

HISTORY & BRIEF INTRODUCTION

The Integrated Child Development Services (ICDS) provides supplementary nutrition for children in the age group of six months to three years in the form of Take-Home-Ration (THR). The Social Welfare Department, Government of Kerala, has adopted the decentralized model of production and distribution of the THR in collaboration of Kudumbashree-State Poverty Eradication Mission.

In January, 2005, Central Plantations Crop Research Institute (CPCRI) developed a formula for Nutrimix which was accepted by Social Welfare Department, Kerala and after conducting a pilot study of the product in three selected blocks it was extended to other blocks by June, 2006. Nutrimix was earlier supplied by a private agency.

Kudumbashree mission approached the government to procure orders for the supply of the food supplement. CPCRI initially provided training to these women groups for preparing recipe. Food Corporation of India (FCI) helps in availing wheat at a cheaper price to the Nutrimix units. Banks help in availing initial loan amount for buying machinery and creating other infrastructure facilities.

This is a unique three-way model in which ICDS acts as a monitoring agency, funds are channeled from the Block Panchayat as well as the Gram Panchayat, and Kudumbashree acts as producer of the supplement. Every month, an “intent” is raised by the ICDS based on the number of children registered in Anganwadis eligible for the THR.

“Amrutham” Nutrimix is a food supplement for children prepared by small units, consisting of NHG members, prevailing in every district of Kerala with the patronage and guidance of Kudumbashree. Such kind of initiative, exclusively involving women, has been pioneer in the field of rural development, financial inclusion and most importantly in the battle against malnutrition.

Amrutham Nutrimix as a Take Home Ration (THR) gets supplied to Anganwadis by the units, from where the children get for free. Each Panchayat/Municipality/Corporation is allotted to Nutrimix units who supply the required quantity every month. The units get paid by the ICDS supervisor through Panchayat. Nutrimix’s popularity has increased

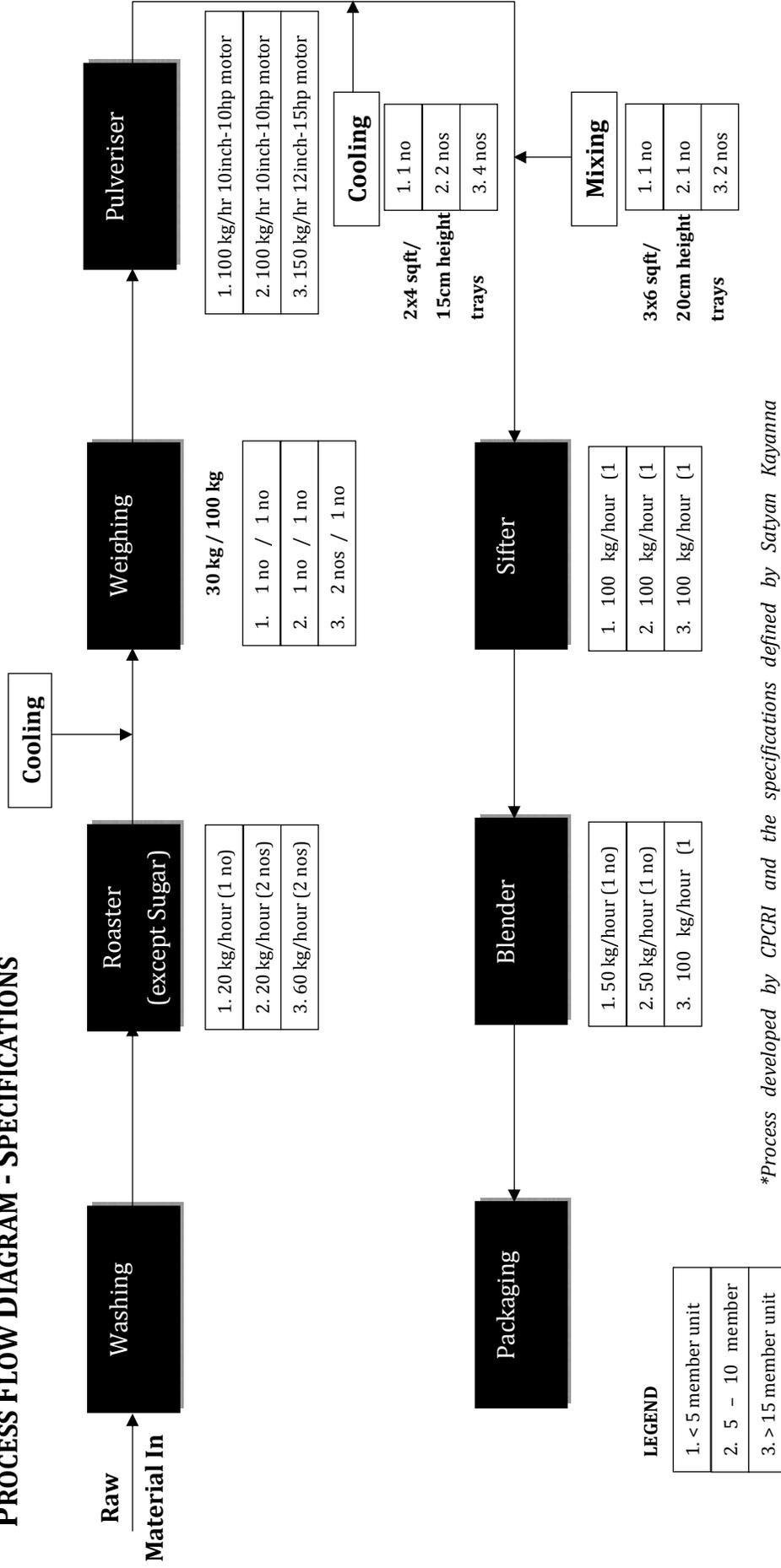
over the years for the standardized quality and the unit's capability to meet the demand with adequate supply under all circumstances.

ENTERPRISE SETUP STAGES

Pre-Enterprise Setup	<ul style="list-style-type: none"> • <u>Entrepreneur Identification</u>: Pre Orientation, General Orientation Training, Entrepreneurship Development Programme • <u>Skill Building</u>: Seven day residential training program by CPCRI
Enterprise Setup	<ul style="list-style-type: none"> • <u>Licences</u>: To start a unit three kinds of license would be needed, such as D&OE license from the Panchayat, Small Scale Industry registration and Food Safety and Standards Authority of India's license. • <u>Building</u>: Identify a suitable building of the Panchayat, or privately. It should have adequate space for storage, 3 phase electricity connection, connectivity to road transport, good ventilation and a safe working environment for women • <u>Equipment</u>: Not all equipment has to be bought during setup. Estimate the demand and procure equipment of adequate size from reputed dealers. Equipment should have guarantee and maintenance clauses. • <u>Financing</u>: A combination of SRLM subsidy, Loan, Own contribution and Panchayat support can be used for seeding the enterprise. Further development can come from retained earnings. Further funds from SRLM like Technology fund, Revolving Fund, Second dose fund may be available at later stages.
Continuing Operations	<ul style="list-style-type: none"> • <u>Raw Material Procurement</u>: Procurement in bulk may be beneficial. Consortium of all units in the district procures material in bulk. Wheat is procured from FCI for which subsidy is available. • <u>Production</u>: Production is as per the Standard Operating Procedures (SOP) defined by Kudumbashree • <u>Quality</u>: Every month a sample from each unit is sent to a lab of the Ministry of Women and Child Development for quality clearance • <u>Distribution</u>: Nutrimix in Kerala is distributed to various Anganwadis in the Panchayats/Municipalities assigned to the unit • <u>Working Capital Management</u>: The units receive a one month credit period from the suppliers of raw materials. Payments are received from government agencies, sometimes with delay. • <u>Skill Enhancement</u>: Regular Performance Improvement Programmes (PIP)
Scale-up of Operations	<p>After the market has matured and production stabilized, further scale-up would benefit from forming Consortia, Common Facility Centres and QC Labs</p> <ul style="list-style-type: none"> • <u>Consortium</u>: A collection of units in a geographical area (In Kerala a district). Consortium acts as a point of contact to generate intent,

	<p>bulk procurement of raw materials and intervene to solve any issues of individual units.</p> <ul style="list-style-type: none">• <u>Common Facility Centre</u>: A smaller collection of units (typically 2-4) which share a common production facility. This helps in reducing per unit capital investment, improves capacity utilization and reduces per unit overhead costs.• <u>Quality Control Lab</u>: As the production scale increases, there are increasing chance for impact on quality. Each batch must be tested to ensure quality. Currently in Kerala samples are sent to a lab in Chennai. It would be cost and time effective to have QC labs in closer proximity to the units. Detailed project cost included in Appendix 2.
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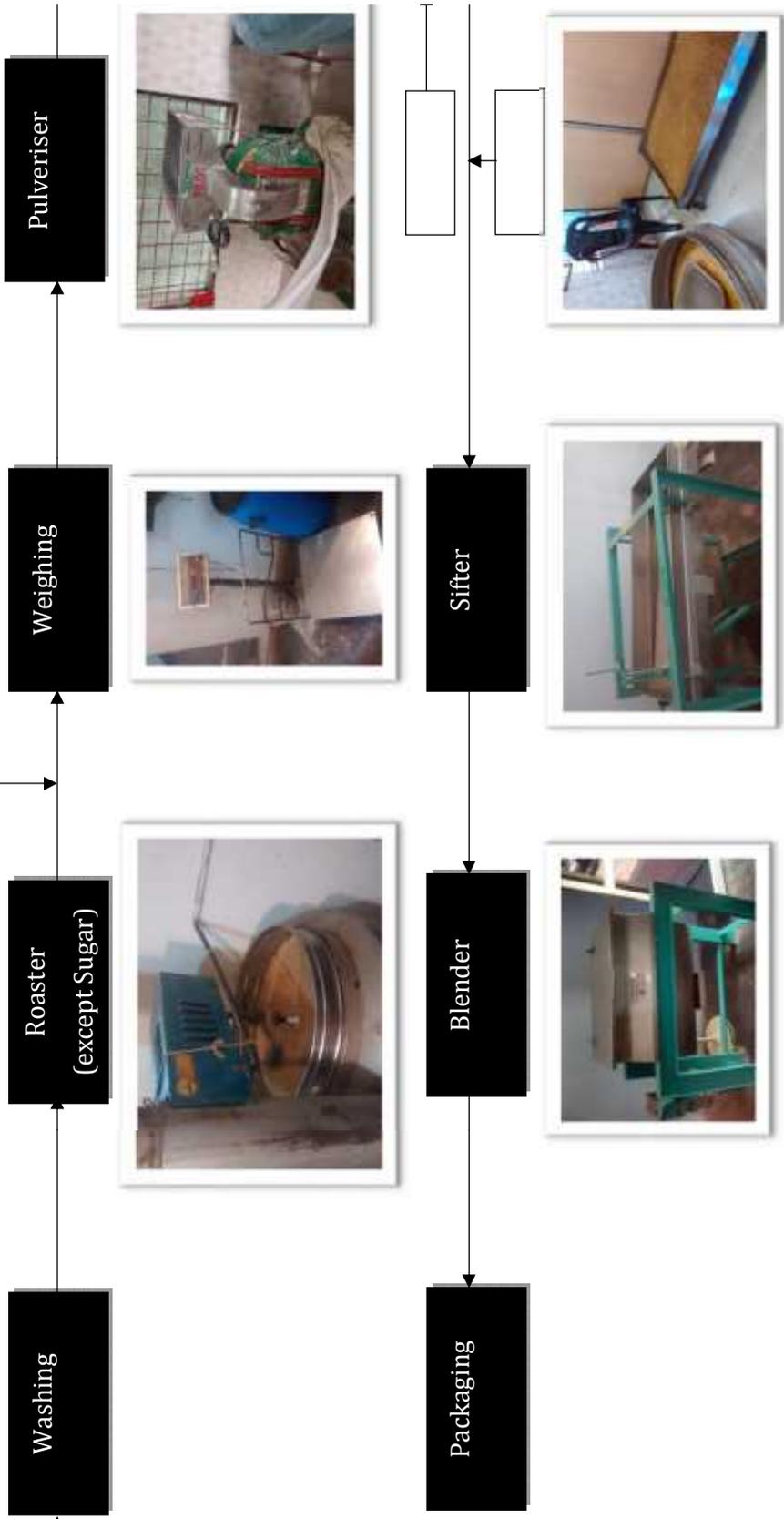
PROCESS FLOW DIAGRAM - SPECIFICATIONS



*Process developed by CPCRI and the specifications defined by Satyan Kayanna

PROCESS FLOW DIAGRAM - IMAGES

(Type 3 facility)



FINANCIAL ESTIMATES OF THE NUTRIMIX UNIT

Enterprise setup

Consider a unit of 15-20 members, which produces up to 10 MT Nutrimix per month. The following are the indicative financials of setting up the unit.(Pilotsmith (India) Pvt.Ltd, 2015).

Equipment

Before the setup, the market size has to be estimated and the market share expected to be captured. On an average, every member is able to produce at the rate of 0.5 MT per month. Thus a 20 member unit is able to produce 10 MT Nutrimix per month.

All raw material except sugar is washed and roasted. The roaster is a wood fired. In areas where there are frequent electricity outages, this could be a problem as the agitator stops working and the fire continues burning. After cooling, the raw material is weighed. The pulveriser powders the raw material. After cooling, each raw material is mixed in the pre-defined proportion. Then it is sifted to separate larger pieces, and blended to ensure correct mixing.

Item	Capacity	Tentative Cost	Date Required
Pulveriser	150 kg/hr	₹ 78,350	Required for setup
Roaster	60 kg/hr	₹ 127,000	Required for setup
Sifter	100 kg/hr	₹ 68,500	Required for setup
Blender	100 kg/hr	₹ 110,000	Required for setup
Band sealer		₹ 26,000	Required for setup
Batch coding machine		₹ 3,000	Required for setup
Stainless steel trolley		₹ 35,000	Required for setup
Packing Machine		₹ 215,000	Optional
Weighing balance (large)		₹ 10,000	Required for setup
Weighing balance (small)		₹ 4,000	Required for setup
Cooling tray		₹ 29,000	Required for setup

Other fixed start-up costs

Two of the other major costs incurred by the units are building and working capital. Some units in Kerala have approached the Gram Panchayat, and received a building at subsidised rent to operate out of. Sometimes there is a delay in receiving payment from the Panchayat due to various reasons. The unit must be able to cover the operating expenses from the working capital. Raw material is typically bought as credit and this

reduces the working capital burden. Three months of working capital is assumed in this model.

Item	Tentative Cost	Date Required
Rent Advance	50,000	Optional
Uniforms	10,000	Required during setup
Furniture	200,000	Required during setup
Electrification	20,000	Required during setup
Land and building	50,00,000	Optional
Working capital	447,000	Required after setup

Enterprise Operations

Raw Materials

Wheat is subsidized by the Food Corporation of India (FCI) and is available at ₹ 5 per kg. Typical market rate would come to around ₹ 25/kg. Nutrimix is sold in ½ kg packets. The packets cost ₹ 1 each.

Due to impurities present in the raw materials and loss of moisture content, there is a loss in weight of the raw materials. This is primarily seen in Wheat, Bengal Gram and Ground Nut. Transportation cost is also incurred in purchase of raw materials.

Item	Warehouse Cost	Wastage per kg	Transport Cost	Quantity per kg	Tentative Cost per kg
Wheat	4.15	8.5%	1.5	450 g	6.13
Bengal Gram	55	4%	1.5	150 g	59
Ground Nut	85	4%	1.5	100 g	90
Soya	60	-	3	100 g	63
Sugar	31	-	1.5	200 g	32.5
Package	-	-	-	2	2.82

Variable Operating Expenses

Electricity is used for the motor in the Roaster and in the Pulveriser. Gas is sometimes used for roasting ground nut. Using wood as a fuel source is cheaper than gas.

Item	Tentative Cost per MT
Electricity	700
Gas	1100
Transportation (Outward)	1100

Fixed Operating Expenses

Wage rate is fixed currently at ₹ 30/hr and a typical working day has 8 hours. The total salary for the month is thus calculated as 15 members X ₹ 30/hr X 8 hrs X 25

days/month. The rent is an estimate for a 1000 sqft industrial space – this may vary significantly based on the location.

Item	Tentative Monthly Cost
Wages	90,000
Rent	30,000

For a monthly production of 10 MT, the tentative Gross Margin: 9%

Analysis of the financials is included in the Appendix 1.

From the break even analysis of the production, it can be seen that only at a production level of 7000 kg per month of Nutrimix, the unit is able to achieve break even.

It can also be seen that the product is viable only if the MRP is greater than 50.

Wheat is the dominant raw material in the formula, hence the profitability is largely dependent on the price of wheat. Wheat is available at subsidized rate from FCI, however in case wheat has to be procured from the open market, the break-even point is 17 /kg.

The gross margin falls with the increase in price of electricity.

ORGANIZATION OF UNIT ACTIVITIES

Specialization of activities would help in better organization of unit activities. There should be one group leader, and a vice group leader. Special roles need to be created for raw material, marketing and quality control.

Activities of group members:

Group Leader - Looks after all activities of the enterprise and will preside in the meetings.

Vice Group Leader - Looks after all financial activities and calls meetings to be held once a month.

Raw Material Procurement- Looking after the raw materials needed for the production and purchasing according to the requirements.



Quality control- The SRLM will have to get a sample tested from each batch of product from a recognised laboratory.

Marketing- To distribute the products to the customers. She is also looking if any other product produced by the unit can be sold in the market.

Organization of units:

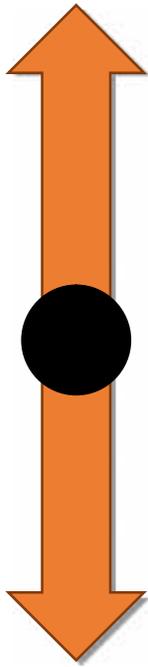
Consortium: To encourage economies of scale, to address similar issues faced by the units in procurement of raw materials and transportation, to develop a centralized distribution channel and to develop value added products and overall to prepare the units to face competition from the market the mission developed the concept of Amrutham Nutrimix consortium in 2011. All the Nutrimix units in Kerala has been clustered at district levels and confederated to consortium at the state level.

As Nutrimix units expand in the state, a consortium of units in a local geographical area can help capture economies of scale

Common Facility Centres: In common facility centres, two or more units are clustered so that one set of machinery is enough for a building and it will also help to lower down the working capital. This is also useful when there are several units in the same locality.

Quality Control: Production samples must be sent from each batch to a qualified QC lab to ensure quality before it is distributed. Currently in Kerala the samples are taken only once a month and sent to a lab in Chennai, where it takes long (close to 3 months) for the results to come. QC labs must be set up closer to the units for faster processing of samples. The financials of setting up a QC lab is given in Appendix 2.

FORWARD AND BACKWARD LINKAGES



Forward Linkages

Anganwadi/Primary schools, Community Based Organizations (CBOs) – distributing the product among the kids

ICDS - Checking the quality from the receiving end, handing over payments to the units coming from Panchayat

Panchayat – Giving payments

Backward Linkages

Consortium- Facilitating procurement, storage and payment; ensuring and maintaining quality from the suppliers end, only after sufficient scale is achieved

State mission- Training, Financial Support and Monitoring and Evaluation

CPCRI- Improve the quality of the product and to improvise the contents and the recipe of the product

Moving up the value chain

Units in Kerala have ventured beyond production of the plain Amrutham Nutrimix due to several issues including hedging against business risk, and falling profitability. Popular value added products manufactured include Amruthum Plus and Athulya Brand rice powder.

Yogasidha unit in Kayanna has further diversified its portfolio to include items such as Amrutham Milk Peda, Amrutham Crack Piece Biscuit, Amrutham Avilose Powder, Grameen Rice Powder, Grameen Semiya Mix, Ada Mix, Kumari Plus (CPCRI), Wheat powder, Ragi Powder, Baji Bonda Mavu, Jappy powder, Grameen Avil Mix, Ginger coffee, Kamba Podi.

Yogasidha unit has tried to increase the products sold to its primary customer – it now sells Amrutham Avilose Powder to pilot Anganwadis as morning snack. It has sought out new markets in the form of fairs, where it sells the popular Milk Peda and Crack piece

Biscuits. It has also tried to increase the capacity utilization of its equipment by manufacturing products requiring similar processing.

TRAINING GIVEN

The State Mission should give training to the would-be Entrepreneurs. Programmes include Pre-Orientation, General Orientation Training, Entrepreneurship Development Programme, Performance Improvement and Basic Accounting.

Before enterprise setup:

Pre Orientation- It is a basic training given by pre-trained persons about how to start an enterprise. A major purpose of the training is to identify persons with a serious intent and ready to take the risks involved in entrepreneurship. The major topics covered in the training include: the importance of Micro-Enterprises, Economic Development, Women Empowerment and information about various State Mission schemes.

General Orientation Training -This provides a general orientation about enterprises, entrepreneurship, the support provided by various agencies and departments for setting up enterprises and on the SRLM schemes. The topics covered in the Pre Orientation is covered in more depth and specificity in this training. Participants are also exposed to the existing enterprises in the state.

Entrepreneurship Development Programme- Done over three to five days by trained resource persons or specialized training agencies, covers topics required to develop basic entrepreneurial skills of the participants. The important topics covered include: Introduction to Enterprise, Characteristics of an Entrepreneur, Entrepreneurial competencies, Business Plan, Business Accounting, Marketing and Management Principles. Persons completing EDP, formed into groups in case of group enterprises, are supported for formulating their business plan that will form the basis for providing assistance.

Skill Training - Specific to the entrepreneurs of Nutrimix units, this programme trains the members on the process of making Nutrimix developed by Central Plantation Crops Research Institute (CPCRI).

Continuous trainings:

Performance Improvement Programme – Training programmes that are aimed at improving the capabilities of entrepreneurs in various areas of enterprises. These include technical, operational, marketing related and general management training programmes.

Accounting training – Entrepreneurs are to be provided training to help them improve the accounting and book-keeping of their enterprises.