

## **A Brief Introduction to Project Preparation**

*(Prepared for the ICA Programme on “Enhancement of Farmers’ Income and Poverty Reduction through Cooperatives”)*

By

**Prof. G Krishnamurthi**

**January 2008**



Institute of Rural Management Anand – 388001 India  
Phone: (02692) 260391, 260181  
Fax: (02692) 60188 • E-mail: [root@irma.ac.in](mailto:root@irma.ac.in)

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## Contents

1. *What is a Project?*
2. *Types of Projects*
3. *Project Life Cycle*
4. *Project Identification*
5. *Project Feasibility Report – Preparation and Data Requirement*
6. *Conclusion*

## Annexe

1. *A Suggested Comprehensive Format for Agricultural/Agro-Processing Investment Projects (with Special Reference to Agricultural Cooperatives)*

## *Chapter 1*

# ***What is a Project?***

### **Introduction**

Projects have been a part and parcel of human beings since time immemorial and will continue to be so, as long as the human race exists. The very first projects of the human being were probably the successful attempts by the earliest inhabitants of earth to fulfil their basic needs of hunger, thirst, clothing, and shelter. As civilisation developed, projects became more complex and formalised, with the concomitant need for elaborate planning. The houses in which we live, the offices and factories in which we work, the transport systems by which we commute, the communication systems which we use everyday effortlessly, the new products that we find every now and then in the shelves of our corner stores and supermarkets, and a variety of other things, are all products of tens of thousands of projects undertaken by mankind from time to time in different parts of the world. It is not at all an exaggeration to state that projects are the very root of development and progress of civilisation.

If projects have been in existence since the dawn of mankind and have been instrumental to development and progress, what is new about projects and their management today? One simple reason for the evolution of project management as a discipline by itself and the development of a host of tools and techniques is our present concern for optimum use of our planet's resources in the most effective manner.

When did project management come into being as an academic discipline? When did financial institutions and funding agencies and government departments start insisting on project formats for investment proposals? The answer is not far to seek. It was the second world war (1939-45) which consumed a huge amount of resources for destruction and the post-war reconstruction efforts all over the world, coupled with man's quest for exploration of outer space, that provided the impetus for the evolution and growth of a

body of knowledge called 'Project Management'. Simultaneously, the growing concern of economists for effective utilisation of the resources(human as well as non-human) led to the development of a host of tools and techniques for comparison of investments with benefits; this, in turn, made possible the project format.

So, what is a project? Two points of view are given below, and a statement combining the two views is developed to give a comprehensive picture of the meaning and nature of projects.

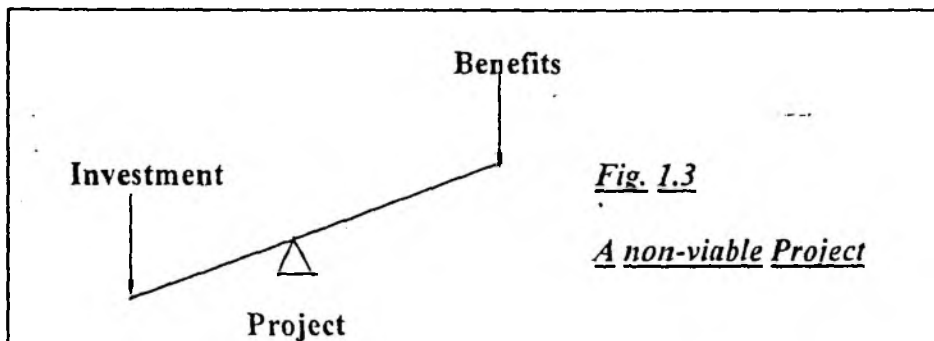
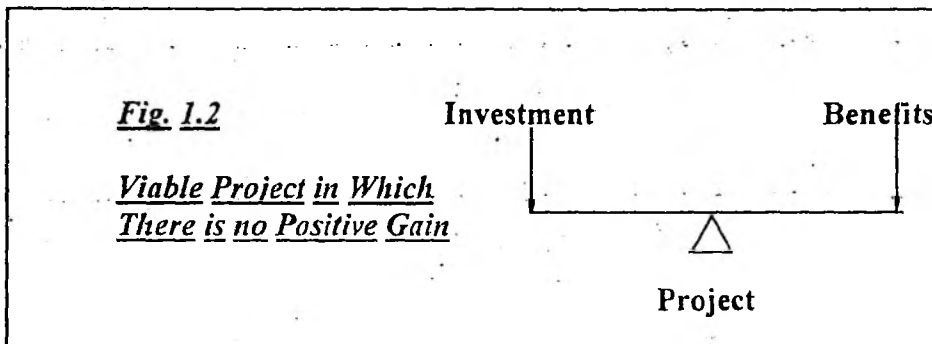
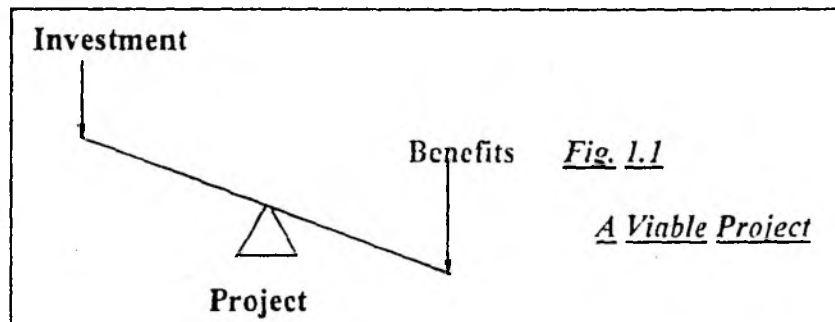
### **Projects - A Financial Perspective**

**Projects, by their very nature, call generally for capital investment; that means, projects are associated with initial cash outlays/outflows spread over a short duration. These capital outlays may be for construction of an irrigation dam, an agro-processing centre, installation of a pump set in a farm-house, purchase of an agricultural farm, etc.**

Human beings are rational; they will not, therefore, invest unless there are benefits. The benefits may be measurable in terms of money, or may not be quantified in money terms. For example, if investment is made for the establishment of a fishery for the cultivation and sale of prawns, the benefits are in the form of annual cash surplus. On the other hand, if the investment is on a project for the establishment of a primary health centre or a primary school in a village, the benefits are not very obvious and cannot be easily arrived at in terms of money. However, in both examples, the benefits are spread over several years after the initial investment is made.

Financial analysts and economists generally view projects as current investments/outlays of funds in the hope of getting a stream of benefits in future. A project is considered feasible or financially viable if the estimated benefits exceed or equal the estimated investment. A project is accepted if this criterion is met; otherwise, it is considered financially non-viable and is not pursued.

This way of looking at projects as an equation between current (or current and future) investment or outlay and future benefits (spread over several periods compared to the duration of initial investment) can be portrayed in the form of a balance as shown in figures 1.1, 1.2 and 1.3.



## **Projects - An Engineering Perspective**

Projects normally include the construction of several hardwares which ultimately become productive assets. These facilities create the goods and services which provide the benefits from projects. The creation of the productive facilities needs money in the form of initial investment (as shown in the left side arrows of figures 1.1, 1.2 and 1.3). Engineers and managers concerned with the creation of the productive facilities tend generally to be unaware of the details of the benefits expected to flow from their creation. This is generally because of the non-involvement of managers likely to be responsible for the creation of productive facilities during the early stages of planning of projects. Engineers and managers, whose concern is mainly the creation of productive facilities, therefore, have developed a somewhat narrow view of projects. They see each project as a huge task

- ◆ having a definite starting point
- ◆ having a definite end point
- ◆ scheduled to be initiated on a specific date
- ◆ scheduled to be completed on some other specific date
- ◆ consisting of innumerable activities, each of which has its starting and end points, start and finish dates, and takes time and consumes resources.

This limited perspective of a project as a mammoth task provides only a partial picture of a project, since it ignores the project objectives and the relationship between investment and benefits.

## **Projects - A More Complete Picture**

As we have seen, the financial/economic perspective of a project does not reckon its size, nor its objectives, nor the complexity associated with the creation of the productive facilities. This perspective is, therefore, incomplete.

In a similar way, the engineering perspective tends to ignore the relationship between investment and benefits. The engineering view is also, therefore, incomplete.

But a project consists of all the above. An endeavour can hence be considered to a project if it consists of the following features:

- ◆ **Clear and specific objectives**
- ◆ **Uniqueness (of scope of endeavour) meaning that a project is different and distinct from all similar endeavours**
- ◆ **Initial investment**
- ◆ **Benefits spread over the duration of the project**
- ◆ **Specific dates of start and completion for construction or creation of productive assets and facilities**
- ◆ **Several interdependent and independent activities, each of which has its own schedules for start and completion, and consumes time and other resources**
- ◆ **Conflicts arising from uniqueness of projects**

## **Programmes versus Projects**

We frequently hear of programmes, such as the National Literacy Programme, National Malaria Eradication Programme, and Poverty Alleviation Programme. We also hear every now and then of projects like a canal project (Sardar Sarovar, for example), a multipurpose dam project (like Bakra Nangal Dam), a fertiliser project, etc.

What is the difference between programmes and projects? A programme is simply a collection of several inter-related projects; each project in a programme has its own objectives and contributes to the objectives of the programme. In other words, projects are simply manageable components of a programme, so arranged to meet the objectives of the programme.





## Chapter 2

### ***Types of Projects***

Projects may be classified into different types depending upon their nature, size of investment, purpose, objectives, etc. For example, one can think of projects of the following types, classified as per their nature:

- ◆ **Agricultural projects** which can be further classified as projects for
  - ♣ Production of food crops such as paddy / rice, wheat, maize, sugarcane, pulses, oilseeds;
  - ♣ Rearing of livestock such as milch animals, sheep, goat, chicken, pigs, honey-bees;
  - ♣ Production of marine food products like fish; and
  - ♣ Production of fibres like cotton, silk, jute, etc..
- ◆ **Industrial projects** created for production of industrial goods, consumer durable, consumer goods such as
  - ♣ Automobiles
  - ♣ Man-made textiles
  - ♣ Building/construction materials (like steel, cement)
  - ♣ Petroleum and petroleum products
  - ♣ Various chemicals
  - ♣ Communication and information equipment such as telephones, telephone exchanges, computers, etc.
  - ♣ Household goods like clocks, televisions, refrigerators, steel and plastic furniture, etc.

- ♣ Medicinal drugs, vaccines, hospital equipment, etc.
- ♣ Project and construction equipment like boilers, tanks, vessels, pumps, pipes, etc.
- ♣ Various other categories covering a host of other industries.
- ♣ Engineering products like tractors, earth-moving equipment, farm mechanisation equipment, pollution control systems, etc.

◆ **Agroindustrial projects for**

- ♣ Processing of food crops like paddy, wheat, etc.
- ♣ Processing of marine products such as fisheries
- ♣ Processing of animal products such as poultry, dairies, etc.
- ♣ Processing of raw materials of plant or animal origin for non-food products like leather, hides, cotton textiles, etc.
- ♣ Production of raw materials and inputs required for agricultural production, such as fertilisers, insecticides, animal feeds, marine feeds, etc.
- ♣ Special infrastructure for agro-processing like cold storage, transport systems, etc.

◆ **Infrastructure projects in various areas like**

- ♣ Irrigation and transportation by water (like dams, canals, bridges, and ports)
- ♣ Surface transportation (like roads and railways)
- ♣ Air transportation (like airports)
- ♣ Power (like hydroelectric power stations, multipurpose dams, thermal and nuclear power stations)

- ♣ Communication and information (like telephone networks, satellites and satellite stations)
- ♣ Health (like hospitals and blood banks)
- ♣ Education (like schools, colleges, universities, libraries, R&D laboratories)
- ♣ Water and sanitation (like protected drinking water supply networks, sewage treatment plants and their networks) and
- ♣ Public utilities of common societal concerns like defence, police, judiciary, banking and financial institutions, etc.

In a similar way, depending upon the size, level of investment and risk, projects can be classified as:

- ◆ **Experimental / R&D / Technology Development Projects**
- ◆ **Pilot Projects**
- ◆ **Demonstration Projects**
- ◆ **Full-scale Production / Commercial Projects**

One can think of classification of projects based on the purpose or objectives. Examples of such projects which are designated on the basis of their purpose or objectives are as follows:

- ◆ **Rural Development Programmes/Projects**
- ◆ **Urban Development Programmes/Projects**
- ◆ **Community Development Projects**
- ◆ **Infrastructure Development Projects**
- ◆ **New Product Development Projects**
- ◆ **New Process Development Projects**
- ◆ **Human Resources Development Projects (HRD)**
- ◆ **Maintenance Projects**

- ◆ **Replacement Projects**
- ◆ **Expansion Projects**
- ◆ **Modernisation Projects**

The above classifications are not independent. For example, a rural development project, which has the improvement of the livelihood of the farmers of a certain region as its purpose, may also be an agro-industrial project. Similarly, an urban development project which is undertaken to improve the conditions of hygiene through improved sewage network, is also an infrastructure project.

The above classification has, therefore, been presented to give the reader an idea of the range of human endeavours that fit the framework of projects.

## Chapter 3

### ***Project Life Cycle***

You may recall from Chapter 1 that a project is characterised by the following features:

- ◆ Clear and specific objectives
- ◆ Uniqueness of scope of endeavour, meaning that a project is different and distinct from all similar endeavours
- ◆ Initial investment
- ◆ Benefits spread over the duration of the project
- ◆ Specific dates of start and completion for construction/creation of productive assets/facilities
- ◆ Several interdependent and independent activities, each of which has its own schedules for start and completion, and consumes time and other resources
- ◆ Conflicts arising from uniqueness of projects

A project, in addition, exhibits certain characteristics similar to organic entities. Project ideas take birth in the minds of entrepreneurs; lives take their birth in seeds or the womb of the female species. Project ideas grow and assume the shape of a project proposal; the foetus is delivered as a baby or the plant sprouts from the seeds. A project grows in stature just as a baby grows to a child and then to an adolescent and an adult or a sprouted plant grows to a full plant and thence a tree. A fully constructed project starts yielding results, just as a grown-up adult employs all his or her skills to earn an income or a full-grown tree bears fruits. Finally, a project which has outgrown its useful life is dismantled or “dies”, similar to an aged animal or a tree.

The stages of a project are, however, described differently, different from the various stages of living organisms. Just as there are different perceptions of project and there are several classes of projects, the stages of project life-cycle also have different

frameworks. However, it is true that a project has a life-cycle composed of several stages. Normally, the completion of a stage in any project/project life-cycle is characterised by some tangible outputs like deliverables.

Broadly speaking, any project/programme may be considered to pass through four distinct and identifiable stages/phases in its life, as listed below:

- ◆ **Project/programme identification phase**
- ◆ **Project/programme definition phase**
- ◆ **Project/programme execution phase**
- ◆ **Benefits realisation phase**

One can think of various other frameworks for the description of various stages/phases of project life-cycle. However, the above classification is considered adequate for our current purpose.

All the four phases of a project are important and significant, as the completion of every phase leads to some tangible outputs and heralds the start of the following phase. For example, at the end of the **programme identification phase**, the project promoters have a fairly clear idea of the project, its concept, its relationship to the beneficiaries, promoters, people affected by the project, approximate idea of the resources required, etc; all the above points get documented in the form of a brief note which forms the basis for detailed definition of the project, including the preparation of a **project report/project feasibility report/project viability report/project plan**.

During the **programme/project definition phase**, the concept of the project evolved in the project identification phase is elaborated in detail. The concept is examined from the point of view of giving shape to the idea from various angles, such as marketing, commercial, procurement, legal, political, technical, financial, economic and cultural feasibility. The output of this phase is an elaborate **project plan/feasibility**

**report** which is expected to be technically viable, financially feasible, implementable and bankable.

The third phase of the project life-cycle viz., **programme/project execution phase** concerns itself with the creation of hardware, such as production/operations facilities, establishment of institutions and organisations, development of people's capability by way of training and imparting skills, etc. The tangible outputs of this phase are the physical hardware (in the form of productive facilities) and competent and capable software (in the form of trained human resources).

The fourth and last phase of a project is the **benefits realisation** phase during which the investments made during the previous three phases are reaped by the beneficiaries for whom the project was conceived, defined and implemented. Benefits may be realised, depending upon the nature and purpose of the projects, by investors, by rural farmers, or by the society as a whole.

You may recall from Chapter 1 that a project is considered to be successful and viable if the benefits expected out of the project exceed the investments made in the project. It may not be always possible to quantify the investments and benefits in numerical or money terms, as certain investments and benefits may not be amenable to such quantification. For example, if the project is the creation of a primary school, what are the benefits of the project in money terms? Compare this with a meat processing centre; if money is **invested** for setting up a meat processing centre, cash surplus is generated year after year; the cash surplus represents the **benefits**. Several methodologies have been involved to impute numbers to intangible entities (like education, health etc.) so that one can arrive at a rational equation between investments and benefits. During the project/programme identification and definition phases, the investments and benefits remain only estimates. It is only during the execution phase that one gets a reasonable idea of the actual investment made in a project vis-à-vis the estimates made earlier. As the execution phase of the project is not generally long, the overrun/saving in the investment is easily ascertained. However, as the benefits are



realised over a prolonged period of time after the completion of project execution, special procedures are required to assess the actual benefits coming out of a project. Monitoring and evaluation procedures are, therefore, established to assess on a continuous basis the benefits flowing out of a project. **It may, therefore, be said that monitoring and evaluation form an integral component of the benefits realisation phase.**

The successful implementation of any programme or project requires careful planning like any other human endeavour. The planning of projects is generally carried out during the project/programme identification phase and definition phase and the initial part of the execution phase. We generally divide the planning of projects into two major segments as follows:

- ◆ **Strategic project planning**
- ◆ **Operational project planning**

The following tasks are generally carried out during the **strategic planning of projects.**

- ◆ Problem analysis
- ◆ Stakeholder analysis
- ◆ Analysis of objectives
- ◆ Analysis of inputs
- ◆ Analysis of external influencing factors
- ◆ Analysis of responsible organisation(s)

The operational planning of a project is characterised by the generation of a project document; the rest of this manual will deal with the principles and practical techniques for this purpose.

You may see that the project strategic planning phase is somewhat identical to the project identification phase; the operational planning phase is somewhat similar to the project definition phase.

## CHAPTER 4

### ***Project Identification***

The first and foremost task of any entrepreneur/investor/social worker is the identification of a worthwhile project. There are no short-cut methods nor proven and infallible tools and techniques for project identification which has been and continues to be a matter of judgement and in certain cases, luck. This is not to say that project identification cannot be carried out systematically or in a scientific way. There are certain means by which it would be possible to generate project ideas and segregate worthwhile ideas from those which may not be promising, so that only promising ideas are pursued for further investigation.

In the case of agricultural projects, it is a combination of the demand for a particular agricultural commodity and the availability of factors capable of meeting the demand for that particular commodity that dictate the project choice. In other words, if there is a demand for wheat in a particular market and wheat can be produced in the project area and sold at the demand point, a project for production of wheat becomes a rational choice. There may be demand for wheat in as much as an urge to sell wheat; however, if the climatic conditions of the project area do not permit wheat to be grown in the project area, obviously, the project planner has to identify some other project. Simplistic as it may appear, generation of project ideas and identification of projects are not straightforward exercises, as they call for a lot of imagination, an analysis of constraints and uncertainty.

Projects, more so social development projects, which have a strong people's orientation and involvement, have their origin in the following:

- ◆ Unsatisfied demands or needs of markets and possible means to meet them
- ◆ Problems or constraints in the development process caused by shortages of essential facilities, services, and material or human resources and by institutional or other obstacles
- ◆ Unused or underused material or human resources and opportunity for their conversion to more productive purposes
- ◆ Overused natural resources that need to be conserved or restored
- ◆ Need to complement other investments

Project ideas may also emanate from

- ◆ Initiatives by local private or public entrepreneurs who wish to take advantage of opportunities they perceive or who are responding to government incentives
- ◆ A government response to local political or social pressures originating, for example, from economic, social, or regional inequalities
- ◆ The pursuit of national objectives, such as self-sufficiency in food production
- ◆ The occurrence of natural events (drought, floods, or earthquakes)
- ◆ A desire to create a permanent local capability to carry out development activities by building up local institutions

Sometimes, project ideas come from the experiences of projects implemented successfully in some foreign countries or in the local context by a foreign agency/firm.

In the case of agricultural and agro-industrial projects, answers to the following questions may provide a lead for generation of ideas:

- ◆ **What is the land in the area capable of producing by cultivation? Or, what livestock can the fodder grown on this land support?**
- ◆ **Is there a demand for the commodity grown on this land either within the province or country or outside?**

- ◆ If there is no demand for the commodity that is grown at present, what other crop can the land support?
- ◆ What are the possible livestock products that can be made out of the livestock that the fodder grown on this land supports?
- ◆ Is there a demand for such products? If so, where? How much?
- ◆ If not, what other livestock product are possible? Is there a demand for such products? If so, where and how much?
- ◆ Are there new developments taking place in this area, in the or adjoining area, in the province or country which can change the pattern of demand for the commodities, products, livestock, their products?
- ◆ If so, what is likely to be the impact of such developments on the current agricultural practices?
- ◆ What are the national priorities in the agricultural and agro-industrial sectors set out in the policy documents of your country?
- ◆ What are the government-sponsored or government-supported activities in the area towards boosting the economy? What is the effect likely to be on the current agricultural practices?
- ◆ What is the level of exposure of farmers to new and emerging demands of markets and agricultural practices?
- ◆ What is the current level of income of farmers? Is the income adequate to provide them a decent and honourable living? If so, do the farmers aspire for higher standards of living? What are the natural attitudes of the farmers towards work and leisure? Will the farmers be prepared to put in additional effort to earn more to afford a higher standard of living?
- ◆ If the farmers do not have adequate income, what prevents them from earning? Do some natural forces perpetually work against them? Or, are the farmers reluctant to work hard? Or, are their agricultural production practices primitive? Or, are they exploited by unscrupulous traders and middlemen who do not provide them enough access to markets or market information?

- ◆ **What is the attitude of the farmers towards collective or co-operative ventures? Do they realise the potential benefits of co-operation? Or, do they see co-operatives as yet another form of exploitation?**
- ◆ **Do the farmers understand the meaning and importance of value addition? Do they know and appreciate the existence of far-off urban and semi-urban markets which value convenience foods, fashionable clothing, etc.? Do they have the innate urge to exploit the opportunities provided by changing lifestyles to enhance their income?**
- ◆ **What is the quality of the local leadership of the farmers – is it exploitative, supportive, well-meaning but ineffective, effective but selfish, etc?**

Answers to questions of the above type can provide a starting point for identifying the needs of farmers supported by agricultural co-operatives and of the needs of markets to be served by them and their production.

## CHAPTER 5

### ***Project Feasibility Report - An Introduction to Preparation And Data Requirement***

In this chapter, we shall look at the outline structure of a project proposal for submission to a financial institution or funding agency for approval. As mentioned in the previous chapter, a project should be:

- ◆ Technically, commercially, financially, economically, socially, culturally and legally viable
- ◆ Implementable and
- ◆ Bankable

Financial institutions and funding agencies all over the world have developed various project formats for application of financial assistance for projects. The formats are context-based; that is, the formats for the project proposals depend upon the nature of the projects, the kind of assistance sought, the project location, the kind of operations the financial institution or funding agency is involved in, etc. In the case of agricultural and agro-industrial projects, certain formats devised by the Food and Agricultural Organisation (FAO) appear to be comprehensive. A summary of the format is included at Annex 1.

The project format shown at Annex-1 can be filled only after a lot of data collection and analysis, including additional and supplementary investigations to confirm the data collected and the results of analysis. The preparation of a project is not a straightforward, linearly arranged task. On the contrary, it is a very highly reiterative process, in which additional inputs received in the course of project preparation lead to several changes in the contents of the report as well as the conclusions of analysis.

As a normal practice, project preparation follows the steps given below:

1. Generation of ideas
2. Initial screening of ideas
3. Preliminary feasibility of selected idea(s)
4. Plan for feasibility analysis
5. Market analysis
6. Technical analysis
7. Procurement analysis
8. Financial analysis
9. Economic analysis
10. Ecological analysis
11. Study of feasibility from other considerations such as political, cultural, social, legal, organisational, managerial angles
12. Preliminary implementation plan, including plans for creation of organisation, management structure training of personnel, construction and initiating operation of facilities
13. Identification of risk factors and evaluation of risk
14. Evaluation of feasibility
15. Preparation of funding proposal

The above steps are not sequential, nor are they fully concurrent. For example, certain ideas may be generated and some selected for preliminary feasibility. However, if none of the ideas is prima-facie feasible, the process starts all over with the need to generate ideas afresh. Similarly, an idea or concept which is short-listed on the basis of market considerations may turn out to be technically infeasible or financially non-viable; in such a case, the concept is abandoned and some other concept is chosen for study. In other words, the preparation of project reports is somewhat like a closed loop feedback control system in which the output of a phase or a few phases becomes the input for the previous phase as well as subsequent phases.

Since project preparation is an iterative exercise, it may be necessary to resort to more than one round of data collection. It would be a good idea to start the project preparation with available data collected from secondary sources (like published reports) and examine the concept so chosen for its viability; in the event the concept appears to be promising and viable, one may commission full-scale studies for collection of additional information through research methods.

How does one go about the preparation of an agricultural or agro-industrial project from nothing? As stated above, the first step is the generation of ideas, their screening and preliminary feasibility. In the previous chapter, we looked at certain questions which one could ask oneself for generation of project ideas and their screening. For a quick feasibility of the project, answers to the following questions are generally sought:

- ◆ What is likely to be the initial cost or investment of the project? What are the components that make up the cost? Are the costs likely to remain firm for at least a few months during which the project will be implemented?
- ◆ What is the output of the project? What will be the demand for the product? What will be the approximate selling price of the product? How much of the product may be sold?
- ◆ What are the operating expenses during the production and sales phase? For example, what will be the raw material cost, labour cost, overheads, transportation, etc., per unit of the product?
- ◆ What will be the life of the project and the products which will be created by the project? Is the product likely to be replaced during the life of the project by a new product due to technical advances, changing fashions, changing habits, lifestyles, etc.?
- ◆ What will be the support of the financial institutions for changing the course of the project due to changes in the market place?
- ◆ Who are the beneficiaries of the project? What will be the impact of the project on their income, standard of living, etc?



The above questions provide a lead for initial screening of project ideas which can become candidates for further investigation and study. The next logical step after the preliminary feasibility study, if the idea is feasible, is the development of a plan for conducting detailed feasibility. This step requires careful planning and co-ordination among the agencies involved in the various segments of project study. It would be beneficial to have a central project manager or leader to take care of the responsibility for planning the feasibility study and co-ordinating the various activities of the study. As this job involves a comprehensive understanding of the intricacies of the project and communicating the views of several specialists, the person chosen for its function has to have a broad knowledge of the project and several areas of technology and management. Further, since the outputs of the specialist agencies have to be integrated to meet the common objectives of the project, the person entrusted with the responsibility has to be a good negotiator also.

The above procedure is ideal for large sized, complex projects with investments in the order of millions of rupees or dollars. Most agricultural co-operatives generally do not undertake such mammoth projects; instead, they generally go in for small projects which cannot afford the luxury of a huge organisational set-up for project preparation. For small projects to be prepared by a middle level or senior level manager of an agricultural co-operative, the time for preparation of a project proposal is also not likely to be sufficient to allow collection of primary data. An easier, quicker and less costly way is to look at the issues in the project in the form of questions, seek their answers from published reports and discussions with colleagues, and arrange the answers in the form of a logically coherent project report. A large number of questions are enumerated below to assist you in this exercise. The questions are arranged in sections so that all related questions can be taken up together for investigation; their answers can provide the basis for a coherent section of the project report.

**A. Project Concept**

1. What is the project about? Is it for agricultural production or agro-processing or something else?
2. Why did you choose this concept?
3. What will the project create on completion of execution of the project facilities? Rice packed in polythene bags, fish in cans, fruit squash or something else?
4. What is the present status of the farmers involved in producing the inputs?
5. What will be their incomes / standards of living once the project is operational?
6. What is the demand scenario for the product? What is the growth in demand likely to be? Where is the demand?
7. What are the inputs for production? Where do they come from?

**Project Area**

1. Where is the project to be located?
2. What are the geographical features of the area? What are its climatic conditions?
3. What are the natural resources of the area? What are the special natural endowments? What is the quality / availability of water, rainfall, irrigation? What is the condition of the soil? Is it fertile or barren?
4. What is the population inhabiting the area? What is the population density? What are the main and secondary occupations of the population and their sources of income? How is the income distribution pattern among the population? If the income distribution is quite uneven, what are the reasons? What is the population of marginal and landless farmers? What is the population living below the poverty line?
5. What are the main crops? What are the secondary crops? What is the area of cultivation, in hectares and as a percentage of the land available? What is the pattern of crop rotation? How much of the agricultural production is consumed within the area and how much is sold, to whom and how?

6. What are the infrastructure facilities available in the area for connectivity - road, rail, port, nearest airport? What is the normal mode of transport of people and goods? How about power supply and how reliable? What are the telecommunication facilities?
7. Are there any facilities unique to agro-processing in the project area - cold storage, godowns, for example?
8. What is the general level of education of the people of the region in general and farmers and project beneficiaries in particular? What is the level of their awareness? What are the educational and health facilities in the project area?
9. How is the local administration in the project area? How strong and committed are the political and co-operative leaders of the area?
10. What is the level of motivation of the population of the area to succeed? How hard-working are the people? What is their attitude towards work and leisure?
11. Are there any agro-processing centres in the area? If so, what is it engaged in? Where does it get its inputs from? Are there other industrial units also?
12. What are the rural institutions in the area for banking, marketing, input supply, etc.?
13. Are there any other major or minor on-going projects of a similar or different nature in the project area? What is their status?
14. What is the extent of seasonality of production of agricultural crops?
15. Any other information relevant to the project?

A. Product

Start with market

1. What is the project designed/created to produce? Where did this idea come from? Is there a unit for the same or a similar product in the same or adjacent region? What is its experience with its products - acceptance by market, raw material availability, demand, price, cost of production and sale, profit?
2. What are the special features of the product - taste, smell, texture, packing, life, convenience, price, etc?
3. What is the expected demand for the product now? next year? five years hence?
4. Is the demand likely to change due to changes in fashion?

5. How is the demand currently met? What is the gap between the estimated supply and demand?
6. What are the new product development plans as a part of the proposed project?

**D. Markets and Marketing**

1. What are the markets the product is designed to serve? Are they local or overseas?
2. What is the estimated demand for the product and its competing products? How is it met at present? What is the gap between the estimated demand and supply for the product(s) planned for this project and its/their competing products?
3. What is the market segment this project is designed to serve - geographical, income, age, sex, occupation, family characteristics, level of education, etc.? Who are the other players in this segment? What is your expected market share? How sure are you of your estimate? Do you foresee some more competitors in the near/foreseeable future?
4. What are your competitive priorities built into the product / project - price, product features, quality, delivery lead time, product range? How do you plan to achieve these competitive priorities?
5. What is the distribution channel you are envisaging for your project? How does it compare with the channel for your competitors? What is the commission structure you have planned? How does it compare with that of your competitors?
6. What is your brand? How do you plan to cultivate brand among consumers?
7. What is the marketing communication scheme (advertising) you are envisaging for your product? How does it compare with that of your competitors?
8. What is the structure of your marketing set-up? How do you plan to make the structure responsive to market demand? How do you motivate and retain your sales force?
9. What is the proportion of marketing expenditure as a fraction of the final product price? How does your plan compare with the expenditure of your competitors?

10. What are your barriers to entry in the business? How do you plan to overcome them for your entry? How do you plan to exploit them for preventing the entry of your potential competitors in future?
11. What is the pricing strategy you have envisaged as a part of your project proposal? How does it compare with that of your competitors?
12. What is your fall-back solution in the event the demand does not pick up as per your plans? Do you have plans for development, production and marketing of other products which can be made from the same inputs and using the infrastructure with little or minor modifications?

***E. Processing Facilities and Technical Feasibility***

***E1. Location***

1. What is the area of site located for the project? In the case of agro-processing, how is the project site located in relation to the agricultural farms?
2. How far or near is the project site to the markets?
3. How far or near is the project site to the centres of supply of all inputs?
4. Is the project site located close to the main road?
5. Is the project site located near power feeders?
6. Is the project site too near living centres and is likely to disturb the lives of people living in nearby areas? Is it too far for employees/workers/managers to commute and work at odd hours?
7. How far is the nearest telephone exchange? Is the site located in such a way as to have adequate communication facilities?
8. Is the site close to nearby industries which provide inputs or support it?
9. Is the project site far from offices of government authorities whose permission it will be necessary to carry on the operations?
10. What is the level of security at the project site? Is too isolated?
11. Is there adequate water supply to the area and can water be drawn from existing water mains? If not, is there enough ground water which can be relied upon?
12. How is the terrain at the project site? Will there be a tendency for water to clog within or around the project site? Or, is there provision for natural drainage?

**E2. Availability of basic infrastructure**

1. Is the project area well-connected to markets through road, rail, sea, air? If not, is there provision for adequate intermediate storage of the finished goods during transit to the markets?
2. Is the project area served by basic infrastructure like
  - ◆ Adequate water supply
  - ◆ Adequate and uninterrupted, reliable and quality power supply
  - ◆ Communication facilities
  - ◆ Government offices
  - ◆ Banking and credit institutions
  - ◆ Educational institutions like schools, colleges etc.
  - ◆ Public libraries
  - ◆ Recreational facilities
  - ◆ Shopping facilities
  - ◆ Hotels, restaurants, etc.

**E3. Capacity**

1. What is the demand for the product(s) planned to be produced after completion of the project facilities?
2. How much is planned to be produced annually, daily, or seasonally?
3. Is the above capacity just adequate or is there a cushion built for future possible growth in demand?
4. Would it be advisable to take the capacity to a much higher level, even though at a higher initial investment, from the point of view of economy of operations?
5. In the event the demand does not pick up as planned, or if the marketing is not strong enough to offload the production, can the capacity be leased to some other agency? Or, can the capacity be used for other purposes?

6. In case the demand grows much beyond expectation, can the capacity be augmented by marginal investment on balancing equipment, without resorting to major modifications?

***E4. Processing Technology***

6. Is the technology of processing planned to be employed for the project a proven one? Or, is the technology under development and is yet to be proven?
7. Is it labour-intensive or capital-intensive?
8. If it is labour-intensive, is it possible to get the type of skill in the project area? Or, will it be possible to hire from some other area, trained labour, and retain the labour without too much of burden on the firm or on the society supporting the firm? In case the labour is hired from outside, does the project area provide the necessary living infrastructure?
9. If the technology of processing is capital-intensive, does it provide flexibility for change-over to other products? Or, will it be for a single line of production and become useless if there is no market for the product?
10. What is the extent of regular maintenance effort required for the upkeep of the plant? Is the technology such as to lead to stoppage of production due to frequent maintenance shut-downs?
11. What is cost of operation per unit volume of production for the various technology options? What is the criterion adopted for the choice of technology? Why is that criterion adopted?
12. Is the technology likely to be rendered obsolete in the near future? Or, is it likely to be replaced by a higher step which can be incorporated by minor modifications?
13. Does the technology of processing incorporate necessary provisions for safety of equipment and personnel, and does it control the discharge of effluents?
14. Where will the technology be sourced? What are the provisions in the project for purchase of hardware (viz., plant, machinery and equipment) and software (viz., drawings, design calculation, inspection procedures, operations and maintenance procedures, training of personnel), and adaptation of technology to local needs? Who will provide these? At what cost?

**E5. Quality**

1. What is the quality of output demanded by the market? What are the features which make your product different from that of your competitors?
2. Have you planned to have quality as your competitive priority? If so, what aspect of quality of the product will decide your competitive priority?
3. What are the mechanisms-physical and human - which you plan to install in the project to ensure consistency of quality of product?
4. What are the procedures planned for traceability of the product and recall in the event of defects?
5. What will be the pattern of inspection and sampling of inputs, finished goods and in-process goods?
6. What will be the structure of the quality control/quality assurance/inspection function? Will it be a separate department or will it rest with the individuals responsible for production at every stage?

**E6. Effluent Disposal/Treatment**

9. What is the extent or level of effluents created during processing? How is the effluent discharged?
10. How harmful or damaging is the effluent to the adjoining environment - air, water, soil?
11. What are the provisions made in the processing scheme to treat the effluent and discharge only harmless substances to the environment? What is the initial cost of the effluent treatment plant and what are the operating costs? Who will design and supply the effluent treatment plants?
12. Is the effluent rich in certain chemicals or products which may be economically recovered for being reused? If so, what is the scheme for recovery and what is its initial cost and what is the cost of operation?
13. Is the effluent treatment scheme certified and approved by the pollution control authorities?



**E7. Safety of operations**

1. Are there adequate safety provisions in the processing scheme to the land, buildings, equipment, personnel?
2. Has the soil been tested and approved for buildings?
3. Is the project site prone to seismic effects? If so, what are the precautionary measures adopted? How sound are they? Has their soundness been examined?
4. What is likely to be the impact of heavy rains or flood on the operations? Have sufficient provisions been made against possible adverse effects of heavy rains or floods or other climatic conditions?
5. Does the design of the buildings and other structures provide for adequate ventilation, lighting, heating, etc.? Are there sufficient emergency exits in case of electrical short-circuits, fire, etc.? Is there a sufficient number of fire extinguishers and water for control of fire?
6. If power-operated hoists, cranes and other material handling equipment like dumpers, bucket elevators are employed, has sufficient provision been made for safety of the personnel operating such equipment and those working in areas adjacent to such installations?
7. Is there a first-aid unit? Is an ambulance a part of the project scheme? Is there a panel of medical specialists whose services may be invoked on emergency? What is the tie-up with adjacent government hospitals or private hospitals for emergency cases?
8. In case of industrial accidents or sudden illness, is there an established procedure for attending to patients immediately?

**E8. Layout**

1. What is the basis for the layout design - minimisation of distance materials move, convenience, process flow scheme, aesthetics, maximum utilisation of space, good physical working condition, any others?
2. Does the layout provide for smoothness of operations, without too much of criss-crossing?

3. Does the layout provide for future expansion and possible modifications for new products?
4. Does the layout provide for sufficient security of goods/materials/personnel?
5. Does it provide for privacy for operations of the internal work force and insulate them from disturbances from outsiders like materials suppliers, sales personnel, people from other departments, etc?
6. Are there material receiving and finished goods despatching sections so located that they are adjacent to the processing sections and at the same time provide privacy to processing?
7. Does the layout eliminate the need for administrative personnel to interfere in day-to-day operations?
8. Does the layout provide for adequate communication facilities like telephones, fax, computers, etc?
9. Does the layout provide for adequate storage space within offices and within factory buildings, godowns, stores etc.?
10. Is there provision for security offices, control/monitoring of movement of vehicles, goods, personnel, etc.
11. Does the layout provide for basic amenities like water, toilet, etc., in a decent way?

**E9. Material Storage and Handling Facilities**

1. Is the material received on a daily basis or on a seasonal basis? What is the estimated quantity of raw materials and finished goods expected to be stored at any point of time? Is the quantity stored matched to market demand and input supply?
2. Has the capacity of the storage space been arrived at on the basis of realistic estimates of product demand and input receipts?
3. What are the special conditions required for storage – cold storage, heating, open ventilation, protection against rain and moisture, protection against insects and rodents, etc.? Have these been taken care of in the design of the storage systems and storage space?
4. Is there sufficient space around the storage space for the movement of trucks and other vehicles, without leading to congestion of vehicles or creation of traffic jams?

5. Is the storage space so designed as to allow stacking of the materials and their removal on a continuous basis without difficulty? Are necessary material handling systems built in as a part of the storage?
6. Have the required material accounting systems been designed? Is there provision for a materials accountant to operate from an independent office which forms part of the storage space?
7. How is the storage space insulated against natural calamities and man-made accidents, such as earthquake, fire, floods, rain, groundwater seepage, etc?
8. Is the lighting in the storage area adequate?

. **Procurement Feasibility**

1. What is the area of land supporting the planned venture?
2. What is the yield per hectare per year of the crop that becomes an input to your enterprise?
3. How much of the produce is consumed by the local population?
4. What are the alternative uses of the product, apart from its role as an input to your enterprise?
5. What are the current methods of procurement of the product?
6. What is the scheme you have envisaged for the procurement of inputs from the farms/farmers?
7. What is the price at which the farm produce is currently purchased by the vendors/middlemen, or what is the price at which the farmers sell their produce in the markets either individually or collectively?
8. Is there possibility of competition from private traders to your plant for procurement of the farm produce?
9. In the event the farmers are reluctant to sell their produce to you or it is not possible for you to procure from the farmers at reasonable prices, what are your fall-back options on temporary basis and on permanent basis? Will this practice go against the interest of the farmers for whom the co-operative venture has been set up? If so, what are your plans for educating the farmers and providing them remunerative prices?

10. How do you convince the farmers of the need for value addition through collective means?
11. How do you plan to collect the farmers and enlarge the membership of your co-operative, so as to make the project financially viable?
12. What are the facilities you intend providing as a part of the project to the farmers for harvesting, post-harvest storage and transport to the processing centre?
13. What are the terms of payment to the farmers?
14. What are the additional facilities and privileges that will be given to the farmers to boost their loyalty to their co-operative? Have these been envisaged as a part of the project? What is their cost?
15. How do you ensure quality of the farm produce? Will you have differential pricing schemes for acceptance of farm produce of different quality standards, so that farmers have a reasonable assurance of their produce being accepted?
16. What is the institutional mechanism envisaged as a part of the project for educating the farmers and providing them extension services so that they produce raw materials of the required type, quality and in the right quantity at the right time?
17. Does the project plan envisage providing inputs to the farmers, including arrangement of credit, on a mutually agreed basis?
18. Do the farmers feel that it is their institution and that they manage it through their elected representatives?
19. Does the project provide for holistic means by which the farmers are made to realise that the co-operative is theirs and that they should support it in times of adversity as well as of prosperity?

#### **A. Organisational viability**

2. How is the project planned to be managed right from its identification through different phases and during the benefits realisation/operations phase?
3. What is the structure of the organisation during the different phases?
4. What is the relationship, horizontal as well as vertical, among the various units and personnel during the different phases of the project? \*

5. What are the titles of people placed at different levels, what are their job description, responsibilities, and authorities? What are the educational qualifications and skills for different positions?
6. What is the compensation package, including perks, incentives etc.?
7. What is the system of rewards and correction?
8. How is the organisational pattern conducive to fast response to changing markets and surges in market demand in respect of product volume and product range?
9. How does the organisational design meet the higher needs of employees for affiliation to the organisation?
10. What is the plan of human resource development envisaged in the project?

### **B. Implementation Plan**

0. How is the project planned to be implemented during the execution phase?
1. Have the people/agencies for the execution of the various components been identified?
2. Who will be the person who will be designated as project manager to co-ordinate the work of these agencies?
3. Has the project manager been fully authorised to execute the various activities without frequent recourse to the higher management, so that the speed of execution is not hampered?
4. Has the information flow among the various agencies involved in the project been defined unambiguously in terms of time, quality, relationships?
5. Has the frequency of monitoring during execution been defined?
6. Has the project execution time been estimated with a fair amount of precision, taking into account possible contingencies for slippages?
7. Has a plan been evolved for evaluation during the benefits realisation phase?

. **Financial Viability**

**II. Initial Investment**

0. Find out the cost of the following items:

- ◆ Land
- ◆ Various buildings/civil works (estimate areas and unit rates)
- ◆ Plant and machinery for production/processing (list the various items and estimate their costs on the basis of budgetary quotation)
- ◆ Utilities (such as washeries, steam generators, stand-by power units etc.)
- ◆ Pollution control equipment
- ◆ Other items of plant and machinery, such as material handling systems, mobile units, etc.
- ◆ Office equipment, furniture, etc., including computers, modems, advance payments for licenses, etc.
- ◆ Technology transfer fees, license fees and similar charges for know-how transfer
- ◆ Charges/expenses for installation and commissioning
- ◆ Pre-operative expenses for trial runs, product launching, trouble shooting, recruitment, training of personnel, etc., to take the system to full-level operations
- ◆ Preliminary expenses, such as expenses associated with formation of co-operatives, collection of data, preparation of feasibility report, market surveys/research, membership drive, etc.
- ◆ Working capital margin
- ◆ Interest on term loans during the construction period
- ◆ Contingency

**(Participants may not be in a position to collect all the data, as some computations are involved; they are advised to collect all the basic data such as land requirement, building requirement, cost of plant and machinery, interest rates, etc. The basic data brought by the participants will be used to help them evolve the project.)**

## ***12. Operating revenues***

Find out/estimate the following:

- ◆ Demand for the product(s) during the various years of operation of the product
- ◆ Selling price and its range
- ◆ Possible revenues from sale of scrap
- ◆ Other possible incomes

## ***13. Operating Costs***

Find out/estimate the following:

- ◆ Cost of raw material per unit of the final product(s)
- ◆ Labour charges per unit of the final product(s)
- ◆ Salaries of supervisory staff
- ◆ Salaries of administrative staff and managerial staff, including their perks etc.
- ◆ Overheads such as
  - ❖ Power, electricity, lighting etc.
  - ❖ Water
  - ❖ Telephones
  - ❖ Conveyance/transport
  - ❖ Steam generation
  - ❖ Maintenance and spares
  - ❖ Welfare expenses
  - ❖ Other operating overheads like training expenses, office stationery, rent etc.
- ◆ Depreciation
- ◆ Interest on working capital
- ◆ Interest on long term funds
- ◆ Income tax
- ◆ Sales tax
- ◆ Other levies, taxes, etc.

#### **14. Other items**

Find out/estimate the following:

- ◆ Investors'/shareholders' expectation of dividend
- ◆ Limits of loan that may be sanctioned by local banks/financial institutions for projects
- ◆ Interest structure
- ◆ Working capital margin as a percentage of total working capital requirement, as stipulated by the banks in your area
- ◆ Interest on working capital loan charged by the banks

#### **15. Assumptions**

As you have seen by now, the amount of data required for project preparation is enormous. It will not be possible to arrive at realistic or even reasonable results in regard to project analysis without making a few assumptions, some of which may be critical to the success of the project. Such critical assumptions may become risk factors whose effect has to be assessed as part of the project analysis. It is advisable that all assumptions are listed and brought by you when you come for the training module at IRMA.





## CHAPTER 6

### ***Conclusion***

In the last few pages, the concept of a project was introduced, followed by an elucidation of the project life-cycle. Some preliminary procedures for project identification were also indicated. As you would have learnt by now, a project is very different from normal, day-to-day operations, meaning that they require large one-time investment which starts bearing fruits long after the investment is made. In day-to-day operations, managers are concerned with monthly or quarterly or annual profits and cash flows; in the case of projects, decisions on project selection are made on the basis of long term viability. Viable projects are ultimately managed on a day-to-day basis.

The preparation of projects, as you have now seen, is a highly dynamic and reiterative exercise which calls for continuous collection of a large amount of data and fitting the data into the project format. The tools and techniques for use of data will be discussed during the training programme to enable you to come out with a meaningful, viable, implementable and bankable project proposal.

**It will be necessary on your part to collect as much data as you can during the next few weeks so that you can succeed in this endeavour.** You may wonder where to collect all the data. Unfortunately, there is no hard and fast rule, nor a well-defined single source which provides all the data you will be looking for. In general, however, the following sources may be tapped:

- ❖ Various reports published by ministries of your government
- ❖ Reports published by the central bank of your country
- ❖ Reports of the local governments on the economic activities of your project area
- ❖ Annual and long-term plans prepared by various ministries of your government
- ❖ Annual and long-term plans prepared by local bodies

- ❖ Annual and long-term plans prepared by development banks in your project area
- ❖ Annual and long-term plans prepared by other development institutions of your project area
- ❖ Reports of the various chambers of commerce and industry of your project area
- ❖ Reports published by the World Bank
- ❖ Reports of the Food and Agriculture Organisation of the United Nations
- ❖ Any reports of survey conducted by other entrepreneurs
- ❖ Any report prepared by urea
- ❖ Local newspaper reports, especially those relating to economic events
- ❖ Popular business magazines and business journals published in your country
- ❖ Public speeches of politicians, bureaucrats, civil servants, and dignitaries
- ❖ Discussions with your colleagues in your organisation
- ❖ Discussions with your friends in other organisations
- ❖ Discussions with university professors, research workers, newspaper editors and reporters of your region

Reference to project reports prepared by earlier batches of the ICA/Japan Training Programme for Strengthening Management of Agricultural Cooperatives in Asia.

**As you can see, the list is long and it is a formidable task to collect the data. If the data are collected sincerely, half the project preparation is over. A quick perusal of the two project reports included as Annexes to this manual will help you further in your thought process.**

**BEST WISHES!**

## ANNEXE-1

**A SUGGESTED COMPREHENSIVE FORMAT FOR  
AGRICULTURAL/AGRO-PROCESSING INVESTMENT PROJECTS (WITH  
SPECIAL REFERENCE TO AGRICULTURAL COOPERATIVES)**

| Chapter Number | Title/Sub-Title/Brief Outline  | Suggested No. of Pages |
|----------------|--|------------------------|
|                | Acknowledgements   | 01                     |
| ✓01            | <b>Executive Summary and Conclusions</b><br>(Brief synopsis of the essential elements of the proposal)   | 04                     |
| ✓02            | <b>Introduction</b><br>- How/Methodology adopted;<br>- By whom the project has been prepared;<br>- Origin of the proposal;<br>- Purpose of the project report; and,<br>- To whom it is addressed.  | 01-02                  |
| 03             | <b>Background</b><br>Key features: political, economic & demographic;<br>a. The agricultural sector;<br>b. Income distribution and poverty;<br>c. Development policies and social objectives;<br>d. Institutions and services;<br>✓ e. Ongoing and proposed projects; <i>388</i><br>✓ f. Cooperative development situation;<br>✓ g. Brief description of the cooperative (Objectives, organisational structure, activities and its economic situation) | 05-06                  |
| ✓04            | <b>The Project Area, its People and Development Potential</b><br><br>[A] Natural Resources<br><br>- Location<br>- Climate<br>- Geology, Soils, Topography & Land Use<br>- Potential<br>- Water, power and other Resources  | 05-10                  |

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|    |     |  |       |
|----|-----|--|-------|
|    | [B] | The Economy and the People                                 |       |
|    | -   | The Local Economy  |       |
|    | -   | The People   |       |
|    | [C] | Agriculture and the Sustainability of Natural Resource Use |       |
|    | -   | Land Use and Farming Systems                               |       |
|    | -   | Sustainability of Natural Resource Use                     |       |
|    | -   | Technologies   |       |
|    | [D] | Rural Institutions and Infrastructure                      |       |
|    | -   | Input Supply   |       |
|    | -   | Produce Marketing  |       |
|    | -   | Processing   |       |
|    | -   | Infrastructure   |       |
|    | -   | Administration, Services & Farmers' Organisation           |       |
|    | [E] | Projects and Ongoing Development Programmes                |       |
| 05 |     | <b>Project Rationale and Design Consideration</b>          | 03-06 |
|    | [A] | Project Rationale/Context                                  |       |
|    | [B] | Design Considerations                                      |       |
|    | -   | Project Location   |       |
|    | -   | Target Population  |       |
|    | -   | Scale  |       |
|    | -   | Components   |       |
|    | -   | Choice of Technical Strategy + Technology                  |       |
|    | -   | Organisational Arrangements                                |       |
| 06 |     | <b>The Project</b>   | 05-08 |
|    | [A] | General Description  |       |
|    | -   | Overall and Immediate Objectives                           |       |
|    | -   | Brief Summary of Each Main Component                       |       |
|    | -   | Costs and Phasing  |       |
|    | [B] | Detailed Features  |       |
|    | -   | Inputs (in brief)  |       |
|    | -   | Processing   |       |
|    | -   | Marketing  |       |
|    | -   | Financial (in brief)                                       |       |
|    | -   | Others (legal, social, cultural, political situation)      |       |

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|    |  |       |
|----|--|-------|
|    | [C] Project Implementation Plan  |       |
|    | - Implementation Schedule  |       |
|    | - Phasing of Resources and Benefits  |       |
|    | [D] Cost Estimates   |       |
|    | [E] Financing  |       |
|    | [F] Procurement  |       |
| 07 | <b>Organisation and Management</b>   | 04-08 |
|    | [A] General Aspects including Linkages   |       |
|    | [B] Technical Co-operation and Training  |       |
|    | [C] Specific Aspects   |       |
| 08 | <b>Agricultural Development, Production,<br/>Financial Results and Relationship with Agricoop<br/>Development Policies</b> | 04-06 |
|    | [A] Nature of Technical Changes  |       |
|    | [B] Impact on Individual Producers   |       |
|    | [C] Adoption Assumptions + Risk Perceptions  |       |
|    | [D] Tests for Sensitivity  |       |
|    | [E] Impact at Project Level  |       |
| 09 | <b>Market Prospects and Prices</b>   | 03-04 |
|    | [A] Markets and Marketing  |       |
|    | [B] High Consumption Locations   |       |
|    | [C] Warehousing & Transportation   |       |
| 10 | <b>Benefits, Risks and Sustainability</b>  | 03-06 |
|    | [A] Overview   |       |
|    | [B] Economic Benefits and Costs  |       |
|    | [C] Risk and Sensitivity Analysis  |       |
|    | [D] Impact on Income Distribution and<br>Poverty Alleviation   |       |
|    | [E] Environmental Impact and Technical<br>Sustainability   |       |

9. Financial Evaluation

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|    |  |       |
|----|--|-------|
| II | <b>Commitments, Issues and Follow-up Actions</b> | 03-04 |
|    | [A] Commitment of the Co-operative               |       |
|    | [B] Commitment of the Government                 |       |
|    | [C] Commitment of Financial Institutions         |       |
|    | [D] Issues                                       |       |
|    | [E] Follow-up Action                             |       |

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**Total Pages of the Main Project Report**

**(Roughly 70-75 Pages)**

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**ANNEXURES**

- [I] Location Map
- [II] Related Government Policies
- [III] Commitment Resolution of the Co-operative
- [IV] Financial Calculations
- [V] Other relevant support material

**ELEVENTH ICA/JAPAN TRAINING COURSE  
FOR STRENGTHENING MANAGEMENT OF  
AGRICULTURAL COOPERATIVES IN ASIA**

***INDIA, SRI LANKA AND JAPAN***

**4th November 1996 to 20th April 1997**

|                      |   |  |
|----------------------|---|--|
| Title of Project     | : | Modifications & Development of the Rice Processing Unit (Mill) |
| Country              | : | Sri Lanka  |
| Project Prepared by: |   | R.K.A. Sunil Jayasinghe  |

**FUNDED BY THE GOVERNMENT OF JAPAN  
(Ministry of Agriculture, Forestry & Fisheries)**

and

**Executed by the ICA in collaboration  
with its Member Organisations  
*in India, Sri Lanka and Japan***



**ICA Management Training Project for Agricultural Cooperatives in Asia**

**INTERNATIONAL COOPERATIVE ALLIANCE**

*Headquarters:*

15 Route des Morillons  
CH-1218, Grand Saconnex  
Geneva, Switzerland.

*Regional Office for Asia & Pacific:*

"Bknow House"  
43 Friends Colony (East)  
New Delhi-110065, India.





ABBREVIATIONS

66/50/08

- MPCS - Multipurpose Co-Operative Society Limited
- KMPCS - Kundasale Multipurpose Co-Operative Society Limited
- PMB - Paddy Marketing Board of Sri Lanka
- NEM - North East Monsoon
- SWM - South West Monsoon
- BDD - Board of Directors
- GB - General Body
- CDF - Co-Operative Development Fund



## CONTENTS

|   | Page |
|---|------|
| Acknowledgements  | - 01 |
| <b>Chapter 1</b>  |      |
| Introduction  | - 02 |
| 1.1 Introduction to KMPCS   | - 03 |
| Objectives  | - 03 |
| Organizational Structure  | - 03 |
| Activities  | - 04 |
| 1.2 Agricultural background of the area of operation of the KMPCS | - 05 |
| <b>Chapter 2</b>  |      |
| 2.1 Project area  | - 06 |
| 2.2 Background of the existing rice mill                          | - 06 |
| <b>Chapter 3</b>  |      |
| 3.1 Government Policies   | - 07 |
| 3.2 Problems faced by the farmers                                 | - 06 |
| 3.3 Factors constraining the growth of paddy production           | - 08 |
| 3.4 Need & Justification of the project                           | - 08 |
| <b>Chapter 4</b>  |      |
| 4.1 Objectives  | - 10 |
| 4.2 Area of operation   | - 12 |
| 4.3 Procurement of paddy  | - 12 |
| 4.4 Standards   | - 14 |
| 4.5 Steps of processing from procurement to storage of rice       | - 15 |
| <b>Chapter 5</b>  |      |
| Marketing   | - 16 |
| 5.1 Local Demand  | - 16 |
| <b>Chapter 6</b>  |      |
| Farm development  | - 18 |
| <b>Chapter 7</b>  |      |
| Details of operation  | - 19 |
| <b>Chapter 8</b>  |      |
| 8.1 Organization & Management functions                           | - 21 |
| 8.2 Classification of Management                                  | - 21 |
| 8.3 Requirements of human resources                               | - 22 |
| 8.4 Financial Analysis  | - 23 |
| 8.5 Total Investment of the Project                               | - 23 |
| <b>Chapter 9</b>  |      |
| Recommendations   | - 24 |



## A C K N O W L E D G E M E N T

I am privileged to be one of the participants of the 11<sup>th</sup> ICA Japan Training Course for strengthening Management of Agricultural Co-Operatives in Asia. Knowledge and experience gained from the training programme is of immense use to me as an executive in the managerial level in planing and execution of activities related to Agriculture.

It was a golden opportunity to associate my fellow participants of the other Asian countries and share our experiences and views during the period of training on various disciplines.

I wish to place on record my sincerest appreciation of the services rendered by the officials of the training programme.

My sincere thanks are due to Dr. Daman Prakash, Project Director ICA ROAP and Mr. A.H.Ganasan, Programme Officer and their staff who assisted me in many ways for a successful and progressive training programme.

Last, but not, least, I have to express my gratitude to Mr. Lionel Samarasinghe Hon. President and Staff of the National Co-Operative Council of Sri Lanka, Hon. President and the Board of Directors of the Kundasle Multipurpose Co-Operative Society Ltd.

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Finally, I thank every body who blessed and helped me in all my efforts.

R.K.A. Sunil Jayasinghe  
Kundasle Multipurpose Co-Operative Society Ltd.,  
Menikhinna, Sri Lanka  
February 1997.

## CHAPTER 1

## 1. Introduction

Paddy cultivation, being the livelihood of most of the people in the rural sector and also for minimisation of rice imports to save the valuable foreign exchange, it plays a vital role in our economy. Out of the total population of 18 million 1.8 million farmers are engaged in paddy cultivation, this is 10% of the total population. From a meal of rice Sri Lankans get 45% - 40% of calories and protein respectively in their nutritional requirements. To become self sufficient in our staple food and to protect it well, paddy cultivation and rice production is of prime importance in Sri Lanka.

In 1957 the area under paddy cultivation was 0.487 ha. and in the year 1993 it developed up to 0.835 ha. amounting to an increase of 74% under cultivation. This was mainly due to the accelerated Mahaweli Diversion programmes bringing 139,229 ha. of land under paddy. This is 40% of the total increase. However it is important to mention that 66% of the cultivation takes place during the Maha season (NEM) and 34% during the Yala season (SWM).

During the last one and half decades there had been several important changes took place due to the total cultivated area becoming larger and also by development and utilization of new technologies in seed paddy and fertilizers. During the last 18 years the rice requirements of the country increased by 35% while the population increased by 39%.

By the year 2000 our population would grow up to 20 millions. Therefore our rice requirements will be gradually increased to 212237 Mtt.

At present our total annual requirement of rice is approximately 18,60,000 Mtt. We produce only 13,50,000 Mtt and the rest is imported. The main consumer item sold by the 292 MPCSS in Sri Lanka is rice and the quantity of rice marketed

(3)

through these societies branch net work is approximately 20300 Mtt. a month and it's value amounts to around Rs. 3500/= million. These requirements are either procured through private millers or from the private sector, a very little, is being now purchaed from the state sector and the co-op sector. The figures given above clears that rice production is of utmost importance in our economy. Under the circumstances any proposal pertaining to rice production in Sri Lanka is very impotant.

**Background of the Kundasale Multipurpose co-operative society Ltd.**

### 1.1 INTRODUCTION TO KMPCS.

Multi purpose Co-Operative Society Ltd. Kundasale is situated in the beautiful Dumbara Valley of the Central Hills in the District of Kandy in the Central province of Sri Lanka. This was registered under the Co-op Act. of the Govt. on the 28<sup>th</sup> January 1971 with the amalgamation of 24 Consumer Societies to coincide with the major reorganization took place in the year 1971.

### OBJECTIVES

The prime objective of the KMPCS is promotion of the economic interest of the member in accordance with Co-Operative principles and the encouragement in member on the spirit to promote the Co-Operative movement.

### ORGANIZATIONAL STRUCTURE

According to the bye Laws of the MPCS. the structure of the organization starts from the grass root level of the members at the branches who elect their committee and the committee elects their president and the secretary and also the representatives to the General Body. At the meeting of the General Body once in three years elects their president and the Vice President. The General Manager is the Chief Executive of the MPCS and under him comes the rest of the sectional heads, monitoring staff and the rest on various sections of the organization.



## ACTIVITIES

The activities undertaken by the MPCs fall under four main streams. The Consumer service section, Thrift and Credit facilities, production and the Agriculture service and Education and Training.

## CONSUMER SERVICES

There are four wholesale units and 45 branch outlets including the super market complex with 2 fuel filling stations, a Hardware shop and special branches. The 45 branch outlets are scattered in the area of operation mainly dealing with the consumer items.

## TRANSPORT SECTION

Transport section possesses 4 lorries, a tractor and a van for transport services.

## FILLING STATIONS

There are two Fuel filling stations located in the area of operation.

## THRIFT AND CREDIT SERVICES

The above services are rendered to the membership and also to the non-members through five Rural Banks and 22 approved branch units serving the remote rural areas. Credit needs of the farming community are met through those rural banks.

## PRODUCTION AND AGRICULTURE SERVICES

Under the above, there is a paddy mill, a chillie and curry powder processing mill and a cement blocks manufacturing unit. Supply of inputs, Credit facilities and arranging for marketing the produce and direct purchases of the produce are handled here.

## EDUCATION AND TRAINING

Continuous programmes are conducted for the members, school children, youths, women identified commodity groups and for the employees.

(5)

Thus under those activities the farmer members gain benefits by buying their consumption needs at the rural level on cash or on credit at cheaper rates, also getting their inputs required for farming including credit facilities and marketing their produce to the MPCs or through arranged markets. Training programmes conducted to this community for increased productivity enhance their farm income.

Additional activities, creation of lucrative markets for the farm produce, educating the member sufficiently on minimising the wastage of the produce during harvesting, packing, storing and transport would enhance their income. Creation of recreation and welfare activities and developing a favourable socio economic environment would lead towards a prosperous life of the member farmer.

## 1.2 AGRICULTURAL BACKGROUND OF THE AREA OF OPERATION OF THE KMPCS

The land area of the area of operation of the KMPCS is 21645 acres (83.50 sq.km) and the land utilization is as follows)

|                          |   |  |
|--------------------------|---|--|
| Cultivated land          | - | 12177 acres                                    |
| Cultivable land          | - | 5681 acres                                     |
| Utilized for Housing     | - | 1760 acres                                     |
| Uncultivable land        | - | 1017 acres                                     |
| Paddy lands              | - | 3957 acres                                     |
|                          |   | <i>(Rainfed 2518-minor irrigation 1439)</i>    |
| Tea                      | - | 577  |
| Rubber                   | - | 06   |
| Coconut                  | - | 795  |
| Minor export crops       | - | 6842   |
| Reservations             | - | 65 acres                                       |
| Rainfall(annual average) | - | 85"  |
| Temperature              | - | 78°F   |
| Soil                     | - | redish loam, Redish brown and yellow podsolic. |

## CHAPTER 2

### 2.1 PROJECT AREA

Project area is mainly confined to the area of operation of the KMPCS. Production of paddy and availability of surpluses with farmers in the area is insufficient to feed the rice mill. Therefore procurement of required amount of paddy has to be done from outside the area of operation of the project. The rice mill or the processing unit is situated about about 4 kilo meters away from the main office of the society in a village called Napana.

### 2.2 BACKGROUND OF THE EXCISTING RICE MILL

KMPCS has a rice mill with a milling capacity of 10000 kgg of rice per an eight hour shift. It has a floor capacity of 250 sq.mtrs. in two buildings including the stores, machinery unit and the office; three soaking tanks and drying floor. Machinery unit carries to combine rubber hullers with a polisher.

This mill was setup in the year 1971 with the view to produce par boiled rice with two stone discs hullers and a polisher with a combined boiler and a dryer. This combined boiler and the dryer which was turned out by the Industrial Development Board of Sri Lanka was found ineffective with in a shorter period. Hence the KMPCS had to abundaned the whole process and had to go in for raw rice production.

The buildings consist of three units, 1 separate stores for storage of paddy, the huller and the polishing unit and the rice stores in two sectioned buildings. At the middle of the year 1996, old hullers were replaced with two combined rubber roll hullers.

The work force consists of a manager, Machine operator and eight labour units.

Pre cleaners sieve aspirator or separators or graders were not installed. Separation of small stones etc. is done by manual sieving. Hence steaming and drying process do not take place the soaking tanks and the drying floors are abundaned.

## CHAPTER 3

### 3.1 GOVERNMENT POLICIES

It is proposed to increase the yield by 4.5 Mtt. per ha. by improving the cultivation methods and practices to meet the existing demand within a short period of time.

They are as follows :-

- (A) to increase the supply of seed paddy of the long term varieties from 4%-10%.
- (B) preservation of small tanks, utilization of underground water and by extending extension and education programmes on water management and there by intensifying the cultivation of paddy.
- (C) minimising the cost of production by adopting the following cultural practices.
  1. integrated pest control
  2. intergraded management practices, utilisation of carbonic manure and putting paddy straw back to the fields to minimize usage of potash.
  3. by using straight fertilizer insted of fertilizer mixtures and to use fertilizers depending on the results of the analized soil samples.
  4. by timely supply of water from minor and major irrigation systems.
  5. by organising Agri.exetention service.
- (D) By monitoring research and development activities on breeding of rice varieties suiting to various agro, ecological and climatic conditions.
- (E) Paddy storage, Processing and marketing to be made more systematic and recommend the following strategies:-
  1. continuence of the excisting paddy procurement process through PMB.
  2. steps to be taken for the farmers to bent more towards bank loans under easy lending systems.

(8)

3. responsibilities to be given to the farmer organizations in the process of storage, processing and marketing, also to supply input services and credit facilities through farmers organization and farmer groups.
4. to encourage production of value added products such as rice flour and specially to produce rice products that could be easily used by the Urban sector.
5. to study how to reformulate the subsidy schemes effected in the importation of wheat flour under the GAT. agreement in the future.

### 3.2 PROBLEMS FACED BY THE FARMERS.

Paddy production and the yield per ha. remains stagnant during the period of 1984-92. Average yield per ha. was around 3.5 Mtt. Although the experiences gained in the past was not promising, it is not difficult to increase the level of yield per ha. to 4.5 Mtt. Required integrated research on this has to be launched immediately.

Factors constraining the growth of paddy cultivation

- I. Decrease in production intensity.
- II. Insufficient supply of certified seed paddy
- III. Non cultivation of long term varieties ( 4 1/2 months)
- III. High cost of production and low income.
- IV. Poor marketing facilities.

### NEED AND JUSTIFICATION OF THE PROJECT

At present the MPCSS engaged in agricultural activities do not significantly engaged in processing agricultural produce. Hence there is no interrelationship either with the farmers or with the institutions in the area of processing. In the District of Kandy carrying a production of 80000 Mtt. of paddy carry only two rice mlls including KMPCS. Out. of the 21 MPCSS. in the district.

The total requirement of rice, marketed through the branch outlet net work amounts to approximately 2000 Mtt. a month.

(9)

Requirements of the neighbouring few societies are around 2500 Mtt. a year. This shows that there is a large potential alone in the co-op sector for rice, leaving the private sector a side.

Rice consumption pattern and the selectiveness of the consumer varies. Steamed rice fetches a big demand than any other varieties.

The demand for steamed rice in the area of operation is also great and the consumer would get their requirements of rice at a reasonable price in comparison to the private dealers and they will be benefited simultaneously with the farmer who sells his paddy to the MPCS at a better price. Exploiting the available resources, the existing paddy mill and its machinery and manpower putting into a better usage and thereby increase the productivity by using most modern technologies justify the proposed project.

CHAPTER 4

4.1 OBJECTIVES

- i. to diversify and develop the existing paddy mill increasing the productivity to make the rice processing unit a lucrative business enterprise.
  - ii. to utilize existing resources to maximise production.
  - iii. to supply quality table rice to the consumer at a reasonable price.
  - iv. to create a better marketing incentive for the paddy farmer to enhance their farm income.
- 
- i. To diversify and develop the existing paddy mill increasing the productivity to make the rice processing unit a lucrative business enterprise.

The project aims at generating an increased income for the KMPCS. Being the only MPCS. carrying a paddy mill in the district has a great potentiality as steamed rice is a fast moving commodity with a high demand in the market. Hence it is the high time to modify and diversify the rice processing unit to compete with the private sector millers. It is also very important that the KMPCS strengthens the production unit as the trends of competition escalates with varieties of rice, specially for steamed rice. This is done in addition to the processing of white and brown raw rice which is being done now.

- ii. To utilise existing resources to maximise production.

The paddy mill of the KMPCS is one of the important production units in their whole business and the present position was discussed under the project area in a previous page.

The available infrastructures and other resources available at present are not utilised by the KMPCS. This is identified as a wastage of valuable resources. Therefore this project plans for utilising them to the maximum production capacity.

- iii. To supply quality table rice to the consumer at a reasonable price.

At the present time, even in the rural areas consumers are very selective. In the rural sector steamed rice and raw white rice is consumed and the consumption of steamed rice is greater than the other varieties. Also the quality, taste, the colour, aroma, purity without any foreign bodies like sand and mud particles, moisture etc. are other factors concerned.

The demand for steamed rice in the area of operation of the KMPCS through the existing branch outlets alone amount to 50 Mtt. leaving the private dealer sales aside.

It is very closely observed that the price is the most important factor and also the price of a kilogram of rice is mostly controlled in rural areas by the price that of the MPCSS. The local dealers are very observant on the price of the rice sold at the Co-op. branches and decide on their selling price. This is a very significant indirect impact on the rice price. There for a reasonable price to the consumer is assured.

- iv. To create a better marketing incentive for the paddy farmer to enhance their farm income.

Price is the prime factor in any agricultural commodity. It is a known fact that the marketing of agricultural produce is not well organized for the benefit of the farmer either by the state sector or by the co-operative sector. This fact stands true with the paddy farmer too. This occurs very often at the time of harvesting periods and the price too come down by 20% or more.

During these periods private sector monopolizes in the paddy growing areas and the price paid to the farmer is low. PMB of Sri-Lanka too purchases paddy but their participation is insignificant in comparison to the private sector.

During the last few years cost of production of paddy shot up with the high cost of labour and other inputs. This became a hindering factor retarding the paddy farmer and also the yield per ha.



Takning all these into consideration a lucrative price for the farmer with a better and organized marketing system by the KMPCS. would create an incentive and this will enhance their farm income.

#### 4.2 AREA OF OPERATION

The project would cover the entire area of operation of the Kundasle MPCCS.

As the production in this area is hardly sufficient it is proposed to cover the following neighbouring areas. The extent under paddy cultivation and estimated production are shown below :-

| Electorate    | Average Hactares | Production Mtt. |
|---------------|------------------|-----------------|
| Kundasale     | 437              | 1268            |
| Madadumbara   | 1323             | 2628            |
| Udadumbara    | 2088             | 13317           |
| Pathadumbara  | 845              | 2095            |
| Harispathtuwa | 1184             | 2990            |
| Minipe        | 4489             | 16946           |
| Total         | 10366            | 39244           |

(source :- Agri.Dev. Proposals of Kandy District-1996/97)

#### 4.3 PROCUREMENT OF PADDY

During the last few years the KMPCS procured its requirements for raw rice production from among the members and also from outside areas. Rice producing areas coming under the Mahaweli development schemes are in the boundary of the district at a distance of approximately 40 Kmm. The estimated paddy production in those areas is 39244 (Agro development proposals 92/96) during both the seasons of the year.

Purchases proposed as follows :-

- i. Direct purchase from the farmer.
  - ii. procured from other MPCSS.
  - iii. From private dealers.
- 
- i. Direct purchases to be effected from the members of the KMPCSS. Other producers and also from other neighbouring areas or districts keeping to the terms and conditions laid down by the BDD of the KMPCS.
  - ii. There are several number of MPCSS. operating in the district of Kandy who collect but do not process. Also there are several MPCSS adjoining rice producing areas who procure paddy but they too do not process. These societies are potential suppliers to the KMPCS. Procurements through this system make matters easy as several procedures and redtape do not arise.
  - iii. As experienced in the past procurement through private dealers who supply direct to the mill was found easy and better. The purchasing to be done on competitive basis keeping to tender procedures and also keeping to the terms and conditions laid down by the BDD.

Required quantities of paddy to be purchased from any of the above sources keeping to the targets laid down. Prices will vary from variety to variety and also on the quality.

Transport of purchased paddy outside the rice mill to be handled by the fleet of lorries of the KMPCS.

#### 4.4 Standards

Standards laid down on the quality at the time of purchase of paddy are as follows:-

| No | Characteristics | Grade |      |      |      |
|----|-----------------|-------|------|------|------|
|    |                 | 1     | 2    | 3    | 4    |
| 1. | Moisture        | 14.0  | 14.0 | 14.5 | 15.0 |
| 2. | Impurity        | 0.5   | 1.0  | 1.0  | 2.0  |
| 3. | Varietal Mix.   | 1.0   | 3.0  | 7.0  | 10.0 |
| 4. | Damaged grains  | 0.5   | 2.0  | 5.0  | 7.0  |
| 5. | Refraction      | 0.5   | 2.0  | 3.0  | 4.5  |

Production of quality rice suiting to the consumer needs could be achieved by procurement of quality paddy on the above standards.

Targetted quantity to be procured annually is 3120 Mtt.

General characteristics considered in purchasing are given below:-

1. Shape and size
2. Variety/Varietal mixing
3. Moisture
4. Impurities
5. Weight
6. Refraction
7. Damaged grains
8. chalky grains
10. Sunchced grains

#### 4.5 STEPS OF PROCESSING OR MILLING ( STEAMED RICE)

Milling means process of converting paddy into palatable rice.

The process is divided into 3 main steps.They are as follows:-

1. Cleaning, soaking & drying
2. Husking or seperating
3. Polishing or aspirating and grading

*(The Machanism is not discussed here in details as further studies has to be done on most modern machinery and technology suiting to the 21<sup>st</sup> century).*

## STEPS OF PROCESSING FROM PROCUREMENT TO STORAGE OF RICE

| PROCUREMENT   | QUALITY CONTROL  | 3120000 KGG   |
|---------------|------------------|---|
| Paddy storage | do               | Maximum for 2 months  |
| Pre cleaning  | do               | Before soaking  |
| Soaking       | do               | for 48 hours  |
| Drying        | do               | Time depeneds on the<br>avalibility of sunlight<br>4 hours in the dryer |
| Milling       | do               |   |
| Polishing     | do               | Continuous process  |
| Grading       | do               |   |
| Baging        | QUANTITY CONTROL | Before marketing  |
| Storing       |                  |   |

## CHAPTER 5

## MARKETING

## Demand

Following figures shows the estimated demands for rice, local production and the inportation from 1984 yo 1993.

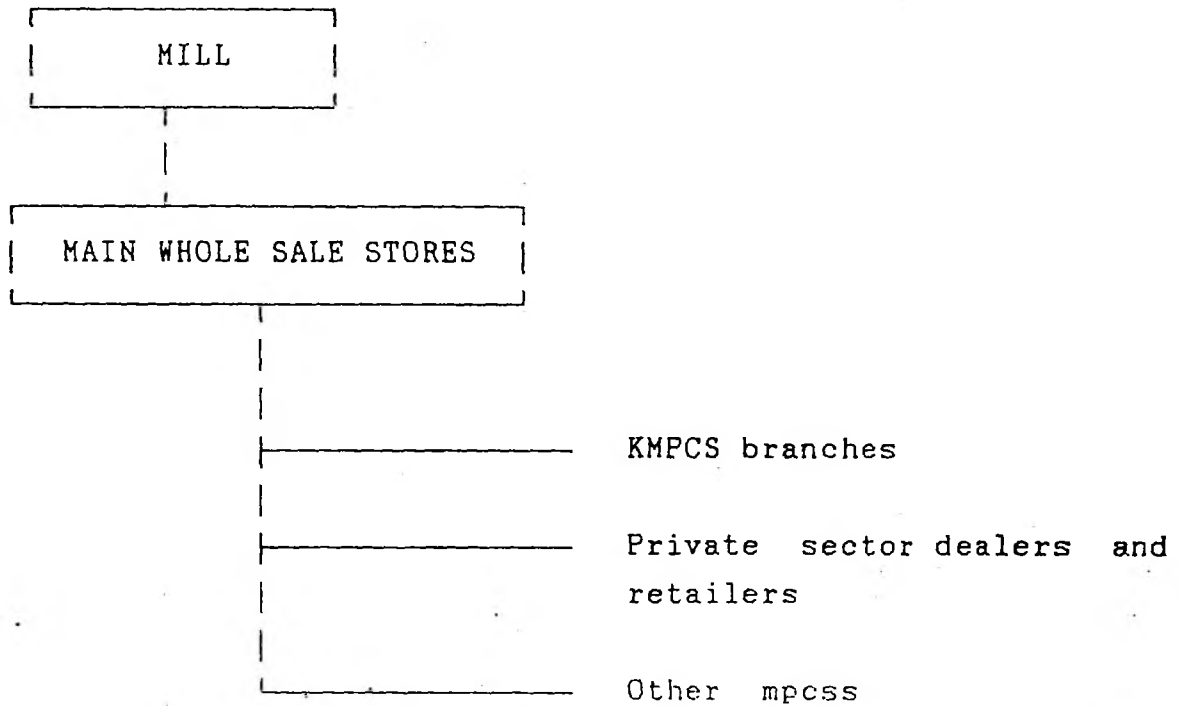
| Year | Estimated requirement | Produced Locally | Imported | Impo. % of the estimated requirments |
|------|-----------------------|------------------|----------|--------------------------------------|
| 1984 | 1617                  | 1414             | 20       | 1.41                                 |
| 1985 | 1642                  | 1571             | 177      | 11.27                                |
| 1986 | 1671                  | 1525             | 211      | 13.84                                |
| 1987 | 1696                  | 1252             | 80       | 6.39                                 |
| 1988 | 1719                  | 1461             | 194      | 13.28                                |
| 1989 | 1742                  | 1271             | 148      | 11.64                                |
| 1990 | 1761                  | 1899             | 117      | 6.16                                 |
| 1991 | 1788                  | 1410             | 133      | 9.43                                 |
| 1992 | 1804                  | 1381             | 237      | 17.16                                |
| 1993 | 1882                  | 1519             | 209      | 13.76                                |

(Current requirments have gone up and impotations incersed by 20% in the year 1996)

## 5.1 Local Demand

KMPCS alone requires 50 Mtt. of steamed rice a month exclusive of the private sector requirements. Total requirements of the neighbouring KMPCSS are in the region of 200 Mtt. monthly exclusive of the private sector dealers, whole sellers or retailers. Proposed quantity of rice to be produced for a period of 10 years is 20280 Mtt. valued at Rs.365040000/= estimated to a monthly income of Rs.256500/=.

Marketing is planned as shown in the following figure



As the demand for the steamed rice is so big in the district and the KMPCS being situated centrally in district estate a very lucrative market is possible by producing quality rice essentially keeping to the consumer requirements.

## CHAPTER 6

## FARM DEVELOPMENT

*(Support services and supply of inputs)*

Under this, a complete package of inputs and services have to be launched to increase the production per unit of land in the area of operation of the KMPCS objectively for enhancing the farm income as follows:-

1. Supply of recommended seed paddy
2. Supply of fertilizer
3. Supply of agro. chemicals.
4. Credit facilities .
5. Organisation of an effective marketing system
6. Education and training.

### 1. Supply of recommended seed paddy.

This is to be handled in coordination with "Govijana Kendra" (Agri services centres) and farmer organizations found in the areas coinciding with the programmes of the Agrarian service Dept. and the Agriculture department.

#### Varieties of seed paddy

Varieties of seed paddy recommended for the area to be supplied in co-ordination with the agrarian services Dept. And the Agriculture Dept. through the Farmer organizations.

Varieties recommended for the area are mostly BG (Bathalagoda) varieties.

### 2. Supply of fertilizer

Fertilizer required for the farmers is to be directly purchased by the KMPCS. stored and made available to the farmer in time through the "Pradeshikas" i.e. branches as straight fertilizers recommended by the departments concerned.

## CHAPTER 7

### DETAILS OF OPERATION

Project aims at a production of 6500 Kgg. of rice a day and as such requires 10,000 Kgg. of paddy with a milling percentage estimated to 65% rice. Procurement and storage is discussed on a previous page.

An effective procurement program could procure the required quantities and stored during the two seasons . i.e. NEM and SWM

#### Storage

Storage facilities are available on the godowns at the paddy mill and there is no necessity to put up new buildings for storage of paddy and processed rice. The capacity of the godowns in two stores is 360 sq.mtt. (in clean stores).

Processed rice to be sent to the main wholesale division of the KMPCS where sales are effected. Bulk loads to be sold at the stores in the mill. Hence the storage life is a little shorter.

#### Pricing

Pricing basically depends on the cost of production, marketing trends and also on climatic conditions.

In Sri Lanka prices vary, very often depending on the harvesting seasons in various areas.

Another important factor on the price is the varieties namely "Samba" round white rice, "Nadu" brown bold rice raw white & brown rice and steamed rice.



(20)

In the year 1996 price of rice rose up by 70%. At the end of the year 1996 Govt. had to allow importation of rice due to the shortages in the local production to meet the demand and also to curb, the heavy prices on rice in the open market. Shortages in production was mainly due to prolonged drought which hampered the paddy cultivation in most parts of the country.

With the importation, price of rice gradually came down and today (Feb.97) the average price dropped down by 20%

There are several factors related to the pricing of rice and therefore pricing have to be done accordingly by getting adjusted to excsisting environments.

## CHAPTER 8

### 8.1 ORGANIZATION AND MANAGEMENT FUNCTIONS

#### POLICY DECISION

Initially the Project Proposal has to be Planned and discussed at the Rice Mill Committee appointed by the BDD and the that committee has to submit a comprehensive report with their recommendations and that to go before the General Body for approval. There after it becomes an approved policy to go ahead with organisation. Then the BDD of the KMPCS is there to draw up a work plan, find out the financial resources. Staffing to be considered and direct and monitor the project.

### 8.2 CLASSIFICATION OF MANAGEMENT

Rice Mill Management should be monitored by the sub Committees appointed by the BDD of the KMPCS

The sub Committees are as follows:-

1. Rice Mill Project Committee
2. Agricultural Committee.

Functions of the Committees to be defined by the BDD

#### BOARD OF DIRECTORS

BDD will Function according to the bye laws and the working rules laid down and approved by the GB. Of the KMPCS. Hence those functions are not discussed here. But they will define the functions of the Agricultural and the rice mill project committees.

#### RICE MILL COMMITTEE

1. to study the rice mill project proposal in details and monitor its working.

2. to study the project plan and recommend on the procurement of machinery and allied equipment.
3. recommendations on the manpower requirements in coordination with the General Manager and the manager of the rice mill.
4. procurement of paddy and recommending on the price paid to the farmer.
5. to recommend on the price of rice.
6. reporting on the progress to the BDD.

#### AGRICULTURAL COMMITTEE

1. to coordinate with Departments & Institutions concerned.
2. to coordinate with the farmer organizations.
3. preparation of estimates on the requirements of inputs such as seed paddy fertilizer etc.
4. coordination with the rice mill committee
5. to report on progress to the BDD

#### 8.3 REQUIREMENT OF HUMAN RESOURCES.

One Manager

One accounts assistant

One machine operator

Two security personnel

Three labour units (in addition to the existing labourers at the rice mill)

#### 8.4 FINANCIAL ANALYSIS

Financial analysis are based for a period of ten years and assumptions are made as follows:-

1. Fixed assets purchased during the first year of operation assumes a service life of ten years.
2. Depreciation is calculated by the stright line method
3. Proposed bank loan requirement for the project is 65% of the total invesments payable with in a period of ten years.
4. Loan interst at 15%.
5. Tax calculated at 20%
6. All the data and other informations pertaining to the project report were colleted from various departments, and institutions and also experienced with discussion had with personnel concerned in the proposed field.

#### 8.5 TOTAL INVESTMENT OF THE PROJECT

The total project invesment cost is estimated to Rs. 30.18 million.

Required funds for the project is as follows:-

| Source                       | Amount                     | Remarks       |
|------------------------------|----------------------------|---------------|
| 1. From the Co-Op Dev. fund  | Rs. 708000 <sup>0</sup> /= | 15% interest  |
| 2. Socity funds of the KMPCS | Rs. 2128000/=              | interest free |
| Total                        | Rs. 9208000/=              | -             |

~~Rs. 2836000~~

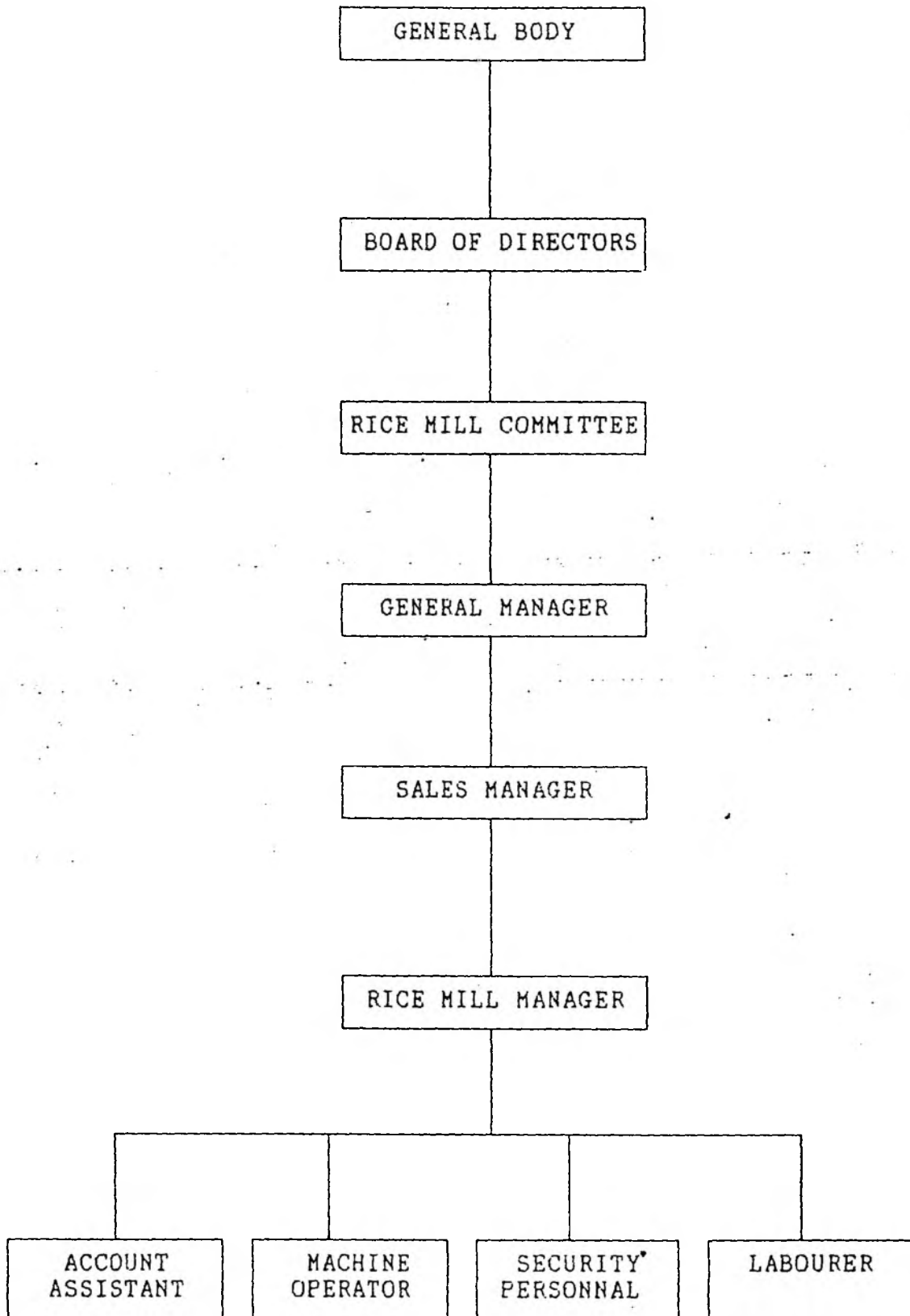
CHAPTER 9

RECOMMENDATIONS

1. Establish a Rice Mill Committee comprising of two members from the BDD, a technical personnel on rice processing, Manager of the KMPCS's Rice Mill and an Account personnel.
2. The Rice Mill Committee to study the project Report in details and make their recommendations to the BDD on the strengthening of infrastructural facilities required for the purpose and on the financial viability of the whole project.
3. The BDD. to obtain the consensus of the General Body and arrange for necessary financial provision and also the approval of the Commissioner of Co-Operative Developments.
4. The BDD to draw up a time plan for the implementation of the proposal and also to provide the required human resources.
5. Machinery and other equipment to be purchased by consulting the experts of the PMB. and the Industrial Development Board.

The Rice Mill Committee and the BDD in the whole process should keep to the Govt. policies laid down for incensed rice production.

ORGANIZATION OF THE RICE MILL WILL BE ORGANIZED AS SHOWN ON THE FOLLOWING CHART



## National Rice Production Standardss

## Row Rice

| Characteristics    | Grade   |      |      |      |
|--------------------|---------|------|------|------|
|                    | Special | 1    | 2    | 3    |
| 1. Moisture (Max)  | 14.0    | 14.0 | 14.0 | 14.0 |
| 2. Residues "      | 0.2     | 0.5  | 1.0  | 1.5  |
| 3. Colour Mix "    | NIL     | 2.0  | 6.0  | 10.0 |
| 4. Damaged grain " | NIL     | 1.0  | 2.0  | 4.0  |
| 5. Broken grain "  | 10.0    | 20.0 | 35.0 | 45.0 |
| 6. Paddy seeds "   | NIL     | 10.0 | 30.0 | 50.0 |

## Steamed Rice

| Characteristics    | Grade   |      |      |      |
|--------------------|---------|------|------|------|
|                    | Special | 1    | 2    | 3    |
| 1. Moisture (Max)  | 14.0    | 14.0 | 15.0 | 15.0 |
| 2. Residues "      | 0.2     | 0.5  | 1.0  | 1.5  |
| 3. Colour Mix "    | 0.2     | 2.0  | 6.0  | 10.0 |
| 4. Damaged grain " | 0.5     | 2.0  | 4.0  | 3.0  |
| 5. Broken grain "  | 1.0     | 5.0  | 15.0 | 20.0 |
| 6. Paddy seeds "   | NIL     | 10.0 | 25.0 | 25.0 |

## Loan Repayment Schedule

| YEAR  | INTEREST | PRINCIPLE<br>REIMBURSE | LOAN<br>LEFT | REMARKS                     |
|-------|----------|------------------------|--------------|-----------------------------|
| 1     | 1062000  | 708000                 | 6372000      | interest 15%<br>for a year. |
| 2     | 955800   | 708000                 | 5664000      |                             |
| 3     | 849600   | 708000                 | 4956000      |                             |
| 4     | 743400   | 708000                 | 4248000      |                             |
| 5     | 637200   | 708000                 | 3540000      |                             |
| 6     | 531000   | 708000                 | 2832000      |                             |
| 7     | 424800   | 708000                 | 2124000      |                             |
| 8     | 318600   | 708000                 | 1416000      |                             |
| 9     | 214200   | 708000                 | 708000       |                             |
| 10    | -        | 708000                 | -            |                             |
| Total | 5734800  | 7080000                |              |                             |



Calculation of Management and Administration costs  
( One year )

| No | Particulars          | Monthly salary | Amount  | Remarks       |
|----|----------------------|----------------|---------|---------------|
| 1. | Manager              | 5000           | 60000   | 5000 x 12     |
| 2. | M/ Operator I        | 4500           | 54000   | 4500 x 12     |
| 3. | Account Assistant    | 4000           | 48000   | 4000 x 12     |
| 4. | Security I           | 2000           | 24000   | 2000 x 12     |
| 5. | Security II          | 1500           | 18000   | 1500 x 12     |
| 6. | Labour Units 3       | 2000           | 72000   | 2000 x 3 x 12 |
|    | Paddy Mill committee |                |         |               |
| 1. | Chairman             | 2000           | 12000   | 1000 x 12     |
| 2. | Secretary            | 500            | 6000    | 500 x 12      |
| 3. | Committee members    | 500            | 12000   | 500 x 2 x 12  |
|    |                      |                | 306,000 |               |

Depreciation cost  
(One year)

| S  | Item                             | Unit | Dep/cost  | Remarks                      |
|----|----------------------------------|------|-----------|------------------------------|
| 1. | Paddy Cleaner                    | 01   | 6000      | Straight line method         |
| 2. | Electirc Motors                  | 02   | 4000 x 1  |                              |
| 3. | Huller                           | 02   | 20000 x 2 | Depriciation                 |
| 4. | Seperator                        | 01   | 10000     | Rate 10%                     |
| 5. | De stoner                        | 02   | 25000 x 2 | $\frac{125000 \times 2}{10}$ |
| 6. | Rice polisher 2                  | 01   | 12500     | $\frac{125000 \times 2}{10}$ |
| 7. | Stéem Boiler                     | 01   | 80000     | $\frac{800000 \times 2}{10}$ |
| 8. | Dryer                            | 01   | 67500     | $\frac{675,000}{10}$         |
| 9. | Furniture and office equipmentes |      | 15000     | $\frac{150,000}{10}$         |
|    | Total                            |      | 2400000   |                              |

Details of Fixed costs

## Appendix II

| No. | Item                                     | Amount  | Remarks         |
|-----|--|---------|-----------------|
| 1.  | Salaries                                 | 306000  | Regular workers |
| 2.  | Loan interest                            | 1062000 | 7080000 x15%    |
| 3.  | Depreciation                             | 240000  |                 |
| 4.  | Insurance Premium                        | 100000  | Premium         |
| 5.  | Repairs & maintenance                    | 300000  | 2500 x 12 month |
| 6.  | Telephone & Communication                | 20000   | 1666 x 12 month |
| 7.  | Sales promotion                          | 24000   | 2000 x 12 month |
| 8.  | Other overheads (Tea,snaks, stationary). | 24000   | 2000 x 12 month |
| 9.  | Contingencies                            | 52000   | -               |
|     | Total                                    | 2128000 |                 |

Details of variable cost

## Appendix III

| No. | Item           | Amount   | Remarks            |
|-----|----------------|----------|--------------------|
| 1.  | Raw materials  | 28080000 | Kgg 260000 x12x9   |
| 2.  | Gunney bags    | 150000   | Each @10/= x 15000 |
| 3.  | Electricity    | 120000   | Units 48000x 2.50  |
| 4.  | Wages          | 100000   |                    |
| 5.  | Transport cost | 202000   | 01 cent per killo  |
|     | Total          | 28652000 |                    |

## B.E.P (Capacity)

| Amount      | Remarks                      |
|-------------|------------------------------|
| 2128        | Fixed cost                   |
| <u>7852</u> | <u>Sales - Variable cost</u> |
| 27.10%      |                              |

## Details of Machinery and Fixed Assets

## Appendix I

|    | Classification                       | Units | Unit Price | Amount  | Remarks |
|----|--------------------------------------|-------|------------|---------|---------|
| 1. | Paddy Cleaner                        | 01    | 60000      | 60000   |         |
| 2. | Electric Motar                       | 02    | 20000      | 40000   |         |
| 3. | Huller                               | 02    | 100000     | 200000  |         |
| 4. | Seperartor                           | 01    | 100000     | 100000  |         |
| 5. | Destoner                             | 02    | 125000     | 250000  |         |
| 6. | Rice Polisher                        | 01    | 125000     | 125000  |         |
| 7. | Steem boiler                         | 01    | 800000     | 800000  |         |
| 8. | Dryer                                | 01    | 675000     | 675000  |         |
| 9. | Furnitures &<br>office<br>equipments |       |            | 150000  |         |
|    | Total                                | -     | -          | 2400000 |         |

## Investment of the Project

The Total Project Cost estimated at RS.33.18 millions

|    | Classification                | Amount   |       | Remarks          |
|----|-------------------------------|----------|-------|------------------|
|    |                               | Quantity |       |                  |
| 1. | Fixed Assets                  | -        | 2400  | See appendix I   |
| 2. | working capital<br>fixed cost | -        | 2128  | See appendix II  |
|    | Variable cost                 | -        | 28652 | See appendix III |
|    | Total                         |          | 33180 |                  |

## Requirement of Capital

|    | Classification                               | Amount |   |                 |
|----|--|--------|---|-----------------|
|    |  |        |   |                 |
| 1. | Fixed Assets                                 | 2400   | - | See appendix I  |
| 2. | Fixed cost                                   | 2128   | - | See appendix II |
| 3. | Raw material<br>requirements for<br>2 months | 4680   | - | 260000 x 2 x 9  |
|    | Total  | 9208   |   |                 |

Cost of raw material is calculated only for the 1<sup>st</sup> 2 month as the rice produced could be soled and utilize those proceeds for effecting purchases thereafter.

## Calculations of working Capital

| Item                       | Amount   | Remarks                |
|----------------------------|----------|------------------------|
| Operational Expenses       |          |                        |
| Salaries                   | 308000   | Regular Employee       |
| Other fixed cost ?         | 760000   |                        |
| Depriciations              | 240000   | Assets 10%             |
| Insurance                  | 100000   | Premium                |
| Repairs/Main exp           | 300000   | 2500 x 12 months       |
| Telephone/communication    | 20000    | 1666 x 12 months       |
| Promotional expences       | 24000    | 2000 x 12 months       |
| Other overheads exp.       | 24000    | 2000 x 12 months       |
| contingencies              | 52000    |                        |
| Other variable cost        | 28652000 |                        |
| Raw materials <u>4.P30</u> | 28080000 | (Kgg. 260000 x 12 x9)  |
| Gunny bags                 | 150000   | each @ 10 x 15000 bags |
| Electricity <u>4.P30</u>   | 120000   | units 48000 x 2.50     |
| Wages                      | 100000   |                        |
| Transport cost             | 202000   | 01 cent per killo      |
| Working cap required       | 29718000 |                        |
| Loan from CDF              | 7080000  | 15%                    |
| Interston w/capital        | 5734800  |                        |

## Cash Flow of the Project

| Year | Inflow        |               | Out flow        |            | Net cash Flow |
|------|---------------|---------------|-----------------|------------|---------------|
|      | Sales Revenue | Salvage Value | Capital expedi. | Total cost |               |
| 0    | 36504         | -             | 33180           | -          | 33180         |
| 1    | 36504         | -             |                 | 30780      | 5724          |
| 2    | 36504         | -             |                 | 30674      | 5830          |
| 3    | 36504         | -             |                 | 30568      | 5936          |
| 4    | 36504         | -             |                 | 30461      | 6043          |
| 5    | 36504         | -             |                 | 30355      | 6149          |
| 6    | 36504         | -             |                 | 30249      | 6255          |
| 7    | 36504         | -             |                 | 30143      | 6361          |
| 8    | 36504         | -             |                 | 30037      | 6467          |
| 9    | 36504         | -             |                 | 29930      | 6574          |
| 10   | 36504         | -             |                 | 29718      | 6786          |
|      | 365040        |               | 33180           | 3002915    | 95305         |

(Note : Sales revenue = 2028 x 18 = 36504)

## Cost Analysis

The annual Expenses will be classified to the variable cost and fixed cost.

| Year | Variable cost | Fixed cost | Total | Remarks       |
|------|---------------|------------|-------|---------------|
| 1    | 28652         | 2128       | 30780 |               |
| 2    | 28652         | 2022       | 30674 | variable cost |
| 3    | 28652         | 1916       | 30568 |               |
| 4    | 28652         | 1809       | 30461 | fixed cost    |
| 5    | 28652         | 1703       | 30355 |               |
| 6    | 28652         | 1597       | 30249 |               |
| 7    | 28652         | 1491       | 30143 |               |
| 8    | 28652         | 1385       | 30037 |               |
| 9    | 28652         | 1278       | 29930 |               |
| 10   | 28652         | 1066       | 29718 |               |



## Cash Flow Analysis

| Year | Net cash Flow<br>P.B.D.T | Accumilated cash flow |
|------|--------------------------|-----------------------|
| 01   | 33180                    | - 33180               |
| 02   | 5724                     | - 27458               |
| 03   | 5830                     | - 21626               |
| 04   | 6043                     | -15690                |
| 05   | 6149                     | - 9647                |
| 06   | 6255                     | + 3498                |
| 07   | 6361                     | + 9118                |
| 08   | 6467                     | +15579                |
| 09   | 6574                     | +22153                |
| 10   | 6786                     | + 28939               |

Payback period = 5 years and 7 months

(37)

Internal Rate of Return (I.R.R)

|              | Year | Cost | DR.10% | DCF   | DR.20% | DCF   |
|--------------|------|------|--------|-------|--------|-------|
| Initial Cost |      | 450  | 1.0    | (450) | 1.0    | (450) |
| Cash Flow    | 1    | 100  | 0.909  | 91    | 0.833  | 83    |
|              | 2    | 200  | 0.826  | 165   | 0.694  | 139   |
|              | 3    | 100  | 0.751  | 75    | 0.579  | 58    |
|              | 4    | 100  | 0.683  | 68    | 0.483  | 48    |
|              | 5    | 220  | 0.621  | 137   | 0.402  | 88    |
|              | -    | -    | -      | +86   | -      | (34)  |

$$\text{Lower Discount Rate} + \frac{\text{NPV Lower of D/R} \times \text{Defference of D.R.}}{\text{NPV of Lower Rate} - \text{NPV higher Rate}}$$

$$= 10\% + \left[ \frac{86 \times 20\% - 10\%}{86 - (-34)} \right]$$

$$= 10\% + \frac{86 \times 10}{52} = \text{IRR } 17.59\%$$

*Should have been at closer interval!*

## SENSITIVITY ANALYSIS

|    | Assumption       | PayBack<br>Period | NPV<br>000(RS) | IRR<br>% | BEPC<br>% |
|----|------------------|-------------------|----------------|----------|-----------|
| 1. | ORIGINAL         | 5.7               | + 17915        | 17.59    | 27.10     |
|    | Price of Inputs  |                   |                |          |           |
|    | 10% incerse      | 7.2               | + 16363        | 11.66    | 46.90     |
|    | 10% decrease     | 5.2               | + 19229        | 11.96    | 8.50      |
| 2. | Price of Outputs |                   |                |          |           |
|    | 10% increase     | 7.5               | + 19982        | 14.20    | 18.50     |
|    | 10% decrease     | 5.7               | + 16532        | 11.93    | 46.94     |

## Present Value of cash flow

| Year | Cash Flow | 15%<br>Discount | Present value<br>cash flow | Accumulated<br>cash flow |
|------|-----------|-----------------|----------------------------|--------------------------|
| 0    | 33180     |                 |                            | 33180                    |
| 1    | 30.78     | .870            | 26.78                      | + 30502                  |
| 2    | 30.67     | .756            | 23.19                      | + 28183                  |
| 3    | 30.57     | .656            | 20.11                      | + 26172                  |
| 4    | 30.46     | .572            | 17.42                      | + 24430                  |
| 5    | 30.36     | .497            | 15.09                      | + 22921                  |
| 6    | 30.25     | .432            | 13.07                      | + 21614                  |
| 7    | 30.14     | .376            | 11.33                      | + 20481                  |
| 8    | 30.04     | .327            | 9.82                       | + 19499                  |
| 9    | 29.93     | .284            | 8.50                       | + 18649                  |
| 10   | 29.72     | .247            | 7.34                       | + 17915                  |
|      | 63472     | -               | 15265                      | + 17915                  |

N.P.V. = + 17915

Name:

Roll No.

OYP/PRM:

SECTION:

PAGE NO.

| SL.NO. | DETAILS                         | YR. 0 | YR. 1 | YR. 2 | YR. 3 | YR. 4 | YR. 5 | YR. 6 | YR. 7 | YR. 8 | YR. 9 | YR. 10 |
|--------|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
|        | Telephone/communication         |       | 20    | 20    | 20    | 20    | 20    | 20    | 20    | 20    | 20    | 20     |
|        | Promotion cost                  |       | 24    | 24    | 24    | 24    | 24    | 24    | 24    | 24    | 24    | 24     |
|        | Overheads Ex                    |       | 24    | 24    | 24    | 24    | 24    | 24    | 24    | 24    | 24    | 24     |
|        | Contingency                     |       | 52    | 52    | 52    | 52    | 52    | 52    | 52    | 52    | 52    | 52     |
|        | Sub Total                       |       | 826   | 826   | 826   | 826   | 826   | 826   | 826   | 826   | 826   | 826    |
|        | Profit Before Bank              |       |       |       |       |       |       |       |       |       |       |        |
|        | Loan/Dep/tax (P.B.L.D.T)        |       | 7026  | 7026  | 7026  | 7026  | 7026  | 7026  | 7026  | 7026  | 7026  | 7026   |
|        | Less                            |       |       |       |       |       |       |       |       |       |       |        |
|        | Interest                        |       | 1062  | 956   | 850   | 743   | 637   | 531   | 425   | 319   | 212   | -      |
|        | Profit before Dep/Tax (P.B.D.T) |       | 5964  | 6070  | 6176  | 6283  | 6389  | 6495  | 6601  | 6707  | 6814  | 7026   |
|        | Less                            |       |       |       |       |       |       |       |       |       |       |        |
|        | Depreciation                    |       | 240   | 240   | 240   | 240   | 240   | 240   | 240   | 240   | 240   | 240    |
|        | Profit before tax (P.B.T)       |       | 5724  | 5830  | 5936  | 6043  | 6149  | 6255  | 6361  | 6467  | 6574  | 6786   |
|        | Tax 20%                         |       | 1145  | 1166  | 1157  | 1209  | 1230  | 1251  | 1272  | 1293  | 1315  | 1357   |
|        | Profit after tax (PAT)          |       | 4879  | 4664  | 4749  | 4834  | 4919  | 5004  | 5089  | 5174  | 5259  | 5429   |

**Profit Analysis**

Name:

Roll No.

OY/PRM:

SECTION:

PAGE NO.

| SL.NO. | DETAILS                 | YR 0 | YR 1  | YR 2  | YR 3  | YR 4  | YR 5  | YR 6  | YR 7  | YR 8  | YR 9  | YR 10 |
|--------|-------------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1      | Rice production (KG)    |      |       |       |       |       |       |       |       |       |       |       |
|        | YALA                    |      | 1014  | 1014  | 1014  | 1014  | 1014  | 1014  | 1014  | 1014  | 1014  | 1014  |
|        | MAHA                    |      | 1014  | 1014  | 1014  | 1014  | 1014  | 1014  | 1014  | 1014  | 1014  | 1014  |
| 2      | Total production        |      | 2028  | 2028  | 2028  | 2028  | 2028  | 2028  | 2028  | 2028  | 2028  | 2028  |
|        | Sales Revenue           |      | 36504 | 36504 | 36504 | 36504 | 36504 | 36504 | 36504 | 36504 | 36504 | 36504 |
|        | Total Revenue(2028x 18) |      | 36504 | 36504 | 36504 | 36504 | 36504 | 36504 | 36504 | 36504 | 36504 | 36504 |
|        | Less                    |      |       |       |       |       |       |       |       |       |       |       |
| 3      | Variable cost           |      |       |       |       |       |       |       |       |       |       |       |
|        | Raw materials           |      | 28080 | 28080 | 28080 | 28080 | 28080 | 28080 | 28080 | 28080 | 28080 | 28080 |
|        | Gunney Bags             |      | 150   | 150   | 150   | 150   | 150   | 150   | 150   | 150   | 150   | 150   |
|        | Electricity             |      | 120   | 120   | 120   | 120   | 120   | 120   | 120   | 120   | 120   | 120   |
|        | Wages                   |      | 100   | 100   | 100   | 100   | 100   | 100   | 100   | 100   | 100   | 100   |
|        | Transport cost          |      | 202   | 202   | 202   | 202   | 202   | 202   | 202   | 202   | 202   | 202   |
|        | Sub Total               |      | 28652 | 28652 | 28652 | 28652 | 28652 | 28652 | 28652 | 28652 | 28652 | 28652 |
|        | Less                    |      |       |       |       |       |       |       |       |       |       |       |
| 4      | Fixed cost              |      |       |       |       |       |       |       |       |       |       |       |
|        | Salaries                |      | 306   | 306   | 306   | 306   | 306   | 306   | 306   | 306   | 306   | 306   |
|        | Insurance               |      | 100   | 100   | 100   | 100   | 100   | 100   | 100   | 100   | 100   | 100   |
|        | Repairs/ maintenance    |      | 300   | 300   | 300   | 300   | 300   | 300   | 300   | 300   | 300   | 300   |