small time canteens and cafeterias in the village or cities close by. The Nestle farmers too did not have any difficulty in marketing, even though they
  - The farmers had to take the milk to the collection point of the agent, which was about 1-2 Km from the farm. The agent did not collect the milk at the farm gate.
  - The prices received were reasonable to enable them to cover their costs. However, there were no opportunities for significant profits so as to enable them to expand the livestock operation.
- Being a member of a co-operative
  - Majority of the farmers (8/9) were not members of any co-operative.
  - The reason given were varied but unanimous to the fact that they felt it was not useful, primarily due to office bearers being corrupt and no gainful benefit was obtained through the society.
  - Since marketing was not a problem the need for a co-operative was not felt.
- Comments on industry's future
  - All farmers agreed that they will continue with milk production but at a subsistence level.
  - Farmers did not see much scope for expanding their operation primarily due to the low milk prices that were being set by Government which was followed also by the processing agents.
  - Farmers are of the view that if farm gate price is higher their productivity will improve, as they could invest on the farm.
  - Unless there is a significant policy of the Government to encourage investment in the dairy industry the farmers felt comfortable with their scope of current operations.
  - With the increase in dependence on powdered milk farmers saw little scope for the consumption of fresh milk.
  - With the current Government emphasis on moving towards consumption of fresh milk, farmers anticipate a possible change in attitude.

## Chapter 4.0 Key constraints to development

44. Considering the results from two surveys and problems cited and key constraints identified repeatedly over time in other studies the following can be summarized.

- Inconsistent policies for the industry
- Low productivity of the animals
- Low farm gate price of milk
- High cost of production of milk
- Poor extension services and inadequate education on animal health among the dairy farmers
- Absence of new investments in the livestock sector due primarily to a lack of state support and financial services
- Poor marketing options available and inadequate buffer milk processing facilities
- Failure to update the technologies, including the development of a proper collection and distribution network in the sector



- Absence of proper consumer education to appreciate the value of fresh milk and milk products.
45. Low farm-gate prices are a function of relatively inefficient collection and processing systems, partly caused by low volumes and a market that is distorted by Government influence. The very high number of small-scale farmers with no economies of scale is in itself a major constraint as this increases the complexity and difficulty of service provision, the cost of input supplies and the cost of milk collection which decreases farm-gate milk value.
46. One of the key drivers of low productivity in the dairy sector is the massive number of small farmers involved. It is largely a function of poor feeding of stock, primarily due to low levels of farmer knowledge and understanding of basic animal husbandry / nutrition issues.
47. The cost of milk collection systems escalates with the number of small farmers and is exacerbated by the duplication of such systems to compete for milk supply. Milk quality is always difficult to maintain in small farms with housed cattle and reliance on hand milking with no effective primary cooling available. The sheer number of farmers creates major difficulties with extension effectiveness and farmer training. The ineffective cattle marketing system described above are also largely a result of the number of small farms.

## **4.1 Constraints to Future Development of the Dairy Sector**

48. Discussion of some of the key constraints identified in the problem analysis:

### **4.1.1 Stock Availability**

49. The productivity of cows is limited, in most cases, by nutrition ahead of any genetic limitation for milk production. There is, however, a significant opportunity to improve both the productivity and the profitability of many smallholders by motivating and facilitating them to use improved breeds. This necessarily implies a simultaneous, or prior, improvement in nutritional management. The generally poor level of young stock feeding and associated late maturity has a major impact on herd output of surplus animals, as does the prolonged calving interval. If the nutritional limitations are minimized and farmer knowledge on feeding and breeding is improved, breeding efficiency will, in the long-term, help to increase the number of superior quality animals available as well as improve productive efficiency in the medium-term.

### **4.1.2 Animal health management**

50. Overall, the constraints to dairy production from disease challenge are demonstrated to be less severe than some other factors, such as nutrition and marketing. While many bovine diseases are prevalent, in the areas of current and potential dairy production, there are well-documented health management practices for minimizing the risk of infection and productivity loss. Disease constraints to dairy productivity are therefore associated with the need to improve the delivery of veterinary services to dairy farmers and to improve the quality of those services, especially for preventive medicine. Clearly these are policy and institutional rather than technical issues.



51. The major issues in animal health management are;
- i. Improper approaches for animal disease control
  - ii. Lack of a clear strategy for control of diseases such as Foot and Mouth Disease
  - iii. Inadequate attention paid to disease prevention and bio-security aspects
  - iv. High cost of veterinary pharmaceuticals
  - v. Lack of strategy to harness the private veterinary practitioners to help the animal health management functions of the state

### 4.1.3 Land availability

52. Limited land ownership by many dairy farmers constrains their ability to grow quality fodder for cattle. Access to land for production of livestock forage and fodder is a critical issue if productivity gains in the sector are to be achieved. Land growing grass is generally considered to be a waste of land as there is little appreciation of the potential value of quality grass or fodder for dairy stock feed. Access to land alone will have little impact on dairy productivity and profitability unless there is a change in attitude to deliberately growing pasture or fodder for stock.
53. There is a serious problem in exploiting the genetic potential of improved dairy animals due to the lack of good quality year round feed at the farm level. This is primarily the result of pressure on agricultural land and competing opportunities for labor. There is significant seasonality of fodder supplies and concentrate prices, especially in hill and mid country areas, which is where most of the upgraded dairy animals are found, and who depend on bought-in concentrate feed even to meet some of their maintenance requirements during the driest months of the year. Management of common grasslands such as communal grazing land, public land, roadside etc. is weak.
54. The Ten Year Development Framework estimates that 44% of agricultural land, about 20% of the total land area, is “sparsely used which means there remains a great potential for these lands to be properly developed / used”. It goes on to state: “land vested in state authorities, which areas are not utilized, will be made available for proper development purpose”. It stops short of stating that this land will be made available to the private sector but the Livestock Development Policy paper states that “State lands will be made available to the private sector to promote superior planting materials for feeds and fodder and to demonstrate appropriate cultural practices of production and harvesting”. It also states that “while no land resources of NLDB will be privatized, allocation of state lands for the promotion of private and corporate sector for organized programs for livestock development will be actively encouraged”.

### 4.1.4 Farmer Knowledge and Skills

55. Hardly anything worthwhile has happened in the fodder development in the country. Land is not specifically allocated for forage, and grasses are not accepted as a ‘crop’, even though farmers do not fully utilize available local feed resources for many reasons. As a result available local feed resources are being wasted in large quantities at present.
56. Compound cattle feed is not popular among most smallholders. Instead they use feed ingredients such as coconut cake and rice bran. A few large scale feed millers control the feed industry in the country at present. Rapid growth has been seen in the production of



poultry feeds. However, over 80% of the ingredients are imported and production of compound feeds is an externally dependant system and vulnerable to changes in the world market prices.

57. Previous studies have stressed the importance of the opportunity to increase the use of quality forages to improve the nutritional status, productivity and profitability of the herds. Currently few farmers are taking advantage of opportunities to produce and use quality feeds. The production cost (fertilizer) of good quality fodder is estimated to be between Rs. 2/- and Rs. 4/- (excluding any land costs) compared to poonac at an average of about Rs 17/-. The nutritive value of good quality pasture is sufficient to allow it to be a substitute for poonac.
58. Significant improvements in technical efficiency could be achieved through the introduction and adoption of simple changes in husbandry and the way stock is managed. Water is an essential component in any diet and especially critical for a lactating cow which has additional losses in milk that need to be met. Increased use of low cost, high quality grass and forage as a substitute for high-price concentrate feeds and poonac should improve the profitability of dairying. In many areas, small dairy farmers do not have adequate land to grow grass or do not have secure access/rights to use existing grasslands.

#### 4.1.5 Extension System Limitations

59. The number of Veterinary Surgeons (VS) employed by the DAPH has risen markedly in recent years but the cadre of Livestock officers (LO) and Livestock Development Inspectors (LDI) has stagnated. It is the LDIs who are primarily responsible for provision of extension and AI services to farmers but they are also the personnel providing almost all of the DAPH AI service to farmers. While these two roles are somewhat synergistic it is apparent that the lack of LDI personnel dictates that the breeding service is prioritized and extension services are provided on an ad hoc basis. This lack of an extensive extension program affects the development of the industry.

## Chapter 5.0 Dairy Strategy Prospects

### 5.1 Problem Analysis and Constraints

60. The key constraint to development of the dairy industry is low profitability stemming from relatively low farm-gate price for milk, low productivity and high cost of production. Stakeholders in both the public and private sector agree that the greatest constraint in the short-term expansion of the dairy sector by commercial medium and large-scale farmers are the availability of good quality dairy stock.

#### Furthermore;

- Increasing stock availability through improved breeding will be a slow process. If there is no substantial investment in commercial medium and large-scale dairy farming in the short-term there will be a serious shortage of quality dairy stock.



- There is no effective market for dairy stock. Furthermore no organized system exists for interested buyers to contact agents or for agents to contact each other to broker deals. Farmers sometimes resort to selling the stock to the butchers market.
- Access to land, for production of livestock forage and fodder is critical if productivity gains in the sector are to be achieved. However access to land alone will have little impact on dairy productivity and profitability unless there is a change in attitude to deliberately growing pasture or fodder for stock.
- The extension service provided by the GoSL to farmers is largely ineffective as the number and training provided to the frontline agents is insufficient. In addition to the government extension service, commercial milk processors provide services to their clients (farmers) but these services are focused on milk collection. There is a need to train extension providers in extension methodology as well as on various aspects of animal husbandry.
- Growth in the informal market is likely when retail powder prices increase and fresh Liquid milk becomes more competitive. Growth will probably continue, partly at the expense of the formal sector, until the formal market of liquid milk is better able to reach consumers. There is a lack of small-scale processing which constrains farmer's opportunities for obtaining higher prices for their milk.
- The retail price of milk powder is controlled by Government. This constrains the price that locally produced milk powder can be sold for as well as imported powder. Farm gate Milk price paid by MILCO is therefore largely determined by their collecting, processing and marketing costs. All of which are reputed to be relatively high. As the Retail price of powder reflects the changes in international commodity prices it is likely that the retail market price for fresh products will increase also, fuelling the upward pressure on farm-gate prices.

### SWOT ANALYSIS

Strengths	How to build on them
<p>Government committed to strategic framework for promoting livestock production Highest priority given in correcting constraints for achieving the medium-term development targets as planned.</p> <p>The Livestock Development Policy states that “State lands will be made available to the private sector to promote superior planting materials for feeds and fodder,</p> <p>Major involvement by the state owned MILCO and engage in milk collection from the farming areas. Private sector is also engaged in milk collection and processing,</p> <p>Informal milk market plays a larger role than many have assumed.</p>	<p>Improve food security in the country and ensure vulnerable groups also benefit Expansion of livestock production in rural areas for increasing local availability of livestock average products.</p> <p>actively encourage allocation of state lands for the promotion of private and corporate sector for organized programs for livestock development</p> <p>An important outlet for many smallholders farms and is critical to ensuring economic viability of dairy production for many producers, as it typically provides higher prices.</p> <p>Provides many viable income-generating opportunities for small entrepreneurs</p>
Weakness	How to Correct Them
<p>Large number of small-scale farmers with no economies of scale</p>	<p>Organize small farmers into farmers organizations or cooperatives</p>



<p>Few cows are fed to levels where their genetic make-up is not limited and is the limiting factor. Cows are fed a mix of wild ‘grass’ scavenged or grazed from roadsides and wasteland, and coconut cake.</p> <p>Very poor level of young stock feeding and associated late maturity has a major impact on herd output of surplus animals, as does the prolonged calving interval.</p> <p>The productivity of cows is limited, in most cases, by nutrition ahead of any genetic limitation for milk production.</p> <p>Availability of dairy stock is a limitation to expansion of the dairy sector, especially for commercial operations in the short-term.</p> <p>Low profitability due to relatively low farm-gate price for milk, low productivity and high cost of Production.</p> <p>Low investment over the years has in many cases eroded the capacity to grow fodder. This has led to uneconomic levels of concentrate feeding and greater labor use</p>	<p>Minimize nutritional limitations and improve farmer knowledge on feeding and breeding. Necessarily implies a simultaneous, or prior, improvement in nutritional management</p> <p>Provide significant opportunity to improve both the productivity and the profitability of many smallholders by motivating and facilitating them to use improved breeds.</p> <p>Impact on dairy productivity and profitability with change in attitude to deliberately growing pasture or fodder for stock.</p> <p>Increase number of superior quality animals available as well as improve productive efficiency in the medium-term.</p> <p>Have government and private sector agree to milk pricing methodology</p> <p>Encourage state and private financial institutions to provide soft loans</p>
<p><b>Opportunities</b></p>	<p><b>How to Exploit Them</b></p>
<p>Government will facilitate the transformation of the present subsistence level dairy production into a viable commercially oriented activity</p> <p>Government regards the development of a viable, medium to large scale, commercially oriented private sector engaged in dairy production as crucial for the long-term sustenance of the domestic dairy industry</p> <p>Upgrading the native herd will be a thrust area of public investment. while encouraging the active involvement of the private sector.</p> <p>Unlike milk powder, the consumption of fresh milk appears to increase with income suggesting that as incomes increase over time demand could shift toward liquid milk.</p> <p>Milk bacterial quality is reported to be variable but where reasonably fixed qualities standards are applied farmers are able to meet them.</p> <p>Domestic producers have a comparative advantage in the liquid milk market as reconstituted milk is not a good substitute.</p>	<p>Make import policy and fiscal policy on dairy products to provide a conducive environment for the domestic dairy industry</p> <p>Develop projects to involve both private and public sector for joint partnerships A significant opportunity to improve both the productivity and the profitability of many smallholders by motivating and facilitating them to use improved breeds.</p> <p>Significant improvements in technical efficiency could be achieved through the introduction and adoption of simple changes in husbandry and the way stock are managed</p> <p>This necessarily implies a simultaneous, or prior, improvement in nutritional management. While some processors or markets will accept lower quality milk farmers have less incentive to improve standards as in most cases they can find an alternative sale for the milk.</p> <p>If the nutritional limitations are minimized and farmer knowledge on feeding and breeding is improved, breeding efficiency will, in the long-</p>



Therefore, the means to increase the market for such sales need to be considered	term, help to increase the number of superior quality animals available as well as improve productive efficiency in the medium-term
<b>Threats</b>	<b>How to Avert Them</b>
<p>Farmers do not seem to appreciate that they collectively own the national herd and it is from this herd that the replacement and expansion animals must come.</p> <p>The generally very poor level of young stock feeding and associated late maturity has a major impact on herd output of surplus animals, as does the prolonged calving interval</p> <p>Access to land alone will have little impact on dairy productivity and profitability unless there is a change in attitude to deliberately growing pasture or fodder for stock.</p>	<p>Instill a sense of ownership of the national herd</p> <p>Improve herd feeding opportunities</p>

## 6.0 Future Strategies

61. The Dairy sector is regarded as the priority sector in livestock development for public investment. Promoting a liquid milk market, expanded to the regions outside the traditional centers of milk consumption, is identified as a precondition for increasing the competitiveness of domestic milk.
62. The policy goal in developing the livestock sector is to achieve sustained and equitable economic and social benefits to livestock farmers. At the same time increase in the supplies of domestic livestock produce at competitive prices to the consumers,
63. To achieve this objective the strategic approach for promoting livestock production for food security is planned as follows:
  - Promote a liquid milk market, expanded to the regions outside the traditional centers of milk consumption as a precondition for increasing the competitiveness of domestic milk.
  - Upgrade the native herd as a fundamental necessity for dairy development, while encouraging the active involvement of the private sector
  - Transform the present subsistence level dairy production into a viable commercially oriented activity.
  - Import policy and fiscal policy on dairy products to focus and provide a conducive environment for the domestic dairy industry with the market forces governing the pricing of domestic milk
  - a viable, medium to large scale, commercially oriented private sector engaged in dairy production will be regarded crucial for the long-term sustenance of the domestic dairy industry
  - Dairy farmer empowerment and facilitating the participation of dairy farmers and the processors in the value chain of dairy products will be actively facilitated.
  - Promoting livestock production among vulnerable groups and increasing the protein intake by for livelihood diversification in rural areas for increasing the local availability improving easy access of animal protein intake is low on average



64. Moreover from a technical perspective, empowerment and facilitating the participation of dairy farmers and the processors in the value chain of dairy products should be actively facilitated by:

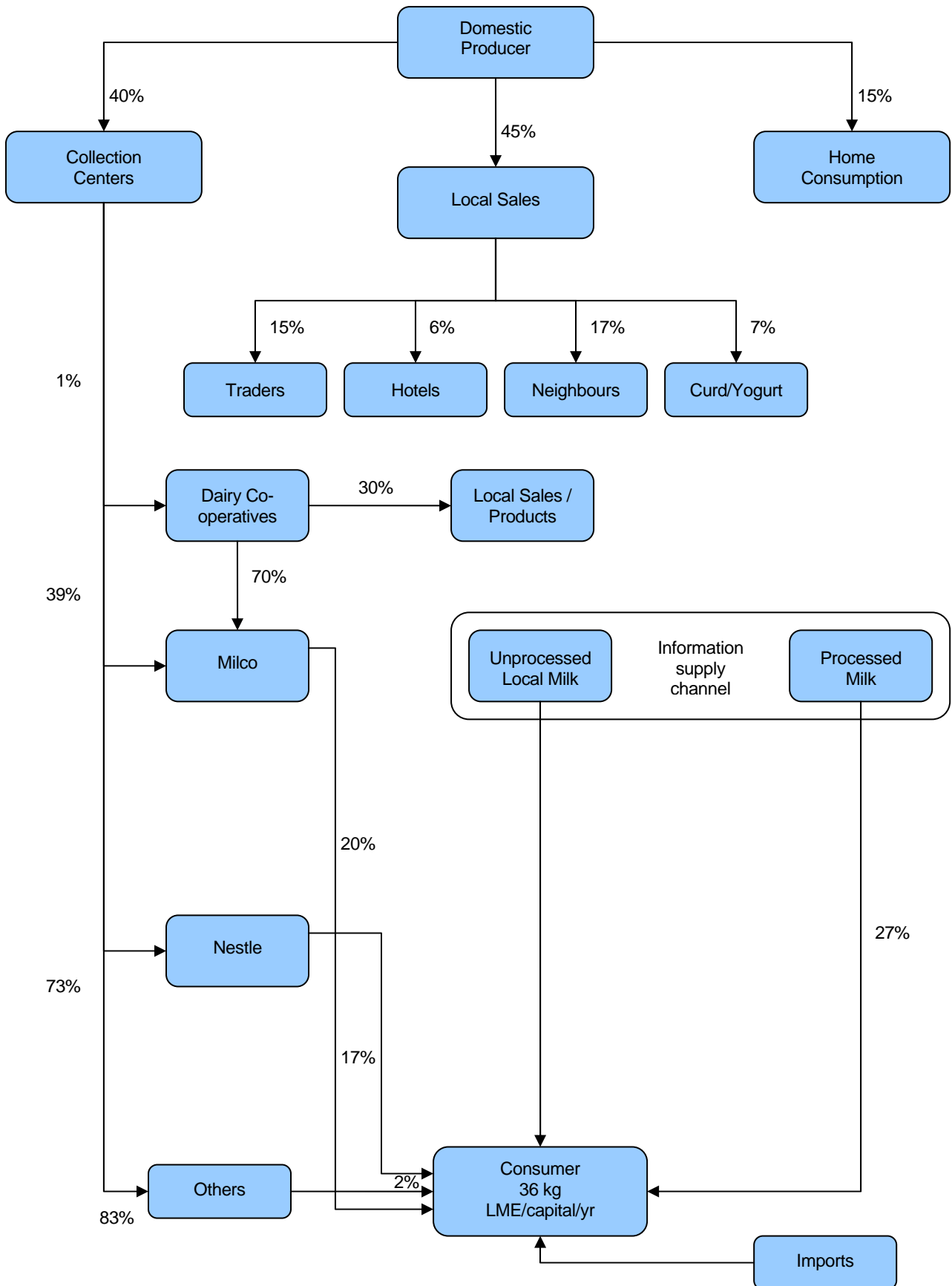
- Strengthening artificial insemination delivery and breed improvement programs
- Institutional improvements for delivery of health services and animal health management
- Extension services and human capital development
- Value addition at village level

### **On Feed Resources**

- Of paramount importance in developing the livestock sector is developing the feed resource base, including pasture and other natural forages as well as coarse grains, agricultural waste and by-products.
- Government will facilitate the trading of feed ingredients for the livestock industry while providing adequate protection and incentives for the growing and production of feed resources locally.
- Development of an efficient corporate sector for manufacture of compounded feed for dairy farming is regarded essential for the development of a viable commercial dairy industry.



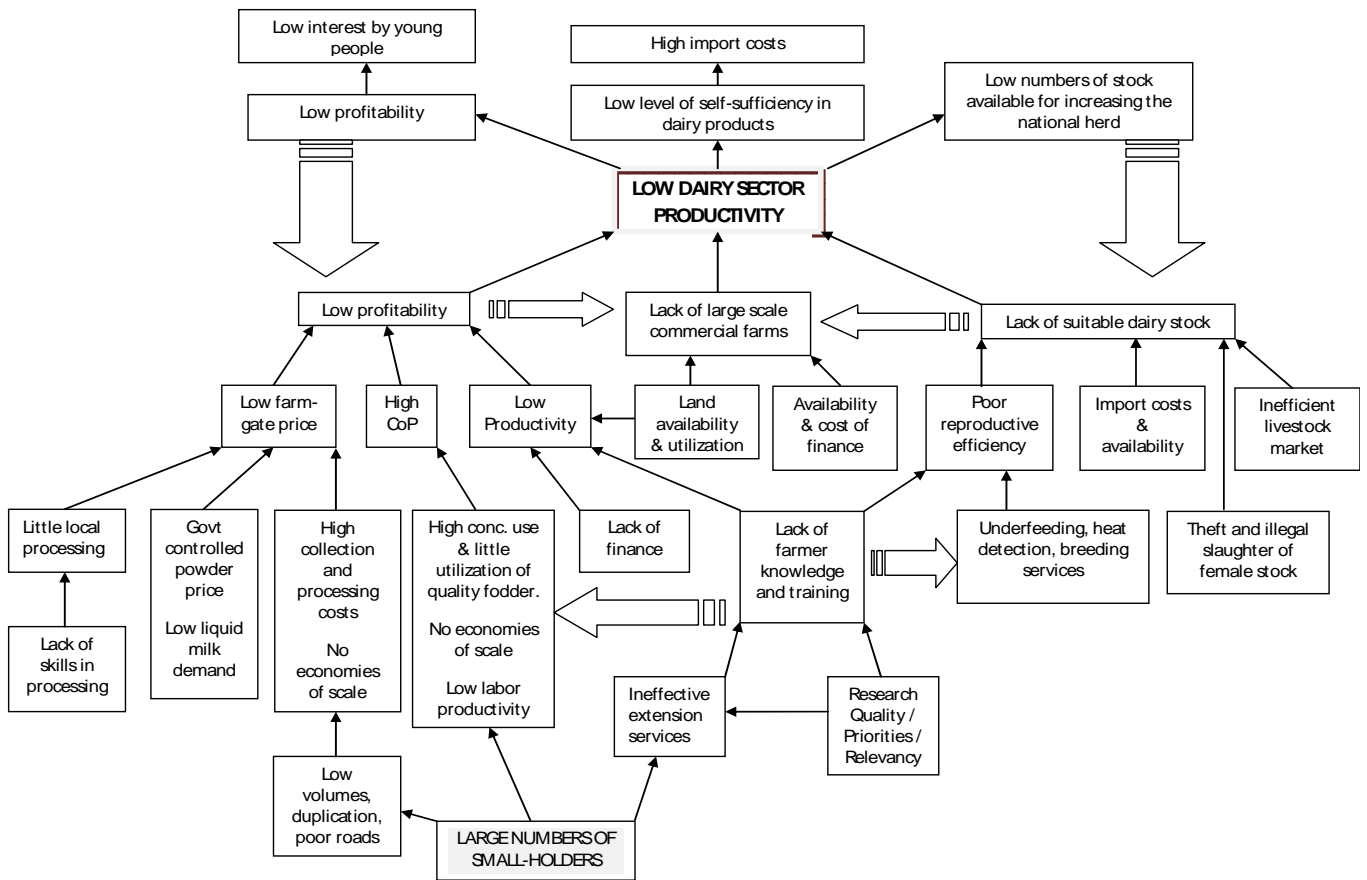
### Supply Chain for Milk



Source: Adapted from Ibrahim M.N.M et al October 1999. Appraisal of The Sri Lanka Dairy Industry,



### Dairy Sector Problem Web



Source: Kerry Straight “Working Paper on Dairy and Livestock” PPTA 4800, Interim Report ,Agribusiness Development Project, Ministry of agriculture and Agrarian Services, August 2007



### FLOW CHART OF THE DAIRY INDUSTRY IN SRI LANKA

