



**“Setting up  
Mini Milk Processing Plants  
at Dairy Farms  
for better Value Addition”**

At a Seminar on  
“Commercial Dairy Farming-Quality Assurance and Profitability”  
On Nov 9,2009

At Dairy Science College of Guru Angad Dev Veterinary and Animal Sciences  
University, Ludhiana

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# Question ?

- To meet the demand of 180 million MT in 2021 , we need to grow at 5 Million MT per annum in next 15 years against 3 Million MT which we grew in last 15 years.
- How much yield improvement is required on per day basis in the in-milk milch animals of all descript to meet this growth.
  - a. 5 lpd
  - b. 3 lpd
  - c. 1 lpd
  - d. 250 ml per day



# What is the biggest challenge in dairy industry ?

- The biggest challenge in dairy industry is the quality of raw milk as it is something which can not be improved further from the point of its receipt but maintained only.
- There is no technology in the world which could convert a low quality raw milk into a high quality finished food.

# What is Value ?

- Value is something which the customer is willing to pay for your offering.
- The drivers of Value in dairy industry
  - Source of Raw Material
  - Region
  - Nature and structure of Supply chain
  - Freshness, Health, Hygiene, Nutrition
  - Technology used for processing/packaging
  - Brand... Let us do Farm Branding

**Reduction in cost Versus Increase in Expenses**



# What is Value at a Dairy Farm ?

- Type of Animals
- Feeding Arrangements
- Breeding Technology
- Clean Milk Production
- ?
- ?
- ?

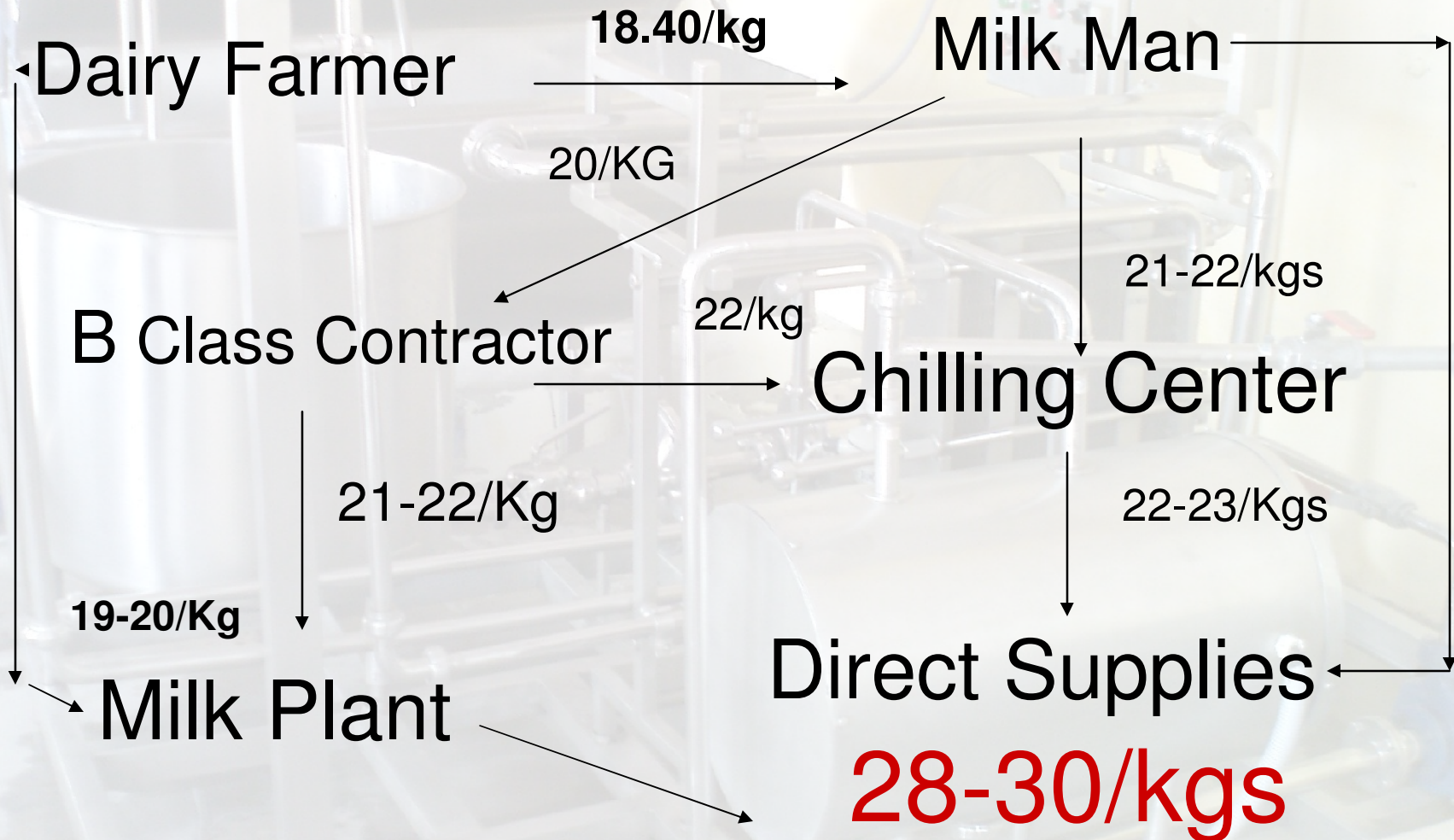
# What should be the objectives for Small holder's Dairy business ?

- *The vision of “Asian milk for health and prosperity.” will be addressed through six strategic **objectives**:*
  - (i) a glass of Asian milk a day for every Asian child;*
  - (ii) regional self-reliance<sup>1</sup> and heightened dairy food security;*
  - (iii) **smallholders better linked to markets and enabled to become commercial dairy entrepreneurs;***
  - (iv) each link in the dairy food chain becomes more efficient, productive and profitable in a socially and environmentally responsible manner, for delivering affordable milk and dairy products to urban consumers;*
  - (v) higher earnings for safer quality milk; and*
  - (vi) regional and national recognition of the multiple benefits of smallholder dairy production.*

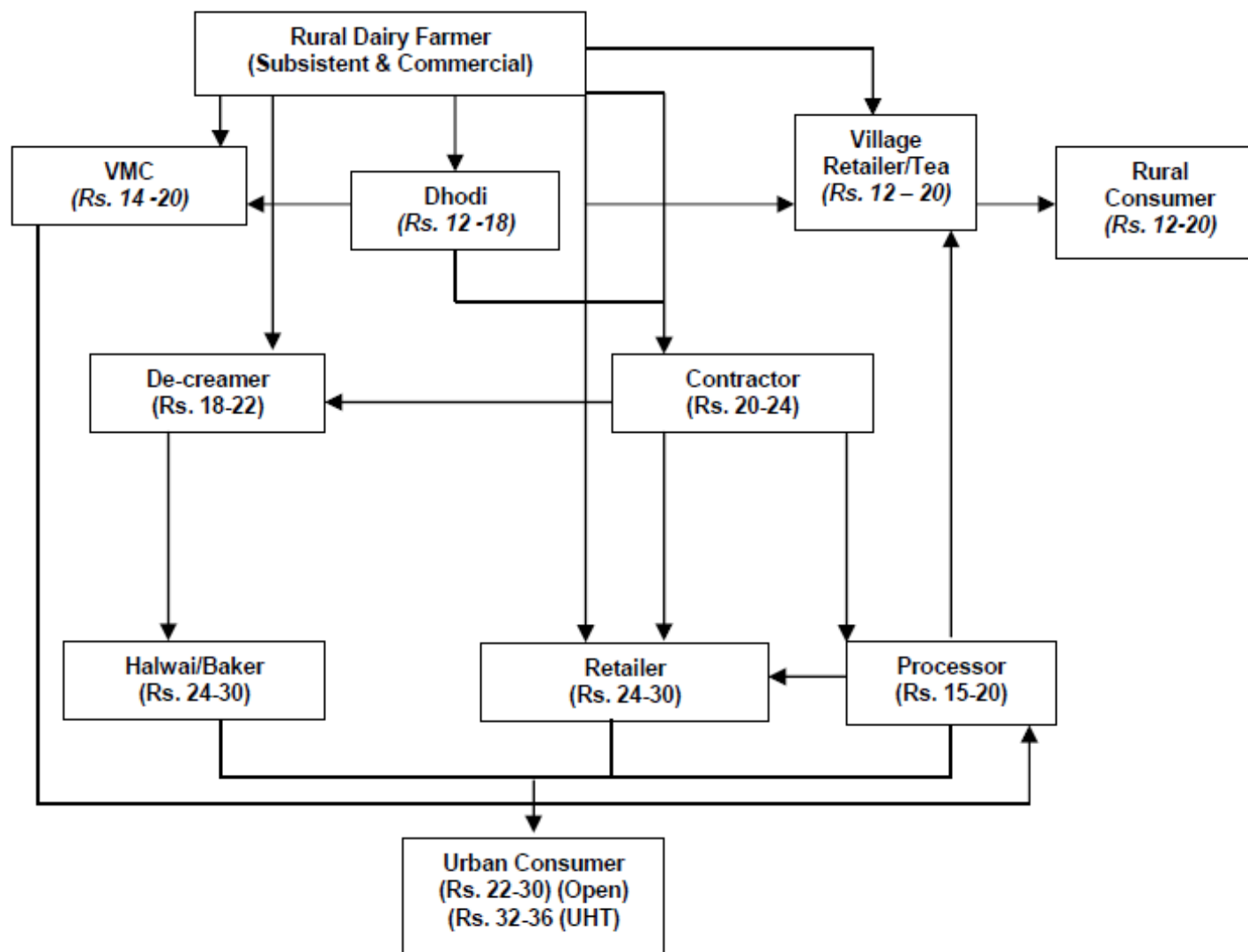
**A GLASS OF ASIAN MILK A DAY FOR EVERY ASIAN CHILD**



# What is the existing value chain in dairy business ?



**FIG. 1 – Rural Marketing Chain - (Estimated procurement prices represented at Rupees)**





# Who earns the maximum in this business ?

- Dairy represent the only agri value chain in which the farmer gets close to 60 - 70 % of the total realized value from the market.
- In other agri produce the farmer's realization may be as low as 10 % even.
- Still the people who earns most out of the game are intermediary, processor and farmers in descending order.

**Name the researcher who could increase production by 30 % in 10 days**

# What are the challenges associated with dairy farming business?

This you know better than me.

- Productivity
- Breeding
- Fodder
- Health
- Nutrition
- Etc etc etc !!!!!



# Where does the actual problem lie in dairy farming business in India?

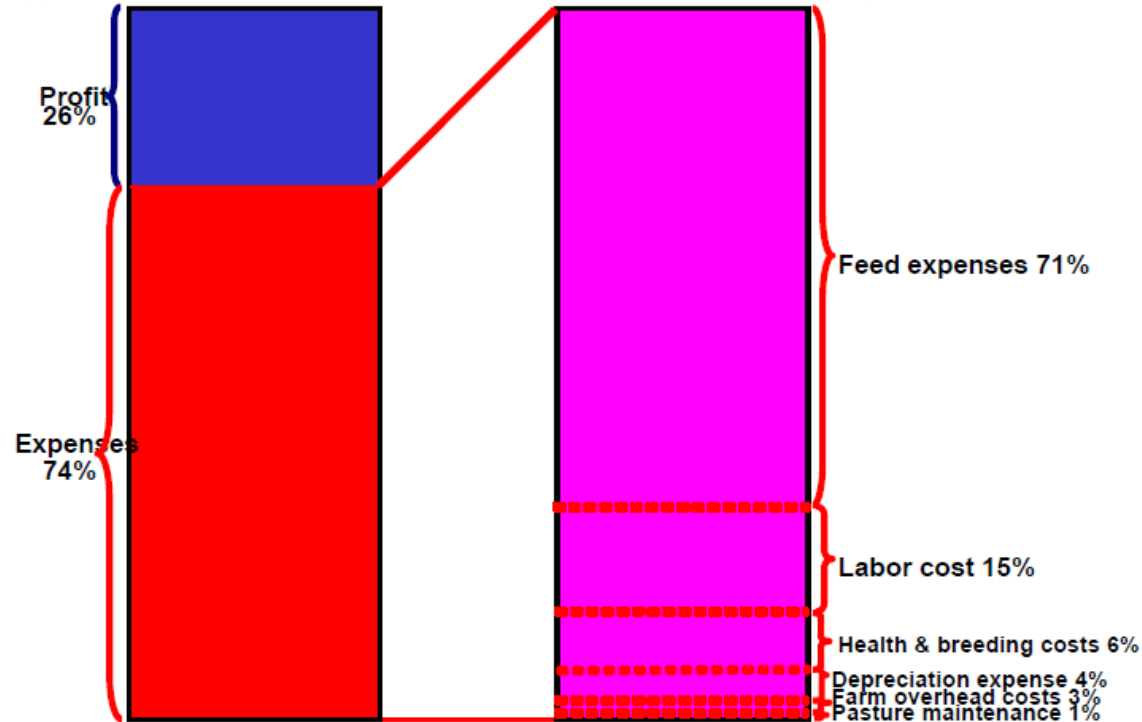
- No one knows the cost of production at Farm levels as most of these are imputed costs.
- It is not considered as a full time business.
- Animals are collective responsibility of ladies and elderly males at home.
- The youth doesn't feel motivated at all for taking dairy as full time business.

# Cost Identification at Farm Level in developing nations

Cost of Milk Production Chart  
10 cow herd

Approx. income \$1,024 per month

Approx. expenses \$756 per month





# What is a mini dairy plant?

- It is a small set of equipments in batch or continuous configuration, which could be installed at the dairy farm itself for improving the value addition capacity of a dairy farm and making it commercially more viable and thus sustainable.
- It also helps in making farmers move ahead by creating forward integration linkages with the end consumer.

# Which is the smallest level from which you could start ?

- The beginning to all great things is small.
- You may begin profitably any where from 300-500 LPD onwards.
- It could be done by creating a self help group also.
- The end products could begin with chilling, cream separation, butter and ghee making or products like panir, khoa , dahi, lassi etc for some local markets.



# **FAO APPROVED TECHNOLOGY FOR MILK PROCESSING AT LOW SCALE**

**STAGE I :MILK FILLING INTO POUCHES OR CUPS OR BOTTLES**



# **FAO APPROVED TECHNOLOGY FOR MILK PROCESSING AT LOW SCALE**

**STAGE II :KEEPING THE PACKED PRODUCT IN HEATING CHAMBER FOR AN APPROPRIATE TIME TEMPERATURE COMBINATION**





# **FAO APPROVED TECHNOLOGY FOR MILK PROCESSING AT LOW SCALE**

**STAGE III :KEEPING THE PASTEURISED PRODUCT IN REFRIGERATED CHAMBER FOR CHILLING AND STORAGE**



# PROJECT AT A GLANCE

- MILK HANDLING CAPACITY : 500 LPD
- AREA REQUIRED : 150-200 SQ FT
- POWER REQUIRED : 10 kw
- MANPOWER REQUIRED : 1+1
- WATER REQUIRED : 200-500 LPD
- LPG REQUIRED\* : YES 2 INDL CYLINDERS
- COST OF THE SETUP : RS 5-6 LACS  
(WITHOUT CIVIL)

\* OPTIONAL



# FLEXIBLE PRODUCT MIX

- PASTEURISED MILK OR/ AND
  - YOGURT ( 500 L)
  - PROBIOTIC DAHI (100-200L)
  - LASSI (500 L)
  - PANIR\* (50-100 KGS)
  - CHEESE\*\* (30-50 Kgs)
  - KHOA \*\*\*(50-100 Kgs)
- \* ADDITIONAL INVESTMENT 0.50 LACS
- \*\* ADDITIONAL INVESTMENTS 1.0 LACS
- \*\*\* ADDITIONAL INVESTMENTS 0.80 LACS

# COST OF PRODUCTION INCLUDING PACKAGING AND RETURNS

PRODUCT	COST	RETURN*	AMOUNT AVG/DAY
• MILK	RS 2 / LITER	1-2/LITER	750.00
• YOGURT/DAHI	RS 3-7/LITER	10-15 /LITER	5000.00
• LASSI	RS 4/LITER	8-15/LITER	5500.00
• PANIR	RS 2/LITER	5-6/LITER	2000.00
• CHEESE	RS 3/LITER	5-10/LITER	4000.00
• KHOA	RS 5.00/LITER	5-8/LITER	2000.00

**\* ALL THE RETURNS ARE CALCULATED ON AROUND 10% MARKET RETURN/WASTE AND 100 % CAPACITY UTILISATION BASIS.**



# CRITICAL ELEMENT IN MILK PROCESSING

- SCALE
- SOURCE OF FUEL
- STORAGE AND SHELF LIFE
- SKILL AND TECHNOLOGY
- PACKAGING SOLUTIONS
- COSTINGS
- PROMOTIONS

# What are various options available for scaling up ?

- One may consolidate it by using the capacity of your farm only and may be you could join hands with few other farms to scale it up.
- Following slides shows the options from 1000 lpd to 5000 lpd milk handling in various configurations.



Here is a farm around 10 kms from this place





First Option is to just chill the milk and sell





Second may be selling chilled poly-packed milk





The last one is a 5000 LPD  
pasteurised milk plant





# 1000 LPD an Eco Model





# What are the Capex requirements for such plant ?

- Just Chilling : Rs 2 lacs onwards
- Chilling and Auto Packing : Rs 4 lacs onwards
- 1klpd ECO Model for pasteurization and Poly-packing and ghee : Rs 15 lacs
- 2 KLPD Pasteurization , poly-packing and ghee making : Rs 25 Lacs
- 5 KLPD Pasteurization , poly-packing and ghee making : Rs 40 Lacs



# What is the Fixed cost\* for these installations

- Just Chilling : Re 0.25/liter
- Chilling and Auto Packing : 0.50/Kg
- 1klpd ECO Model for pasteurization and Poly-packing and ghee : Re 0.75/Kg
- 2 KLPD Pasteurization , poly-packing and ghee making : Re 0.57/KG
- 5 KLPD Pasteurization , poly-packing and ghee making : Re 0.46/Kg

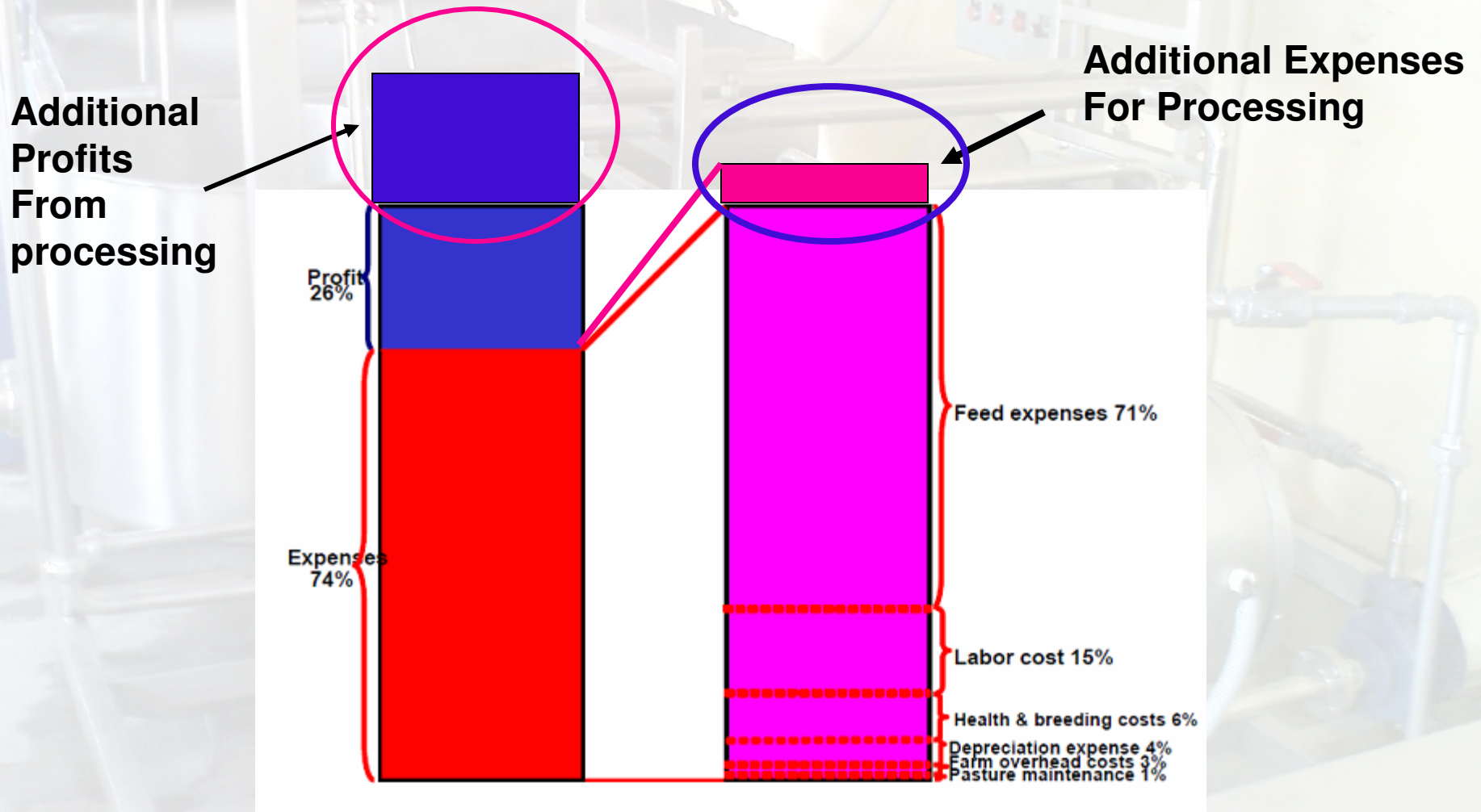
\* Interest@ 12% per annum on project cost

# Who could help and support you for funding such plants ?

- NABARD
  - 2000 LPD Milk Chilling Center ( 15 lacs)
  - Indigenous Milk products ( Rs 10 Lacs)
  - Milk Processing Plants ( Upto Rs 25-30 Lacs)
- KVIC ( Upto Rs 25 lacs)
- DRDA ( Rs 2 lacs onwards)
- Ministry of Food Processing ( Upto Rs 50 lacs as subsidy)



# What would be the final shape of the Value chain after setting up mini dairy plant at the farm level?



# Thanks

- We are here for collaborating with you to take this mission forward.
- We are open to any suggestion as well as sharing any vital information about mini milk Processing plants with you.

**A GLASS OF ASIAN MILK A DAY FOR EVERY ASIAN CHILD**