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Lecture No.1

Farm management-definition, nature, characteristics and scope

Farm is an independent business unit. Generally the owner farmer manages the farm. In India there are 83.7 million marginal farms (< 1.0 Ha), 23.9 million small farms (1.0 - 2.0 Ha), 14.1 million semi medium farms (> 2.0 - 4.0 Ha) and 6.3 million medium farms (> 4.0 - 10.0 Ha) and 1.09 million large farms (> 10 ha). Horticulture farms are farms where predominantly horticultural crops such as fruits, vegetables, flowers, spices, medicinal and aromatic plants, plantation crops etc., are grown and income from these crops account for the major share of the gross revenue generated from the farm. Farmer applies various resources (natural and manmade) in the farm with the objective to cultivate crops and manage agricultural allied enterprises and generate maximum profit from the economic activity. In this lecture the concept, farm management, its nature scope and characteristics are explained

Definition

i. Johl and Kapur defined farm management as a rational resource allocation proposition more particularly from the point of view of an individual farmer.

ii. Gray defines farm management as the art of managing a farm successfully, as measured by the test of profitability.

So, farm management involves allocation of limited resources among various enterprises in the farm with the objective of maximizing farm profit.

Resources

- Resources: Inputs which are used in the production process to produce an output are called resources in farm management. Eg: - Seeds, fertilizer, pesticide, labour, capital, etc.
- Resources may be fixed or variable, flow or stock and natural or manmade.
- Fixed resources: Level of some resources is fixed irrespective of the level of enterprise(s) taken up. These are known as fixed farm resources eg: - machinery, implements, buildings.

- Variable resources: Level of some resources varies with the level of enterprises taken up and efforts to increase productivity. These resources are called variable resources. Eg:- fertilizer, seeds, etc.
- Flow resources: In these resources, if their services are not used, at present it cannot be stored. Eg: (i) if the services of labour are not used today it cannot be stored for tomorrow (ii) Sunshine.
- Stock resources: These resources, if not used in one production period, it can be stored for a later period. Eg:- Seed, fertilizer etc.

Nature and Characteristics of Farm Management

i. Farm is a firm: As in any business, some resources are used for production in the farm and maximize net revenue from the farm. Micro-Economics principles applied for managing a firm is applied for efficient management.

ii. Risk management: Crop and livestock production is a biological activity, which is influenced by many uncontrolled natural factors such as rainfall, temperature, wind etc. Fluctuation in market price for harvested produce is also common. Therefore farm management has to tackle both production and marketing risks.

iii. Maximize profit: Farming is the livelihood of farmers. The net income generated from the farm should be able to meet the consumption, savings and investment needs of the farm family. Hence the major objective of the farm management is to maximize profits from various activities in the farm.

iv. Applied Science: scientific principles in business management, crop management, crop protection, environmental science etc., have to be applied for effective management of farm activities to maximize profit from the farm.

v. Integration of enterprises in the farm: Crop cultivation, milch cows, goat, sheep, poultry, and silkworm rearing, bee keeping, etc., are some of the enterprises commonly observed in the farms. These enterprises have to be integrated by using the output / residues from one enterprise as input for the other (eg: fodder for cattle and cow dung as manure). This integration has to happen in a scientific

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manner looking at the farm in a holistic manner, with focus on economic efficiency.

vi. Generalist: Farm manager has to be a generalist who should be aware of technical aspects of crop cultivation and a business manager with skills in negotiation, marketing, human resource management, financial management etc.

Scope of Farm Management

The subject of farm management includes farm management research, teaching and extension.

(a) Farm Management Research

There are several issues for consideration of farm management research.

Sustainability: Farm has to earn profits during the short term and the long term. Hence there is greater attention on devising methods for ensuring sustainable farm profits.

Farm mechanization: Labor shortages are likely increasing in future. Hence research focus is on identifying activities in the farm which could be mechanized and developing farm machineries that suit India's predominantly small and marginal farms.

Managing risk and uncertainty: Research is undertaken to arrive at optimum enterprise combinations that would minimize risk and maximize profits.

Farm planning: Resources at the farm are limited. Some of them are purchased, hired or available in the farm. Farm plans have to be prepared considering the limited resources, range of crop and allied activities that could be undertaken, technologies that could be implemented and mainly the market requirements. Several planning tools are available to prepare farm plans considering integrated farming systems.

(b) Farm Management Education

The major focus of Farm management education is to equip students with knowledge and skills required for being an efficient farm manager. This includes preparation of farm resources inventory and farm layout, understanding market needs, farm planning and budgeting, resource mobilization, implementation of farm plans,

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monitoring and control. The students are trained to analyze the alternatives and decide the course of action. Micro-economics principles, natural and human resource management, financial management and accounting, are covered in farm management.

(c) Farm Management Extension

Various methods of technology transfer are the main focus of farm management extension. Traditionally, farm management extension has concentrated on integrated farming system and use of improved varieties and technologies to maximize productivity. Now a days, in addition to these, the emphasis is on market oriented agriculture, post harvest management and farm level processing, maintaining food safety and quality standard at farm level to facilitate exports, organic farming, group farming (farmers commodity groups - collective decision making) and protected horticulture.

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Questions

1. Inputs which are transformed into outputs in the production process. (True / False).

   Ans: True

2. _____ is a fixed resource (Fertilizer, Pesticide, Seed, Tractor).

   Ans: Tractor

3. _____ is a flow resource (herbicide, wind, pheromone, plough).

   Ans: Wind

4. The net return is obtained by deducting total expenditure from Grossreturns. (True / False)).

   Ans: True

5. In non linear production function, inputs are divisible into very small units. (True / False)).

   Ans: False

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Lecture No.2

Farm management - decision making and principles

The farm manager has to take decisions on several aspects for profitable operation of the farm. Decisions have to be taken regarding production, marketing and administration. These three segments are interlinked and decision making is also interlinked. In this lecture we shall look into the type of decisions that the farmer has to take and the micro-economics principles that could used for decision making.

1. Production decisions: Basically the farmer has to decide the following;

i. What to produce - The farmer has to decide the crops and allied enterprises that he wishes to produce in the farm. It depends on many factors like soil type, water availability, other resources that the farmer can mobilize, agro-climatic factors in the region and above all the needs of the market. Presently the emphasis is on market oriented agriculture. It would be more beneficial to the farmer if he produces the crop and variety preferred by the consumers, since he can sell them at a good price. Based o the above factors a farmer can narrow down the choice of crops and allied enterprises and then identify the optimum enterprise combination that would generate maximum net revenue.

ii. When to produce - The timing of release of output in the market is important since generally there is a glut in the market during harvest season and it leads to fall in price and eventually the low profit / loss to the farmer. Natural factors also influence the choice of cultivation of crops during a season.

iii. How to produce - The farmer has to decide the choice of technology for crop production. The farmer could go for organic farming or integrated approach using both organic and inorganic inputs. The choice and level of different inputs, the mode and timing of their application influence the yield.

iv. How much to produce - The area under a particular crop, size of poultry / livestock enterprise etc., influences the quantum of output. The size of enterprises directly influences the expenditure for cultivation and the farmers should be able to meet them from his own or borrowed resources.

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In the case of perennial crops like fruit trees, the decisions have a long term impact on productivity and returns.

2. Managerial Decisions

Managerial decisions in a farm include human resource management (hiring and supervision of casual and permanent labour), utilization of funds, accounts and record maintenance, financial transactions, accessing information required for farm management etc.

3. Marketing Decisions

Marketing decision includes buying of inputs and selling of outputs. Buying decisions address the questions of when to buy? where to buy? how to buy? and how much to buy?. These decisions are important in determining the profitability of the farm business. Similarly the farmer is also confronted with the questions of when, where and how, to sell his produce? Marketing decisions play a crucial role in making the farm business a success or failure.

Farm Management Principles

Farm management principles guide the farmer or farm manager to take decisions. Details on six basic principles involved in making rational farm management decisions are presented.

a. Principle of variable proportions or laws of returns
b. Cost principle
c. Principle of substitution between inputs
d. Equi-marginal returns principle or opportunity cost principle
e. Principle of substitution between products
f. Principle underlying decisions involving time and uncertainty.

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a. Principle of variable proportions or laws of returns

This principle helps in deciding the optimum amount of an input that needs to be applied for cultivation of a particular crop or enterprise. In agriculture law of diminishing returns will operate.

Diminishing returns

"If increasing amounts of one input is added to a production process while all other inputs are held constant, the amount of output added per unit of variable input will eventually start decreasing"

b. Cost Principle

Most of the producers give considerable importance to the cost of production while taking production decisions.

Accounting Periods

There can be two accounting or planning periods: short-run and long run. Short run is a period of time wherein at least some factors (such as land, buildings,) used in crop cultivation is fixed while others are variable and could be altered to increase the yield. The long run is generally considered to be the period wherein all the factors used for crop cultivation could be varied.

Application of the Fixed and Variable Cost Principle

In the short run, gross return must cover the variable costs. The maximum net revenue is obtained when marginal cost (MC) equals the price of the product (MR).

If gross returns are less than total costs (variable + fixed costs) but are still larger than the variable costs, guiding principle should be to keep increasing production as long as added returns (MR) are greater than added costs (MC).

In the long run, gross return should be more than variable plus fixed costs (total costs).

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c. Principle of Factor – Substitution (Least-cost combination)

In agriculture, various inputs or practices can be substituted in varying degrees for producing a given output. A farmer can meet the nutrient requirement of the crop by applying, farm yard manure, vermicompost, neem coated urea, and other inorganic fertilizers. The inputs should be substitutable. The choice before the farmer is to either use only one particular source (organic / inorganic) to meet the entire nutrient requirement for the crop or choose a combination of sources. It is prudent for the farmer to choose a particular combination of inputs which would be of least cost to produce a given level of output. Cost minimization will not depend only upon the cost of inputs and prices of products but also on the rate of substitution.

d. Law of Equi-Marginal Returns

The farmer has only limited capital (including own and borrowed) at his disposal and he has to use this money among cultivation of crops and other enterprises that are technically feasible in his farm. The farmer has to make a choice of the crops to be cultivated and the allied enterprises to be undertaken and also the area under the selected crop and size of enterprise, such that it would maximize the net revenue from the farm as a whole. This principle, thus, states that resources should be used in crops or enterprises where they bring not the greatest average returns, but the greatest marginal returns.

e. Opportunity Cost Principle

The farm resources are always limited and there are more than one alternative use to these resources. When resources are used in one enterprise, some alternative is always foregone. The opportunity cost is the value of the next best alternative foregone. The value of one enterprise sacrificed is the cost of producing another enterprise.

f. Principle of combining enterprises

To combine the products it is better to know their relationship.

Types of product relationships

The enterprises can have any one or combinations of the following relationships:

1. Independent enterprises

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2. Competitive enterprises
3. Supplementary enterprises
4. Complementary enterprises
5. Joint enterprises

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Questions

1. Maximum net return is earned, when the marginal cost _____ marginal returns (equals, is greater than, is lesser than).

   Ans: Equals

2. In the _____, the gross return must at least be greater than the variable cost (short run, long run).

   Ans: Long run

3. The optimum choice of enterprises can be determined by using the _____ (Law of Variable Proportions, Cost Principle, Law of Equi-Marginal Returns, Principle of Factor Substitution).

   Ans: Law of Equi-Marginal Returns

4. Farm management decision such as digging a well is called Strategic decision. (True/false).

   Ans: True

5. In farm management, the _____ is the value of the next best alternative foregone (Fixed cost, Variable cost, Opportunity cost, Average cost).

   Ans: Opportunity cost

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Lecture No.3

Production Function and Technical relationships

Several inputs (fertilizers, pesticides, labour, capital) in various combinations and quantities are used to cultivate a crop, say tomato, and harvest the output, (produce), which is then sold in the market. Technologies have been developed with the type of input, quantity, quality, mode and time of application etc., with a view to increase output per unit area (productivity). Understanding the relationship between input and output is very essential because it will reveal the extent of change in output for a given change in input i.e., what happens to the yield of tomato as you keep on increasing the application of nitrogenous fertilizer by one kg. At a certain stage it will help to identify the optimum level of input use (quantity of nitrogenous fertilizer to be applied) to maximize output (yield of tomato).

Production function

Production function expresses the relationship between the inputs (X) used in the production process for producing output (Y). To cultivate a crop, the farmer uses fixed and variable inputs. Fixed inputs are those inputs whose level is fixed for a production period irrespective of the area under a crop. Ex: machinery, implements, buildings etc. Variable inputs: are those inputs whose level could be varied during a production period with a view to maximize the yield from the crop cultivated. Eg:- fertilizer, seeds, etc.

Production function could be expressed in the algebraic form as;

$Y = f(X)$, where, Y = Yield of a crop, X = inputs used for cultivating the crop

$Y = f(Xi / X_{i+1}, X_{i+2}\ldots\ldots)$, Xi = variable inputs i =1,2…n; X_{i+1}, X_{i+2}.. – fixed inputs

$Y = f(X_1 / X_2, X_3, ..X_i, X_{i+1}, X_{i+2}\ldots\ldots)$, X_1 = variable input, $X_2, ..X_i, X_{i+1}, X_{i+2}$ = fixed inputs

Short-run and Long-run production functions

Short run is a period where some of the inputs are fixed. In the long run all the inputs are variable (no fixed inputs, the level of all inputs could be altered in this time frame). Therefore, production function in which some inputs are fixed is termed as short

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run production function and those input-output relations wherein all inputs could be varied is termed as long run production functions.

Technical relationships

Technical relationships could be analyzed in the short run and in the long run. Technical or production relationships in the short run could be grouped as;

- Factor - Product relationships
- Factor - Factor relationships
- Product - Product relationships

Factor - product relationships: This relationship is analyzed by applying various levels of an input (X_1) to a crop, while keeping all other inputs at a constant level, and examining its effect on the output (Y). This process enables to determine how much of an input (optimum level) should be applied to get maximum yield.

Factor - Factor relationship: This is about combining two inputs which are used in crop production. The nutrient requirement for crops could be met by applying organic (FYM, vermicompost, enriched FYM) and inorganic fertilizers. It is essential to decide the least cost combination of two inputs that could be used for cultivating a crop to get a given level of yield. The two inputs considered in this case should be substitutable.

Product - Product relationship: The resources at the disposal of the farmer are limited and they have alternative uses. Given the level of resources, what are the crops/enterprises that he can raise and at what level? is an important decision. This relationship brings out the product mix or combination of enterprises that would maximize the revenue from the farm.

Long run

A technical or production relationship in the long run is called as returns to scale. In the long run all inputs become variable and none is fixed. Returns to scale explains the nature of output when all the inputs are changed by the same proportion. If output increases by that same proportional change (as that of the inputs) then it is termed as constant returns to scale. If output increases by less than the proportional change in

inputs, then it is termed as decreasing returns to scale. If output increases by more than the proportional change in inputs, it is termed as increasing returns to scale.

Factor - Product relationship

The factor - product relationship is examined by holding one input variable and all other inputs constant. The response of the crop (in terms of yield) to various levels of an input applied to it is studied. The analysis could be done graphically, algebraically or even tabular analysis. The relationship between nitrogenous fertilizer applications on yield of a tomato could be analyzed. The relationship could be either of the following;

- Increasing marginal returns - If an unit increase in input (nitrogenous fertilizer) applied to the crop (tomato) causes more than an unit increase in the output, it is termed a increasing marginal returns
- Constant marginal returns - If an unit increase in input (nitrogenous fertilizer) applied to the crop (tomato) causes an unit increase in the output, it is termed a constant marginal returns
- Diminishing marginal returns - If an unit increase in input (nitrogenous fertilizer) applied to the crop (tomato) causes less than an unit increase in the output, it is termed a diminishing marginal returns

The details of nitrogenous fertilizer applied at various levels are applied to one acre of tomato and the corresponding yield response is given in Table 1.

Table 1. Fertilizer application and yield of tomato

Nitrogenous fertilizer (kg) X	**Tomato Total Physical Product (TPP) Yield (Qtl) (Y)**	**Change in fertilizer use Δ X**	**Change in Yield Δ Y**	**Marginal Physical Product (MPP) Δ Y / Δ X**	**Average Physical product (APP) Y / X**
10	50	-	-	-	
20	110	10	60	6.0	5.5

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30	175	10	65	6.5	5.8
40	225	10	50	5.0	5.5
50	250	10	25	2.5	5.0
60	270	10	20	2.0	4.5
70	275	10	5	0.5	3.9
80	265	10	-10	-1.0	3.2
90	250	10	-15	-1.5	2.7

From the table it could be observed that as the input level increases, the yield increases and reaches the maximum (275 Qtls) and declines. During this process, the marginal physical product (MPP) increases and later declines to negative, while average physical product also increase and later decreases, but remains positive. MPP is the change in yield for a unit increase in input (X).

In general it would not be wise to stop applying variable input as long as the average output per unit of input (APP) is increasing. Likewise it would not be wise to continue adding input when TPP is falling. Based on the above logic, economists divide the production function into three stages or regions.

The characteristics of the 3 stages can be summarized as follows:

Particulars	**Stage I** **Irrational Stage**	**Stage II** **Rational Stage**	**Stage III** **Irrational Stage**
TPP	Increases at increasing rate to up the point of inflection then increases at Decreasing rate.	Continue to increase at decreasing rate and reaches maximum	Decreasing

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APP	Increases and reaches the maximum	Decreasing	Continue to decrease but positive
MPP	Increases and reaches the maximum and then decreases	Continue to decrease and becomes zero.	Continue to decrease
Diminishing Starts for:	MPP	APP	TPP

Optimum input use will be at the point where the value of the additional output equals the additional input cost. (Marginal revenue = Marginal cost) *i.e.*, MC=MR

$\Delta Y.P_Y = \Delta X.P_X$

$\Delta Y/\Delta X = P_X/P_Y$

$(\Delta Y/\Delta X).P_Y=P_X$

Value of Marginal Product = Marginal Input Cost. (*i.e.*, Input cost) = VMP = P_X

Diminishing marginal returns is a characteristic feature of agricultural production.

1. Technology of production remains constant. If there is improvement, it technology APP and MPP will not decrease. Technology delays the operation of DMR in agriculture.
2. It is a short – run analysis, hence all factors are not variable.
3. All units of variable factor are homogenous.

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Questions

1. The production function expresses the relationship between _____ (product and inputs, between products, between inputs).

   Ans: product and inputs

2. The rational stage in production function is _____ (First stage, Second stage, Third stage)

   Ans: Second stage

3. In stage II, the Average Return is diminishing, (True/False).

   Ans: True

4. The optimum input level will be in _____ (First stage, Second stage, Third stage).

   Ans: Second stage

5. The TPP will decline in the _____ (First stage, Second stage, Third stage)

   Ans: Third stage

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Lecture No.4

Cost concepts, curves and functions

Farmer spends on various inputs during cultivation of a crop. The costs incurred are classified based on time, variable nature and owned or paid out costs.

A.Cost concepts based on variable nature

i. Fixed costs or Total Fixed costs (TFC)

The farmers have to meet some expenses irrespective of whether they are cultivating or not. These include payments towards land taxes, insurance premium, depreciation of machinery and buildings etc. The payments towards such expenditures, which are incurred even when production is not undertaken and also do not vary with the level of production is termed as Fixed costs. This (TFC) is indicated by a straight line parallel to X-axis

ii. Variable costs or Total variable costs (TVC)

Some inputs are used only when production is undertaken and the quantity used varies with the level of production. Inputs such as seeds, fertilizers, labour, fuel for oil engines, herbicides, pesticides etc., come under this category. The payment towards such expenditures is termed as variable cost. The factor -product relationship in agriculture generally follows the law of diminishing returns and hence the variable cost curve reflects inverse 'S' shaped curve.

iii. Total costs (TC)

It is the sum of TFC and TVC. TC also has inverse s-shape curve since TC is obtained by summation of TFC and TVC curves.

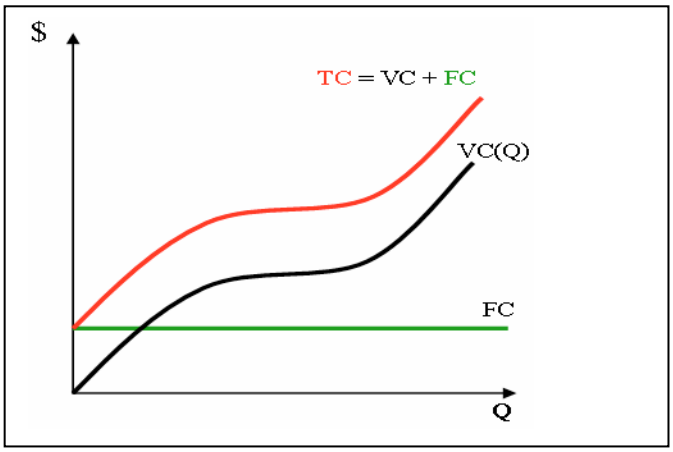
TC = TFC + TVC

= TFC + Px.X

Where,

X = Variable input

Px = Price of X



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Total Fixed and variable costs

S. No	Total Fixed Cost	S. no.	Total Variable Cost
1	Depreciation	1	Seeds, fertilizers, pesticides, , herbicides, electricity / fuel
2	Land taxes	2	Hired machine / animal power
3	Permanent labour	3	Hired causal labour
4	Interest on long term and medium loans (in proportion to the value of the output of a particular crop / enterprise to the total revenue generated from the farm in a year)	4	Interest on crop loan
5	Interest on fixed cost (at bank lending rate for half of the duration of the crop)	5	Interest on variable cost (at bank lending rate for half of the duration of the crop)

From the total cost, four types of unit costs are derived.

iv.Average Fixed cost (AFC)

AFC is computed by dividing TFC by the quantity of output. AFC varies for each level of output. When output increases, AFC decreases. This is due to "spreading of fixed costs". *i.e*., when production increases cost per unit decreases.

AFC = TFC/Y, where = Y = output

Graphically AFC is a rectangular hyperbola.

v. Average variable costs (AVC)

AVC is computed by dividing TVC by the quantity of output (Y). AVC varies with the level of output. It is the variable cost per unit.

AVC=TVC/Y or AVC= $(X.P_x)/Y$

vi. Average Total costs (ATC)

ATC can be computed in two ways

(a) ATC = TC/Y, or

(b) ATC = AFC + AVC

ATC decreases as output increases from zero, attains a minimum and increases thereafter. ATC reflects the unit cost of production.

vii. Marginal costs (MC)

MC is defined as the change in TC, due to unit increase in output, i.e., it is the cost of producing an additional unit of output.

$MC = \Delta TC/\Delta Y$

Graphically MC is the slope of TC curve

Relationship between average and marginal cost curves

- The AVC and ATC curve fall when MC curve is below them and then rises when MC exceeds AVC and ATC.
- AVC and ATC are at their minimum when AVC = MC and ATC =MC

B. Costs based on time

Short run costs

Since Short run is a period wherein at least some inputs are fixed, short run costs include both fixed and variable costs.

Theory of short-run cost curves says AVC, ATC and MC are U-shaped which reflects the law of variable proportion. In short run these curves fall initially showing the increasing return of the variable factor. Then it reaches minimum showing optimum return to the variable factor and then increases showing decreasing return to the variable factors.

The MC curve above AVC is referred to as the individual farmer's short –run supply curve for output. It shows different output levels that the individual farmer should be willing to produce at various level of price. The horizontal summation of the MC curves of individual farmers will give short –run supply curve for each individual commodity. It is called Market supply curve.

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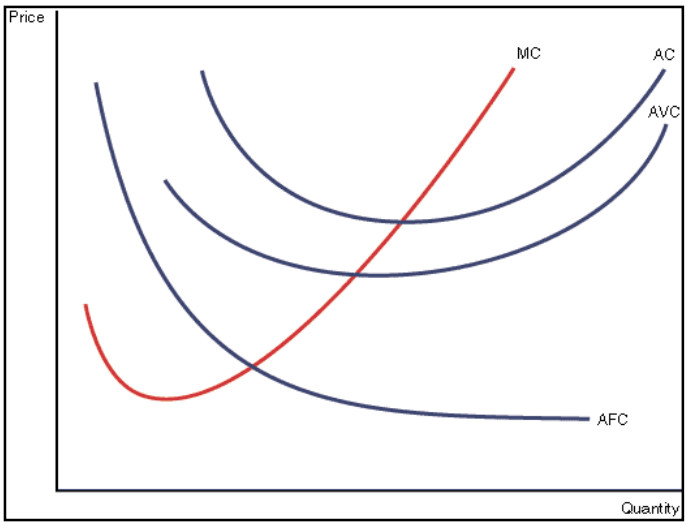
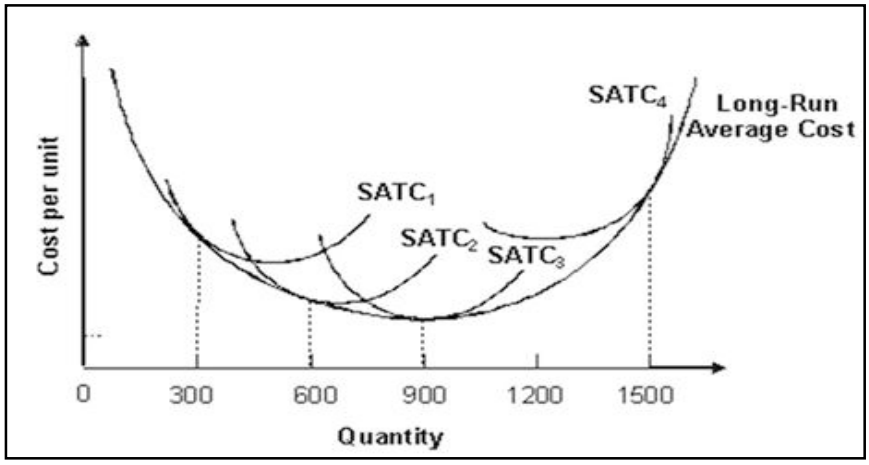


Long – run cost curve

All costs are variable in the long run. So there is no differentiation between AVC, AFC, and ATC as in the Short Run. In the Long run there is only LRAC because in the LR all factors are variable. It is also called as Planning curve, Envelope curve, or scale curve, each point in LRAC corresponds to a point in short-run cost curve.

LRAC is U shaped. The point corresponding to the output M is called Optimum plant size. The expansion of output from 0 to M results in reduction in cost per unit. In other words in this region the firm experiences economies of scale or increasing returns.

At point M, LRAC reaches minimum and it is optimal level of production. The region beyond M. the firm will face increasing costs due to complexities in management. In other words this region corresponds to decreasing returns or Diseconomies of scale.



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C. Own or paid out costs

i. Own costs

The farmer does not actually pay for some of the inputs used by him, such as family labour for cultivation operations, farm yard manure from the farm, depreciation etc. The cost incurred towards such family or farm owned inputs is called own costs, for which imputed cost could be worked out based on market price for the corresponding input.

ii. Paid out costs

The farmer purchases most of the inputs fertilizer, pesticides, hired casual labour from the market / other farmers for which he is actually making payments. Expenditure towards such inputs is called paid out costs.

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Questions

1. Costs which change with the level of input use and incurred only when production is undertaken is called _____ _(Fixed cost, Variable cost, Opportunity cost).

   Ans: Variable cost

2. The _____ decreases as output increases, attains maximum and increases thereafter (Average cost, Marginal cost, Transaction cost)

   Ans: Average cost

3. The _____ represents the change in total cost for an unit increase in output (Average cost, Marginal cost, Transaction cost)

   Ans: Marginal cost

4. The AVC, ATC and MC are 'U' shaped reflecting the _____ (Law of Variable Proportions, Cost Principle, Law of Equi-Marginal Returns, Principle of Factor Substitution).

   Ans: Law of Variable Proportions

5. In the **long run** all factors are variable. (True/False).

   Ans: Ture

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Lecture No.5

Factor-factor relationship and product-product relationship, optimum conditions

Factor – Factor Relationship

While cultivating crops or managing allied enterprises, a farmer has several options to combine some inputs, *i.e.*, to meet the nutrient requirements for crops, the farmer can use a combination of organic and inorganic fertilizers, while controlling pests he can use bio-control and chemical control, combination of animal and machine power, combination of green fodder and concentrates in the case of livestock etc. The farmer has to use the optimum or least cost combination of two or more inputs for producing a given amount of output. The combining of inputs will be possible only if the inputs considered are substitutable. Therefore it is essential to examine the possibilities of substituting one input (X_1) for another input (X_2) while the output level (Y) is held constant.

$Y=f\ X_1, X_2 / X_3, X_4, \ldots\ldots X_n$). Here Y is a function of X_1 and X_2 while other inputs are kept constant. This expression shows that the amount of output (Y) depends in a unique way upon the amount of the two inputs X_1 and X_2 used in the production process along with the other fixed inputs.

Isoquant or Iso-product Curve

Isoquant is the line connecting all combinations of two inputs that would produce the same level of output. Each point on an isoquants is the maximum output that can be achieved with these input combinations.

The data on various combinations of nitrogenous and phosphorous nutrients applied to brinjal and the corresponding yield is given in Table 1.

Table 1. Estimated Yields (Qtls) for Various Combinations of Nitrogen and Phosphorus for Brinjal

P/N	40	60	80	100	120	140
40	40.21	43.09	44.74	45.15	44.32	44.02

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60	41.87	45.51	47.90	49.06	48.98	48.32
80	40.89	45.28	48.43	50.35	51.02	50.54

Types of Factor-Factor Relationships

There can be three types of combinations of inputs:

(i) Fixed proportion combinations of inputs

(ii) Constant rate of substitution

(iii) Varying rates of substitution

i) Fixed Proportion Combinations

Some of the inputs can be combined only in fixed proportions. Hence, in such cases, there is no decision-problem.

ii) Constant Rate of Substitution

The substitution at constant rate occurs when each unit of input (X_1) added every time would replace the same level of other input (X_2).

$$\text{Substitution Ratio} = \frac{\Delta X_{21}}{\Delta X_{11}} = \frac{\Delta X_{22}}{\Delta X_{12}} = \frac{\Delta X_{2n}}{\Delta X_{1n}}$$

iii) Varying Rate of Substitution

The amount of one input (X_1) required to substitute for one unit of another input (X_2) for a given level of production increases or decreases as the amount of X_2 used increases. Substitution at an increasing rate is not common in horticulture, but decreasing rate of substitution is more common. The slope of the iso-product curve in this case becomes less steep as more of X_1 is used relative to X_2.

Substitution Ratio change as under:

$$\frac{\Delta X_{21}}{\Delta X_{11}} \text{ ----------> } \frac{\Delta X_{22}}{\Delta X_{12}} \text{ ---------->.....> } \frac{\Delta X_{2n}}{\Delta X_{1n}} \text{ ---------}$$

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Iso – cost Lines

An iso-cost line is the line connecting all combinations of two inputs that could be purchased for a given budget.

Least- cost combination

Simple Arithmetical Calculations

One possible way to determine the least-cost combination is to compute the cost of all possible combinations and then select the one with the minimum cost. This method is suitable where only a few combinations produce a given output and calculations involved are a few and simple. Suppose there are five combinations of inputs which can produce 85 units of output as given in table 6.5. The price per unit of X_1 is Rs.3 and of X_2 Rs.4. The total outlay of each combination can be determined by simple multiplications.

Table 2. Least-cost Combination of Two Inputs for Producing an Output

Units of X_1	Units of X_2	Cost of X_1 @ Rs.3.00	Cost of X_2 @ Rs.4/-	Total outlay for X_1 and X_2 (Rs.)
8.0	2	24.00	8	32.0
6.0	3	18.00	12	30.0
5.0	4	15.00	16	31.0
4.5	5	13.50	20	33.5
3.5	7	10.50	28	38.5

Out of five combinations calculated in table 6.5 above, 3 units of X_2 and 6 units of X_1 is the least cost combination of inputs i.e., Rs.30. through this method it is possible that the true least cost combination is not located because we do not consider many combination which may be there on the iso-quant to the right or to the leaf of the point.

Algebraic Method

Procedure for finding out least cost combination is a under,

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(i) Compute marginal substation ratio $= \left[\frac{\Delta X_2}{\Delta X_1}\right]$

(ii) Compute price ratio $= \left[\frac{P_{x1}}{P_{x2}}\right]$

(iii) The least cost criterion is that MRS of X_2 for X_1 should be equal to P_{x2} / P_{x1} .

Work out lest cost combination by equating

$$\frac{\Delta X_2}{\Delta X_1} = \frac{P_{x2}}{P_{x1}}$$

$$P_{x1}(\Delta X_1) = P_{x2}(\Delta X_2)$$

If at any point on the iso-quant $P_{x1}\Delta X_1$ is greater than $P_{x2}\Delta X_2$ then the cost of producing the given output could be produced by increasing the use of X_2 and decreasing X_1, because the cost of added unit of X_2 is less than the cost of the replaced units of X_1.

On the other hand if at any point on the iso-quant, $P_{x1}\ \Delta\ X_1$ is less than $P_{x2}\ \Delta\ X_2$ the cost of producing the specified quantity of output can be reduced by using less of X_2 more of X_1.

Graphic Method

Isoquants and iso-cost lines are drawn on the same graph for different levels of production and total outlay. The least cost combination is indicated by the point of tangency of the isoquants and iso-cost lines.

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Product – product relationship

The farmer has limited resources with which he has to maximize the revenue from the farm. Therefore, it is essential for the farmer to decide the crops or enterprises that he has to undertake so as to maximize the farm income. The nature of combination of enterprises and the rate of product substitution will influence the optimum combination of enterprises.

ii. Production possibility curve (PPC) or Iso-resource Curve

The Production Possibility Curve is a line connecting all combinations outputs of two enterprises or crops that can be produced using a given amount of input.

iii. Marginal Rate of product substitution (MRPS)

MRPS is the rate of change in quantity of output of one enterprise (Y_1) as a result of unit increase in the output of the other enterprise (Y_2), for a given level of input (X). It is also known as Marginal Rate of Product Transformation (MRPT). So it is the slope of the PPC.

$$MRPS = \Delta Y_1/\Delta Y_2$$

Types of Product – Product relationship

a. Competitive products

Two products (or enterprises) are competitive when the output of one product can be increased only by reducing the output of the other product. Outputs are competitive because they require the same inputs at the same time. If a farmer has a given level of water for irrigating bhendi and brinjal, he can either allocate equal share of water to both or more of water to bhendi and less to brinjal. Hence, these two products become competitive.

b. Complementary product

Two products (or enterprises) are complementary if an increase in output of one product (Y_1) also causes an increase in the output other product (Y_2) also, for the same level of inputs. PPC for complementary products have positive slope. Eg: Rotation of

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complimentary crop in cropping pattern. The by-products of one complementary enterprise (Y_1) will serve as input for production of the other product (Y_2).

c. Supplementary products

Two products are called supplementary if one product can be increased without increasing or decreasing the other product. These two enterprises are not interlinked. Eg: Farm yard Poultry and Crop cultivation.

d. Joint products

Products which result from the same production process are termed as joint products. No substitution among products is possible since joint products are produced in a fixed proportion. Eg: cotton lint and cotton seed.

MRPS and enterprise relation ships

MRPS	Enterprise relationship
$\Delta Y_2/\Delta Y_1 > O$	Complementary
$\Delta Y_2/\Delta Y_1 > O$	Competitive
$\Delta Y_2/\Delta Y_1 > O$	Supplementary

iv. Iso-Revenue line or price line

It is a line which connects all the possible combinations of two commodities which would yield a given level of revenue or income.

v. Optimum Product combination

a) Lesser number of combinations could be analyzed by simple tabular analysis.

b. Algebraic method

Large number of combinations could analyzed algebraically;

Value of product given up = value of the product gained

This means

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$$\frac{\Delta \text{Product given up}}{\Delta \text{ Product gained}} = \frac{\text{Price of product gained}}{\text{Price of product given up}}$$

MRPT = inverse price ratio is the profit maximizing combination.

c. Graphic Method

With the given data, the production possibility frontier and the iso-revenue line are drawn in the same graph. The point of tangency of production possibility frontier and Iso-revenue line is the profit maximizing combination of two enterprises.

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Questions

1. When the MPP is greater than APP, the APP is _____ (increasing, decreasing, constant)

   Ans: Increasing

2. The elasticity refers to percentage change in output in response to a percentage change in input. (True / False).

   Ans: True

3. The Law of Returns to Scale talks about the relationship between factor - product in the long run. (True / False).

   Ans: True

4. Optimum input use will be at the point where the _____ (MC + MRR, MC > MR, MC< MR, MC = 0).

   Ans: MC = 0

5. The line that connects all points which represent combinations of two inputs that can be purchased with a given outlay of funds is called _____ (isoquant, iso-cost line, ridge line, expansion path).

   Ans: Iso-cost line

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Lecture No.6

Principles of opportunity cost, equi-marginal returns and comparative advantages

Opportunity cost

The farmer has limited resources which have alternative uses. If he is using this resource on one activity, he has to forgo some other activities. If a farmer has one acre of land, he can cultivate brinjal in one acre, consequently he may not be able to cultivate other crops such as tomato, bhendi etc. Opportunity cost is defined as the earning from the next best alternative foregone. It is the value of the best alternative surrendered when a choice is made.

Example: Net Income from three crops are:

Crops	**Net Income (Rs. / acre)**
Tomato	22600
Brinjal	24600
Bhendi	26200

The opportunity cost of growing Bhendi is the net income of Brinjal, *i.e.*, Rs.24600 (next best alternative forgone). Generally, opportunity costs are included only while evaluating the economic cost of using resources. At the farm level only accounting costs are used.

Law of equi-marginal returns

The farmer has limited resources which have alternative uses. He has to allocate these resources effectively among various alternative crops / allied enterprises so as to earn higher net income from the farm. The equi-marginal principle guides the farmer in selecting crops / allied enterprises such that the net income from the farm could be maximized.

If a farmer has unlimited capital he can take up any number of activities as long as they are technically feasible. Under such circumstances the farmer can keep on investing

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in activities as long as the added returns are equal to the added cost. Generally, the farmers have limited resources, eg: capital, and he can use them only on few crops or enterprises. He can select an optimum combination of enterprises based on the principle of Equi-marginal returns.

The law of equimarginal return states that profit from a limited amount of variable input is maximized when that input is used in such as way that marginal return from that input is equal in all the enterprises.

Symbolically,

$VMPx_1 = VMPx_2 = \ldots\ldots = VMP_{xn}$

Suppose a farmer has 5 units of capital (X), he will allocate each successive unit of X to the enterprise in which VMP is the largest.

Returns from various enterprises

X	**Enterprises** Y_1		**Enterprises** Y_2		**Enterprises** Y_3	
	Y_1	**VMP** Y_1	Y_2	**VMP** Y_2	Y_3	**VMP** Y_3
0	0		0		0	
1	10	20	18	18	7	14
2	18	16	31	13	13	12
3	24	12	42	11	18	10
4	29	10	51	9	22	8
5	33	8	58	7	25	6
6	36	6	64	6	27	4

(PY_1= 2, PY_2 = 1 and PY_3 =2)

First unit of X can earn 20 in Y_1, 18 in Y_2 and 14 in Y_3. So first unit is applied to Y_1 since, it has got largest VMP.

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Second unit of X can earn 16 in Y_1, 18 in Y_2 and 14 in Y_3, so second unit is applied to Y_2 (largest VMP). Allocation of remaining three units of capital must be done in a similar manner.

Units	**Enterprise which used the input**	**VMP**
First	Y_1	20
Second	Y_2	18
Third	Y_3	16
Fourth	Y_1	14
Fifth	Y_2	13

All the five units will earn Rs.81 No other combination of the three enterprises will earn more than Rs.81.

Principle of Comparative Advantage

According to this well known principle, different areas will tend to produce those products for which they have the greatest comparative and not just absolute advantage. This leads to the establishment of different types of farming existing in different regions of a country / State.

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Questions

1. The law of equi-marginal returns states that the profit from a limited amount of variable input is maximized, when the input is used in such a way that the marginal returns from that input is _____ in all enterprises (zero, increasing**,** equal, decreasing).

   Ans: Equal

2. It is profitable to produce products which have greatest _____ advantage (Comparative, absolute, cost)

   Ans: Comparative,

3. The underlying concept of equi-marginal returns is the idea of _____ (Fixed cost, break even point, variable cost, **opportunity cost).**

   Ans: Opportunity cost.

4. The Value of Marginal Product (VMPy) is _____ (**MPPy * Py**, MPPy * Px, Py, Px).

   Ans: MPPy * Py

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Lecture No.7

Time value of money, economies of scale and returns to scale

Time Comparison Principle (Time Value of Money)

Farmer cultivates crops of 3 - 4 months duration or one year or perennial crops. Most allied enterprises could also be maintained for a longer period of years. So while initiating a project on perennial crops or enterprises, the farmer anticipates an expected cost and returns from the crop or enterprises in the future. A farmer could also buy a tractor and apart from own use he could earn money by hiring the tractor. In such long term projects the cost and returns are spread over years. In order to compare and decide which of these projects is best, one has to take into account the time value of money, i.e., what is the present value of future expected income and what is the future expected value of present income.

a) Compounding

In long term projects it is possible that costs would increase annually by some per cent or instead of investing in some activity, the farmer could deposit the money in the bank. In both cases the farmer would be interested to know the cost or return in the future. Compounding refers to process of accumulation of money over a period of time, i.e., future expected value of the present income. It is estimated using the formula;

$$S = s\,(1 + i)^{n}$$

'S' represents the sum at the end of 'n' periods; 's' the amount which is invested for 'n' periods; 'i' the interest rate.

b) Discounting

Discounting income is the procedure whereby the present value of the future income is determined.

Formula: $$PV = \frac{q}{(1 + r)^{n}}$$

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Where,

PV = present value of the future amount,

q = future amount

r = rate of interest

n = no. of years in the future

Laws of returns to scale

The Laws of Returns to Scale is about the long run production analysis, wherein all inputs used in production are variable. The term returns to scale refers to the changes in output as all factors of production are increased by the same proportion.

When all factors are increased by the same proportion;

i. The output may increase by the same proportion, then it is called Constant returns to scale.

ii. If the output increases less than proportionately, then it is called Decreasing returns to scale.

iii. If the output increases more than proportionately, then it is called Increasing returns to scale.

Economies of scale

Economies of scale refer to the benefits accrued to the farm on account of expansion of production capacity /large scale production. Economies of scale may be classified as real and pecuniary economies of scale or internal and external economies of scale.

Real and Pecuniary Economies of Scale

i. Real Economies of scale: refers to reduction in physical quantities of input, like raw materials, labour etc., per unit of output when the size of the firm increases. For example labour economies are achieved when there is training, specialization or automation.

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ii. Pecuniary Economies of scale: refers to paying low prices for raw materials / inputs etc., because of buying in large quantity or bulk buying in large quantity or bulk buying.

Internal and External Economies of Scale

i. Internal Economies is a condition which brings about a decrease in the LRAC of the firm because of the changes happening within the firm. Mechanization of operations

ii. External Economies is a condition which brings about a decrease in the LRAC of the firm because of the changes happening outside the firm. Eg. Taxation policies of the Government.

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Questions

1. The present value of future income is determined by _____ (discounting, compounding, accounting, depreciating).

   Ans: Discounting

2. The law of returns to scale explains changes in the output as all factors change by the fixed proportion. (True / False).

   Ans: True

3. Economies of scale refers to decrease in the _____ of a firm as a result of increase in the size of the firm (Long run average cost, short run average cost, long run marginal cost, long run fixed cost).

   Ans: Long run average cost

4. Pecuniary economies of scale refer to paying low prices for raw materials (True / False).

   Ans: True

5. The decrease in LRAC due changes in _____ is termed as external economies of scale (taxes, input usage by the firm, reduction in employees in the firm).

   Ans: Taxes

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Lecture No.8

Cost of Cultivation and Production and Break Even Analysis

Cost of Cultivation

Monitoring and controlling costs is one of the most important tasks of the farmer / manager, since it has a great impact on the efficiency and profitability of the enterprise. Generally farmers in India do have a written account of costs and this is done in an informally way. This is one of the key areas that a farmer requires training and sensitization. Though there are different methods of estimating the costs, the most common method is explained.

Cost of Cultivation refers to the total cost incurred by the farmer for cultivation of a crop in an unit area *i.e.*, acre or hectare.

Total cost is a sum of the Total Fixed Cost and Total Variable Cost.

a) Total Fixed Cost It includes the cost incurred due to fixed resources in the farm, permanent labour, land revenue, etc. TFC includes;

i Land revenue

ii Depreciation of Buildings, machineries and equipments etc

iii Permanent labour

iv. Interest on average capital investment

v Other fixed costs

Total Fixed costs:

b) Total Variable Costs It includes the cost incurred for use of all variable inputs for the cultivation of the particular crop. It includes hired labour and material cost for all the cultivation operations such as;

i Land preparation

ii Seeds

iii Fertilizers (a) Urea

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(b) Others

iv Weeding and other cultivation operations

v Irrigation water charges

vi Plant protection measures

vii Harvest

viii Interest on average capital investment

ix Others

Total Variable costs:

In the case of perennial crops like Coconut, Mango etc., the establishment cost has to be estimated. The estimated establishment cost has to be spread over the entire life period of the perennial crops. Hence in the case of perennial crops, total cost includes fixed cost (establishment cost + cost towards use of fixed resources annually) and Variable cost.

Establishment cost includes cost of planting material, labour towards digging pits and planting, and expenses towards al cultivation expenses until the crop starts yielding.

Cost of Production

Cost of Production refers to the total cost incurred for producing one unit of the main product *i.e.*, cost of production of one quintal of brinjal / tomato etc. It is estimated as follows;

Cost of production = (Total cost - returns from by-products) / yield of main product

Total Returns

Total returns is the sum of the returns from both the main and byproducts

Net Returns = Total Returns - Total Cost

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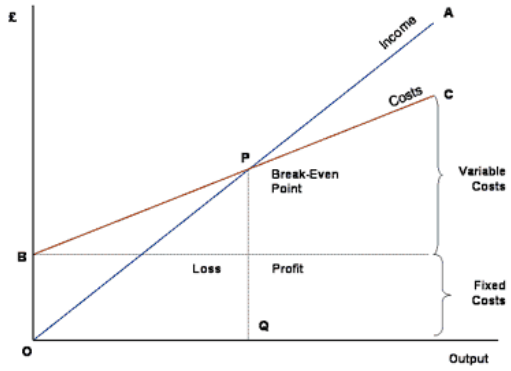
Break even analysis

Break even analysis is a technique used to assess the level of output at which the farmer realizes no loss or no profit. The level of output at which the total cost is equal to total returns is termed as Break Even Point (BEP).

The BEP can be estimated mathematically or with a graph. The data on total cost (TC) and total return (TR) for various levels of output have to be drawn in a graph and the point of intersection of the TC with TR is the BEP. It is represented on the chart below by the intersection of the two lines:

Fig: Total Cost, Total Return and Break Even Point



In the given figure, the line OA represents the variation of income at varying levels of output, OB represents the total fixed costs in the farm. As output increases, variable costs are incurred, meaning that total costs (fixed + variable) also increase (BC). At low levels of output, costs are greater than Income. At the point of intersection, P, costs are exactly equal to income, and hence neither profit nor loss is made.

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Questions

1. Depreciation is a part of the fixed cost of the firm. (True / False).

   Ans: False

2. Breakeven point is the level of output at which the firm realizes _____ (maximum profit, non profit no loss, maximum loss).

   Ans: **Non profit no loss**

3. The cost of cultivation of a produce represents the cost per unit _____ of cultivating the crop (Area, output, capital investment).

   Ans: Area

4. The expenditure on land cess is a part of the fixed cost of the firm (True / False).

   Ans: True

5. The expenditure on casual labour is a part of the variable cost of the firm. (True / False).

   Ans: True

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Lecture No.9

Decision making under risk and uncertainty

Cultivation of horticultural crops is dependent on many natural factors such as rainfall, temperature, wind, relative humidity etc., which do not occur as per our expectations. The uncertainty in their occurrence greatly affects crop growth and yield. Production principles discussed so far are under the assumptions of perfect certainty. In real world situation it is important to consider the risk and uncertainty in the production process.

Risk and uncertainty

I. Definition

Risk is situation in which one knows both the possible future outcomes of a production process and the probability associated with each outcome.

Uncertainty is a situation in which either the possible future outcomes are unknown or the probabilities of outcomes are unknown or both.

2. Types of uncertainty in Agriculture

a. Price uncertainty: Prices of products / inputs are not known to the farmers with certainty

b. Yield uncertainty : Farmers may not able to predict the yield of crops with certainty because of weather conditions, incidence of pests and disease, etc.

c. Technological uncertainty: farmers may not be aware of the exact impact of new technology on the quantity and quality of yield.

d. Institutional uncertainty: Conditions of tenure, functioning of credit agencies are examples for institutional uncertainties.

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3. Steps against Risk and uncertainty

i. Diversification

Diversification means growing two or more crops or allied enterprises to avoid the yield and price uncertainty of depending on a single crop or enterprise. Eg; diversification with crop and livestock is very common.

ii. Insurance

Farmers can insure their crops against losses due to storm, fire or pests and diseases. In India, Agriculture Insurance Company of India Limited (AIC) incorporated in 2002 offers yield-based and weather-based crop insurance programs in almost 500 districts of India. It covers almost 20 million farmers, making it the biggest crop insurer in the world in terms of the number of farmers served. The National Agriculture Insurance Scheme (NAIS) is compulsory for all farmers who take agricultural loans from any financial institution. It is voluntary for all other farmers. The premium is subsidized for farmers who own less than two hectares of land. This insurance follows the area approach.

iii. Flexibility

Flexibility means the provisions in a farm plan to transfer resources from one enterprise to another enterprise without difficulty in order to gain larger profit. Transfer of resources become necessary because of anticipated losses in one enterprise or an anticipated rise in profit in another enterprise or both.

iv. Contracts

Contracts are made with input supplying agencies or for selling farm products to safeguard against fluctuations in prices.

4. Measurement / Quantification of Risk

Coefficient of Variation (C.V.) is a simple and most widely used measure or risk.

$C.V = (\sigma / X) \times 100$ Where, σ = Standard deviation and X = Mean

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Standard Deviation S.D. $\sigma = \frac{\Sigma (X-X)^2}{N}$

Where, X = variable for which σ is estimating

X = mean, N = number of observations

Higher the C.V. higher will be the risk.

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Questions

1. Risk is a situation in which the probable outcome of the event is _____ (known, unknown, cannot be estimated).

   Ans: Known

2. Specialization of crops cultivated is done to overcome risk. (True / False).

   Ans: False

3. Coefficient of variation is a simple and most widely used measure of risk. (True / False).

   Ans: True

4. Higher value of coefficient of variation indicates lower risk. (True / False).

   Ans: False

5. Farmers enter into contracts with buyers mainly to overcome _____ risk (Price, technology, yield).

   Ans: Price

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Lecture No.10

Farming systems and types

A **farming system** is defined as a population of individual farm systems that have broadly similar resource bases, enterprise patterns, household livelihoods and constraints, and for which similar development strategies and interventions would be appropriate. Depending on the scale of the analysis, a farming system can encompass a few dozen or many millions of households.

The classification of the farming systems of developing regions has been based on the following criteria:

- available natural resource base, including water, land, grazing areas and forest; climate, of which altitude is one important determinant; landscape, including slope; farm size, tenure and organization; and
- dominant pattern of farm activities and household livelihoods, including field crops, livestock, trees, aquaculture, hunting and gathering, processing and off-farm activities; and taking into account the main technologies used, which determine the intensity of production and integration of crops, livestock and other activities.

Farming system: A farm is a system in that it has INPUTS, PROCESSES and OUTPUTS

INPUTS - these are things that go into the farm and may be split into Physical Inputs (e.g. amount of rain, soil) and Human Inputs (e.g. labour, money etc.)

PROCESSES - these are things which take place on the farm in order to convert the inputs to outputs (e.g. sowing, weeding, harvesting etc.)

OUTPUTS - these are the products from the farm (i.e. wheat, barley, cattle)

Depending on the type of farming e.g. arable/ pastoral, commerical / subsisitence, the type and amount of inputs, processes and outputs will vary.

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Types of farming

1. **Commercial Farming** - the growing of crops / rearing of animals to make a profit
2. **Subsistence Farming** - where there is just sufficient food produced to provide for the farmer's own family
3. **Arable Farming** - involves growing of crops
4. **Pastoral Farming** - involves rearing of animals
5. **Intensive Farming** - where the farm size is small in comparison with the large amount of labour, and inputs of capital, fertilizers etc. which are required.
6. **Extensive Farming** - where the size of a farm is very large in comparison to the inputs of money, labour etc. needed

Although no two farms are exactly alike, it is obvious to anyone who has traveled in the countryside anywhere in the world that most farms in a particular area usually have many common features. Depending on the environment in that area, most of them grow the same crops, keep the same animals, and go about their farming in roughly similar ways. Therefore, they can be said to practice similar farming systems.

Farmers have to adapt their farming to their natural environment — to succeed; they must work with nature and not against it. They must also adapt their systems to infrastructural factors, such as land-tenure arrangements, and the availability of inputs such as water, power, fertilizers, pesticides, labour, advice, and information. External economic factors such as location, availability of roads, communications, markets for selling produce, prices, credit, produce subsidies, and other features affect the attractiveness and profitability of different farming systems. Internal factors such as farm size, the available labour force, resources that can be invested and fixed improvements are other obvious determinants. Finally, personal choice and preferences may influence the system

Farming system approach envisages the integration of agroforestry, horticulture, dairy, sheep and goat rearing, fishery, poultry, pigeon, biogas, mushroom, sericulture and by-product utilization of crops with the main goal of increasing the income and standard

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of living of small and marginal farmers. The challenge is to upgrade the technological and social disciplines on a continuous basis and integrate these disciplines to suit the region and the farm families in a manner that may ensure increased production with stability, ecological sustainability and equitability.

Lowland farming system

Field Experiments were conducted at TNAU, Coimbatore in lowland involving cropping, poultry, piggery, duck, goat, pigeon, fishery and mushroom enterprises in all possible combinations with a view to recycle the residue and by products of one component over the other. The recycling process could reduce the cost of production per unit of grain meat, milk, egg, edible mushroom, biogas etc and there by widen the gap between the production cost and net return. In one-hectare farm, an area of 0.90 ha assigned for crop activity and the remaining area of 0.10 ha to fishpond. 1000 polyculture fingerlings will be reared in 0.10 ha fishpond. Either 50 nos. of babkok layers or hundred productive pairs of pigeon will be linked to supplement the feed requirement of 1,000 fingerlings. Mushroom with an average production of 5 kg day^{-1} was found to be a balanced activity.

Resources like feed for poultry, fish and pigeon, substrate for mushroom production, organic manure from the wastes can be secured at the least cost through proper integration in IFS.

Irrigated upland farming system

A study was taken up by integrating crop, dairy, biogas, spawn and mushroom production, silk warm rearing, mulberry cultivation, apiary and homestead garden under irrigated upland conditions in an area of one hectare. The dairy unit consists of 3 milch animals. They were maintained in such a way that two cows are in milking throughout the year. By keeping three animals, a net income of Rs.29,225/year could be achieved. The dung collected from 3 animals is sufficient to generate $2m^3$ of biogas everyday. This could meet the fuel requirement of farm family apart from the preparation of gruel to the dairy unit, lighting two lamps in the farm house and for the boiling and cooking activities of mushroom and spawn production.

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The economic produces and the by-products of crop activity viz., maize grain, sorghum grain, cotton seed secured through ginning of kapas, cake obtained after extraction of oil from sunflower and groundnut seed, soybean etc will be utilized for the preparation of concentrate for dairy animals. Thus the cost of concentrate could be reduced to the level of 35 per cent of the value of commercial products available in the market. Similarly, sorghum grain, maize sheath and straw from the crop activity and biogas from the biogas unit etc could be utilized for the production of spawn and to cultivate edible mushroom at cheaper rate.

The sericulture activity can also be linked along with other enterprises contemplated for irrigated upland situation. The leftout bits of mulberry after feeding silkworm along with feacal matter of the worms could be an excellent supplement for the biogas unit. The left out after reeling the silk yarn is rich in protein and this could be a good supplement for poultry feed, fish and pigeon feed. It can also be mixed with dairy concentrate.

Upland farming system

The meteorological data of different agroclimatic regions of Tamil Nadu have clearly indicated that the seasonal rainfall in rainfed areas is very low and the distribution is also highly erratic. It is evident that if the required moisture and nutrient at the critical growth phase of the short duration field crops are not satisfied, the yield of the crop will be affected drastically. Most of the years, the farmer experiences complete failure of the crop due to non-availability of moisture at the critical stage. This is the reason why conventional rainfed agriculture is said to be out and out a gamble. To overcome complete failure in the rainfed areas through traditional crop activity being practiced, integrating different enterprises and utilizing the biomass built up, have been identified as a successful venture to give regular income to the rainfed farmers. There is a good scope for getting required biomass even with the available erractic seasonal rainfall, to the allied enterprises likely to be integrated viz., goat, buffalo, pigeon, rabbit, etc. The outcome of these enterprises will be an alternate source for protein, CHO, fat, minerals, vitamins and energy. Drought tolerant perennial forest wood/timber value trees can also be raised utilizing the rainfall received round the year and can be a good source for

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valuable fuel wood or timber after some years. Similarly, drought tolerant perennial horticultural fruit crops can also be raised utilizing the rainfall received round the year and thus could help in improving the income of the resource poor rainfed farmers.

Farming system models of different situation could enhance the productivity of the farm, improve the profitability of the farmer and sustain the productivity of the soil through recycling of organic source of nutrients from the enterprises involved. IFS also helps to realize money round the year by sale of milk, egg, meat, edible mushroom etc. to the resource poor farmers. Unlike crop activity, where the involvement of labourers for individual operations are bulky with limited number of operations at wider interval. The enterprise linkage provides good opportunity for day to day operations with limited labourers. This helps the family labourers of the rainfed farmers to work for the farm round the year. The standard of living of the farmer will also improve substantially by the linkage of biogas, quality food commodities for the family use, availability of money round the year etc. However there are certain constraints anticipated in the progress of this technology.

- Heavy investment in the initial stage, especially for the procurement of enterprises.
- Involvement of multi-disciplinary activities like Animal Husbandry, Fishery, Sericulture, Horticulture, Forestry, Agricultural Engineering etc.
- Non-availability of improved cultivars/varieties/breeds at farm site.
- Lack of know-how especially on the constituents of feed and the possibility of supplementing from their own produces with cheaper rate.
- Lack of marketing for the produces from different enterprises at village level

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Questions

1. Pastoral farming involves rearing of animals (True / False).

   Ans: True

2. Farming system approach requires _____ investment in the initial stage (High, Low, No).

   Ans: High

3. Farming system approach _____ of enterprises in a farm (Minimization, Integration, Independence)

   Ans: Integration

4. The classification of the farming systems has been based on the available natural resource and farm activities. (True / False).

   Ans: True

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Lecture No.11

Management - meaning, definition of management, business management, functions of management

Management

Management is a very commonly used term, by people in various sectors. It has wide applications across many sectors. In the last two decades several management courses with specific reference to a sector; *viz*., hospital management, retail management, tourism management, education management etc., have come into existence. This is a testimonial to the expanding application of management for the effective and efficient functioning of several diversified institutions.

Since 'Industrial Revolution' there have been tremendous developments in management as a science. The definitions of management by some of the well known experts are presented.

- Management is defined as the process by which a cooperative group directs action towards common goals. **Joseph Massie**
- To manage is to forecast and to plan, to organize, to command, to co-ordinate and to control. **Henry Fayol**
- Management is a multipurpose organ that manages a business and manages managers and manages worker and work. **Peter F. Drucker**
- **Management is the process of designing and maintaining an environment in which individuals, working together in groups, accomplish their aims effectively and efficiently. Harold Koontz and Heinz Wiehrich**

On review of definition of management by various experts, one could come to a conclusion that management encompasses some key aspects given below;

- It is a process involving a execution of sequence of activities, which are generally planned

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- It involves individual or group effort
- It aims at achieving some goal

Business Management

As stated earlier, management has wide range of applications, when applied to managing business firms it is referred to as business management. So, business management refers to the application of management principles and functions for effectively and efficiently operating business firms to achieve the goals of these firms.

In Horti-business management, the focus is on management of horticulture farms / orchards / plantations / nurseries etc. As any firm, the simple objective is to maximize returns from the farm or enterprise so as to meet the needs of the farm family. Since farming is their livelihood, they have to ensure sustainable returns so that they have a decent standard of living for a long period of time. The farmer uses resources available in the farm and also purchases some resources (Chemical fertilizers etc) from the market based on requirement. He also engages hired labour and available farm family members who are willing to work in the farm. Usually the owner farmer is in charge of production, marketing financial and human resource management, the major departments in a farm / firm.

Functions of Management

Functions of Management refer to the key roles that are performed in any organization for the smooth functioning of the organization to achieve the goals of the organization. Though there are several views about the roles of management, the most common are Planning, Organizing, Staffing, Directing and Controlling (Koontz and O'Donnell).

a. Planning: It is the process of selection of objectives of the firm and deciding the course of action to achieve them. It is about preparing the long term goals and short term targets and deciding the best course of action among various available alternatives so as to achieve the goals of the firm.

b. Organizing: It is the process of identification and grouping of activities and assigning tasks and authority and responsibility to enable employees to

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accomplish organization objectives. Farming involves lot of activities to be done in a sequence at times the role of skilled labour would be required for efficient operations. Though the farmer, in majority farms is the overall manager, he may also delegate some of the work like supervisory work to family members.

c. Staffing: It is the process of manpower planning, recruiting employees for various positions in the organization and training them to achieve the objectives of the organization and offering reasonable remuneration for their services. It involves assessing labour requirements, permanent and casual, depending on the size of the farm and arranging for labour for various operations in the farm.

d. Directing / Leading: It is the process of communicating, motivating and supervising people so as to achieve the organizational goals. It involves effectively and efficiently using human resources by empowering and encouraging them for achieving the goals of the firm.

e. Controlling: It is the process of monitoring the progress of an organization for achieving its objectives**.** Plans are based on assumptions and they have to be executed properly. Plans may require midterm corrections depending on the situation, hence the implementation process has to be closely monitored to avoid loss and attain the targets.

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Questions

1. Planning is the process of selection of objectives of the firm and deciding the course of action to achieve them. (True / False).

   Ans: True

2. _____ level management develop and review strategies and long term plans (Top, Middle, Junior)

   Ans: Top

3. _____ skills are required to see the organization as a whole, "Big Picture" (Technical, Human, Conceptual, Design).

   Ans: Conceptual,

4. _____ represents the Top Level Management (Chairman, Zonal Manager, Factory Manager).

   Ans: Chairman,

5. Assigning authority and responsibility is a part of the _____ function (Planning, Organizing, Staffing, Controlling).

   Ans: Organizing

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Lecture No.12

Planning - meaning, steps and methods of planning, types of plan, characteristics of effective plans

Planning refers to the process of selection of objectives of the firm and deciding the course of action to achieve them. Planning is the first task at all levels of a firm.

The owner of a farm / firm however small will have a vision of what the organization should become in the future. This vision forms the guiding light for setting goals and objectives to be achieved over the years so that eventually the vision could become a reality. A firm will exist for a long period based on its potential to generate revenue for the owner / investors. Therefore, it is essential to set long term goals for a farm / firm and break them into medium term and short term objectives. Setting the long term goals and short term objectives is the primary task of planning.

The second component is to decide the course of action for achieving the long term and short term objectives. The farmer can earn by choosing to cultivate a crop from among the alternatives. There are several binding g factors such as, climate, soil, water availability, technical knowledge and skill, resource availability, consumer demand, expected price etc., which could limit the alternatives available to the farmer. Considering several aspects the farmer could select a course of action to achieve his objectives in a given time frame.

- Planning is essential for all organizations, however small or big, at all levels of management (Top, Middle and Junior level) and employees.
- It gives a sense of direction towards which all the employees will work.
- It enables all employees in the organization to work collectively to achieve common goals. In a business firm it is usually profit maximization.
- Planning is a continuous activity. It has to be done every day, every week, every month, every year or medium and long term plans.
- Planning involves cognitive domain. The Manager must analyze available data or information, understand the environment and prescribe appropriate could of

action. Persons involved in planning must have analytical and technical knowledge and skills to analyze data, interpret the results ad suggest innovative solutions.

- While planning, assumptions are made about the risks and appropriate course of action is decided. In agriculture the risk could be a) production risk (due to climatic factors, floods, pest and disease outbreak etc); b) market risk (fluctuations in price of crop produce); physical risk (fire, theft).
- The plan always aims for an improvement over the past. Hence, it is essential to be creative and develop innovative ideas / solutions so as to achieve new targets / objectives.
- Planning emphasizes effectiveness and efficiency. It is about making right choice and implementing it in the best possible manner.
- Planning facilitates control. The implementation of the plan is monitored and the plan serves as a guide for executing control.

Steps in planning process

Planning is a continuous process. It involves a recurring pattern of sequence of steps / stages. The steps in planning process are;

- Decide objectives – Based on the available recourses, ability to borrow / hire resources and the market conditions the farmers can fix objectives to be achieved in a year or medium or long term. Generally profit maximization is fixed as an objective.
- Analyze opportunities – The farmer has to decide which crops to cultivate during the current year. Generally few crops could be considered for cultivation based on the soil, water and climatic factors. Besides, awareness about technologies for cultivation, consumer demand and expected prices etc., are considered for analyzing the possible crops that could be cultivated.
- Evaluate available alternatives – The available set of crops / enterprises could be evaluated by analyzing the technical, commercial, managerial and financial feasibility.

- Select the most appropriate alternative – based on the evaluation of various options, the final choice of crops or enterprises are decided.
- Implement the plan – The plan has to be meticulously implemented by involving employees. The experiences gained while implementing the plan forms the feedback which is considered while preparing the plan for subsequent years.

Types of plans based on Time Frame

Planning is future oriented. Depending on the time horizon in future, plans are classified as;

- Long term plans – It has a time span of above five years. Long term plans focus on greater changes and achieving the mission of the firm. Ex: Establishment of processing industry, purchase and hiring tractors and farm implements, establishment of fruit orchards, establishment of organic farms etc., which require huge investment and longer period to implement and attain sustainability.
- Intermediate term plans – It has a time span of 3 – 5 years and they focus on achieving the intermediate goals of the firm. Buying smaller or medium sized farm and processing machineries, livestock etc., could be achieved through medium term plans
- Short term plans – It has a time span of 6 – 18 months. It is about the crops to be cultivated in a season or year, maintenance of livestock and farm machineries.

Characteristics of effective plans

- Plan must have specific goals and objectives, which could be achievable, may be with some additional efforts. Irrationally high targets will demoralize employees or low targets will not inspire employees to contribute the best for the organization.
- Planning is for the future. So assumptions have to be made about the expected rainfall, water availability, financial resources, expected prices of crop produce after harvest, government policies etc. The assumptions have to be realistic to the maximum extent possible so that planning will be more realistic. Hence the

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effectiveness of a plan to a large extent depends on the assumptions made about future events.

- Plan must integrate all the departments / divisions in the firm. All the employees at levels of hierarchy in the firm work towards achieving the goals of the firm. While preparing the plan, care must be taken to effectively integrate all the departments and employees so as to maximize efficiency.
- Plan must be simple and flexible. Unexpected events may occur while implementing the plan. Under such circumstances plan should be flexible to accommodate midterm corrections.

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Questions

1. Planning is a continuous process. (True / False).

   Ans: True

2. Intermediate plans have a time span of _____years (above 5, 3 -5, 6- 18 months).

   Ans: 3 -5

3. _____ plan is a long term plan (Strategic, Tactical, Operational).

   Ans: Strategic

4. _____ is a specific action plan for use in recurring situations (Standing plan, Program, Project).

   Ans: Standing plan

5. In a firm, planning is done only by the top level management (True / False).

   Ans: False

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Lecture No.13

Organizations - principles of organizing, forms of business organizations, division of labour

Organizing is the process of identification and grouping of activities and assigning tasks and authority and responsibility to enable employees to work together to accomplish organizational objectives.

Organizing involves;

- Designing and maintaining a structure of roles and responsibilities
- Creating right conditions to enable employees to effectively utilize the resources
- Facilitating official relationships among employees so that they can work together
- Enables employees to understand their roles, authority and responsibilities
- Establish communication channels for information flow

In small farms, the owner farmer is the manager and he may engage few hired casual labour at times of need for doing some cultivation operations. He may delegate some work and responsibility to family members engaged in the farming. Large farmers may engage permanent labour to assist them in organizing and monitoring the operations. Agricultural operations must be carried out in a timely manner so as to reap optimum results. There will be great demand for labour during land preparation, sowing / transplanting, weeding and harvest, especially in mono-cropping areas. In India the large farms are also mostly managed in an informal way and professional formal management system does not exist.

Principles of organizing

There are five important principles of organizing, which are very relevant even today.

1. **Principle of Specialization:** Delineating activities and grouping related activities will facilitate specialization. Creation of different departments based on the activities to be performed. Work specialization results in improving efficiency of operations. With massive expansion of education system there are large contingents

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of skilled human resources to effectively and efficiently perform in various functional areas in a firm.

2. **Principle of Functional Definition:** Authority is defined as "the right to give orders and the power to exact obedience." Authority can be formal or personal. Formal authority is derived from one's official position and personal authority is derived from factors like intelligence and experience. Authority and responsibility go hand-in-hand. When a manager exercises authority, he should be held responsible for getting the work done in the desired manner.
3. **Principle of Span of Control:** It is about the number of subordinates who report directly to a specific manager. If there are too many employees reporting to a manager, it may lead to inefficiency and too few employees reporting to a manager could escalate the cost. Therefore, there is a limit to the number of employees who could report to a manager
4. **Principle of Unity of command:** Each employee should receive orders or instructions from one superior only. If the employee has too many masters to report to simultaneously, he may be confused and it would ultimately lead to deterioration in employee - employee and employee - manager relationships.
5. **Principle of Scalar chain:** It states that the chain of authority in an organization extends from the top to the bottom of the organization. It reflects the communication path in an organization.

Forms of business organizations

Business may be started by an individual, group of few people, or a very large number of people. As the business expands and grows in size it may transform into new form of business organization, based on the need. Generally followed common forms of business organization are;

1. Sole Proprietorship - One person is the owner of the firm and he is the manager of the firm.
2. Joint Hindu Family Firm - The business is owned by members of undivided Hindu family. Generally the head of the family is the leader of the management team.

3. Partnership Firm - The Partnership Act, 1932 defines Partnership as "the relation between persons who have agreed to share the profits of a business carried on by all or any of them acting for all".
4. Joint stock company: A Joint Stock Company is a voluntary association of persons to carry on business. It is an association of persons who generally contribute money for some common purpose. There are two are two types of joint stock company - Private limited (minimum number of members can be 2 and maximum is 50) and public limited (minimum number of members is 7 and maximum is unlimited).
5. Co-operative Society - Established based on the principles of cooperation. It is a voluntary grouping of individuals who are willing to work together for achieving their common objectives.

Each of these organizations have their own characteristics based on which they differ in their merits and demerits. These organizations can be described based on their ownership, ability to raise capital, flexibility in management, risk bearing, profit sharing, continuity etc. The choice of business organization has to be made based on the type of business, size of business, amount of capital required, etc.

Characteristics of various forms of business organizations

Traits	**Single Proprietor**	**Hindu Undivided Family**	**Partnership**	**Joint stock company/Public Limited Company**	**Cooperative Society**
Ownership	Only one person		Few	Many own shares	Only members
Ease of formation	Easy	Inherited	By mutual agreement	Not easy and company should be Registered under Companies Act	Easy and the society is Registered with Registrar of Cooperative

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					societies.
Ability to raise capital	Less	Less	More	Most	Limited as the society is confined to a locality
Limit of Liability	Unlimited Liability	Limited for coparceners and unlimited for karta	Unlimited	Limited	Limited
Flexibility in management	Flexible	Flexible	Less flexible	Based on rules	Based on rules
Management	one	Karta	All the partners or nay one on behalf of the partner is eligible	Board of Directors	Executive committee elected by the members
Profit sharing	Single	Shared	Shared	Dividends / Share value	Dividends / shared
Continuity	Depends on the individual	Inheritance	Mutual agreement	Continuous	Dissolving the society is difficult

* Karta - Head of the family

** An individual, his sons(s), and his grandson(s) (three generations) can become members of a Joint Hindu Family by birth and they are called "**Coparceners**"

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Division of Labour

Segregation of labour based on their knowledge and skills and allocating appropriate work so as to improve the efficiency of the organization is called division of labour. In horticultural farms, grafting is a skilled work and it can be well done by trained employees. Generally some operations such as ploughing, preparation of main filed is done by men labour and sowing, transplanting, weeding, etc., is done by women labour. It can be applied to both technical and managerial tasks. Division of labour is practiced to improve the efficiency of the labour force.

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Questions

1. Authority is defined as the right to give orders and the power to ensure obedience. (True / False).

   Ans: True

2. The principle of unity of command states that each employee should receive orders or interactions from one superior only. (True / False).

   Ans: True

3. Scalar chain refers to the communication path in the organization. (True / False).

   Ans: True

4. Equity principle ensures that manager treats all employees fairly without prejudice. (True / False).

   Ans: True

5. Division of labour promotes specialization, which leads to improving the efficiency of operations. (True / False).

   Ans: True

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Lecture No.14

Job Design and Span of control

Job Design

Job design is an important part which clears specifies the tasks to be done under the "Job" and the duties and responsibilities that form a part of the job, to achieve the specific objectives. It also specifies the qualifications; viz., knowledge, skills, experience, etc required to execute the Appropriate Job. Design would attract right talent forte firm. For eg., Manager of a horticulture farm - would require a under graduate degree in horticulture; human resource management skills for managing labour, analytical skills for preparing crop plans, etc. He is in charge of all activities in the farm and by efficiently using the resources he should maximize profit on a sustainable basis from the farm.

Factors influencing Job Design

The factors that influence the preparation of Job design fall under three major categories, *viz*., Organizational factors, environmental factors and behavioural factors.

Organizational factors: these are job oriented factors such as nature of job, the sequence of activities, physical abilities and working methods to be adopted.

- **Nature of job** - what kind of tasks have to be performed under the job - a manager of horticulture farm is expected prepare plans, implement them and coordinate and monitor the implementation of the plan
- **Sequence of activities:** the whole job can be done by executing a sequence of activities - if the manager has to raise a crop, first he has to plan for land preparation, raise seedlings or sowing etc.
- **Physical abilities:** For some jobs, they prescribe the required physical fitness, which is essential to perform the job. As in the case of persons recruited for army, forest, police services etc.
- **Working methods:** It involves the way of doing the tasks. Spraying of pesticides is a hazardous task; the person involved has to take precautions.

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Environmental Factors

Environmental factors include employee availability and social and cultural expectations. The job design must be able to attract talented employees in a competitive world. In India the people in rural areas are engrossed in social and cultural practices. Hence the jobs have to be designed taking into account the socio-cultural practices.

Behavioral Factors

These are factors that have an impact on the behavior of the employees. Employees must be given certain degree of freedom to take decisions and implement them. If there is pest attack, the farm manager has to respond at the earliest so as to minimize loss, so he must be empowered to take decisions on his own and implement. Conditions must be created so that employees can fully utilize their abilities. One of the major retarders of progress is monotony due to performing the job. Care must be taken to make jobs more interesting and challenging.

Span of control

Span of Control refers to the number of employees who report to the immediate superior in a hierarchy. If very few employees report to a manager it is called a Narrow Span of Control, whereas when a large number of employees report to manager it is called wider Span of Control.

Appropriate Span of Management is essential, because;

- Unnecessarily more managers would add to cost
- Employees may not like a very close supervision.
- Enable quicker and better decision making
- Ensure communication to all employees

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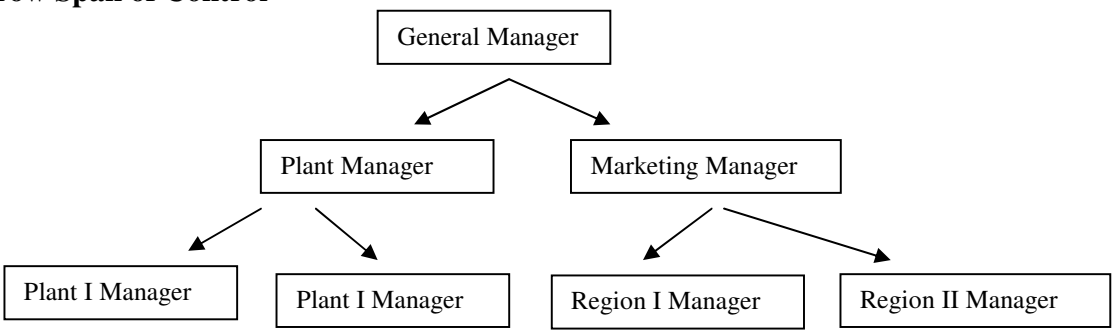
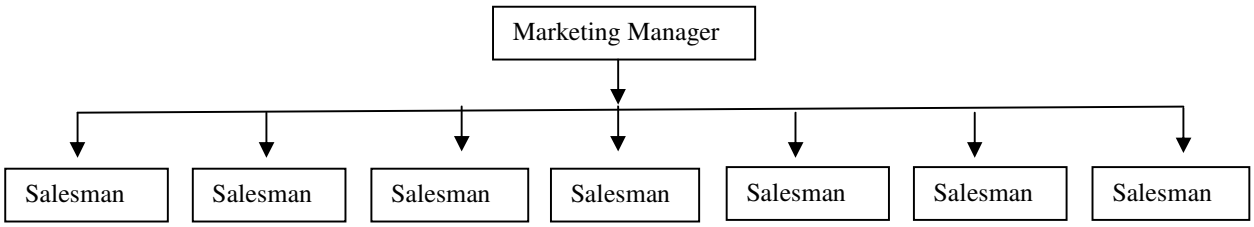
Narrow Span of Control



Wider Span of Control



Benefits of a narrow span of control

- Easy and quick communication
- More attention on employees and better feedback from employees

Benefits of wide span of control

- Reach large number of employees faster
- Requires few managers only

Factors affecting Span of Control

a. Market - If the market is spread over a wider area - a nation / continent, it would require a narrow and larger span of control than for firms operating within a State or District

b. Similarity of job - Many employees doing similar job could be controlled by a single manager. A Marketing Manager may control 10 or 15 Salesmen

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c. Capability of employees - if the employees are highly capable then they can manage by themselves and require wide span of control.

d. Technology - modern communication gadgets have enabled easy and quick communication across continent, thereby facilitating wider span of control.

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Questions

1. Very few subordinates reporting to a manager leads to over supervision (True / False).

   Ans: True

2. If there are too many subordinates, then a manager could communicate with each individual quickly (True / False).

   Ans: False

3. Span of control refers to the number of subordinates reporting to the manager. (True / False).

   Ans: True

4. When a large number of subordinates report to a manager, the managerial cost is high (True / False).

   Ans: False

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Lecture No.15

Responsibility, power, authority and accountability

Responsibility

It is the obligation on the part of the employee to fulfill what is expected of him, for which he has been employed in the organization. Every employee has to face the consequences of his actions, based on which he will be rewarded or punished. Responsibility is vested with all the employees of the organization. Higher the position in a firm, higher the authority and higher the responsibility for performance of the firm The managers are given authority to decide the right course of action, guide and motivate subordinates and also reward or punish subordinates for their actions, so that they will be able to fulfill their responsibility.

The Farm Manager has overall control over the farm. He is responsible for ensuring maximum profit from the crops cultivated. So he has to effectively and efficiently utilize the resources available with him to achieve the desired results.

Power

Individual are capable of persuading or influencing others to behave in a certain way. This ability of the individual to make other people to behave in specific ways is called power.

Types of Power

- Legitimate power – It is the power derived by virtue of his position in the organization – Head of the Department, Dean of a college
- Expert power – The expertise, specialized knowledge and skill possessed by an individual enables him to have an edge over others and others look to him for guidance — doctors, scientists, engineers, astrologers, lawyers
- Referent power – Leader who are able to influence the action of their followers – politicians, statesman – M.S.Swaminathan,

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- Reward power – A person exercises power because of his ability to give rewards for employees based on their performance - Head of the organization / division
- Coercive power - A person exercises power because of his ability to threaten or strongly persuade people – anti-social elements, autocratic managers, employee unions (because of large number of employees)

In an organization, the managers mostly exercise power by virtue of their position in the organization. He will use this power to make employees to perform efficiently to achieve the objectives of the organization.

Authority

It is the entitlement by virtue of the position in the organization to make decisions, regarding what should be done, monitor the course of action as it is implemented, also guide the actions of subordinates and also reward or punish them accordingly.

Features of Authority

- Authority is vested with position so as to enable managers to achieve organizational objectives
- It is the power to make decisions – purchase, plans, appointment of employees, promotion
- It facilitates implementation of the decisions by guiding the subordinates
- It enables to regulate the behaviour of subordinates – especially at times of conflict,

Different types of authority in an organizational context are; line, staff, and functional authority. Line authority is represented by the chain of command; an individual positioned above another in the hierarchy has the right to make decisions, issue directives, and expect compliance from lower-level employees. Staff authority is advisory authority; it takes the form of counsel, advice, and recommendation. People with staff authority derive their power from their expert knowledge and the legitimacy established in their relationships with line managers. Functional authority allows managers to direct

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specific processes, practices, or policies affecting people in other departments; functional authority cuts across the hierarchical structure.

Farm Managers by virtue of their position has the authority to assign work, hire employees, purchase machineries, inputs etc., required for the operation of the firm. In organizations with many levels of hierarchy, the extent of authority at each level is clearly defined to avoid confusion.

Accountability

Accountability refers to the obligation that employees would be held responsible for their actions (or no action). The employees must report the work done by them to their superior and the superior would assess to what extent the employee has been accountable? In other words, it also indicates the contribution of every employee for achieving the objectives of the firm.

Accountability is an important aspect as it keeps the employees disciplined and take good care while executing their tasks. Accountability could be in terms of financial accountability, quality accountability, production targets, etc., depending upon the work done by the firm. Though at a holistic level all employees are accountable to the organization, the accountability of the employees is often under purview of the immediate superior.

It is essential to note that authority; responsibility and accountability of any position in an organization are inter - related.

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Questions

1. Right is defined as the power to make decisions, which guides the actions of the employees. (True / False).

   Ans: True

2. The Head of the Department exercises coercive power with his subordinates. (True / False).

   Ans: False

3. The Professor exercises expert power over his students. (True / False).

   Ans: True

4. Power gives the ability to do something but authority gives the right to that thing (True / False).

   Ans: True

5. The option available for staffing when the manpower demand is low but manpower supply is high is selection. (True / False).

   Ans: True

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Lecture No.16

Direction-guiding, leading, motivating and supervising

Directing is the process in which managers supervise, lead, motivate and communicate with employees for accomplishing organizational goals.

A manager must simultaneously act as:

- a coach: Take responsibility, be assertive and work with employees.
- a teacher: Give on-going guidance and instructions, follow day-to-day progress and provide feedback.
- a leader: Inspire, motivate and Influence your subordinates so that they will strive willingly and enthusiastically toward the achievement of group goals.

Characteristics

1. **Pervasive Function -** Directing is required at all levels of organization. Every manager provides guidance and inspiration to his subordinates.
2. **Continuous Activity -** Direction is a continuous activity as it continuous throughout the life of organization.
3. **Human Factor -** Directing function is related to subordinates and therefore it is related to human factor. Since human factor is complex and behaviour is unpredictable, direction function becomes important.
4. **Creative Activity -** Direction function helps in converting plans into performance. Without this function, people become inactive and physical resources are meaningless.
5. **Executive Function -** Direction function is carried out by all managers and executives at all levels throughout the working of an enterprise, a subordinate receives instructions from his superior only.
6. **Delicate Function –** It is about dealing with people (employees) and conditioning the employees' behaviour for achieving the goals of the enterprise. Human

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behviour is varied and at times unpredictable, hence it requires delicacy for tackling human behaviour.

Role of manager

- Issuing orders that are clear, complete and within the capabilities of subordinates to accomplish
- Incessant training activity
- Motivation of workers to meet the expectations of the manager
- Maintaining discipline and rewarding those who perform well

Directing - Importance

- It guides and helps the subordinates to complete the given task properly and as per schedule.
- It provides the necessary motivation to subordinates to complete the work satisfactorily and strive to do the best.
- It helps in maintaining discipline and rewarding those who do well.
- Directing involves supervision, which is essential to make sure that work is performed according to the orders and instructions.
- Co-ordinate the activities carried out in different parts and to ensure that they are performed well
- It helps to integrate the individual goals with organizational goals
- Directing involves leadership that essentially helps increasing appropriate work environment and build up team spirit

Principles of Directing

Principle of harmony of objectives

Effective directing depends on the extent to which individual (employees) objectives in cooperative activity are harmonized with group (firm) objectives.

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Principle of unity of command

The more completely an individual has a reporting relationship to a single superior, the less the problem of conflict in instructions and the greater the feeling of personal responsibility for results.

Principle of direct supervision

Effective direction requires that management supplement objective methods of supervision with direct personal contact.

Principle of supervisory techniques

Since people, tasks, and organizational environment vary, techniques of supervision will be most effective if appropriately varied.

Supervision

Supervision refers to the duty of the manager to ensure that the employees perform the work as per instructions and plans

Though supervision is required at all levels of management, it is of great importance at the operational level i.e., at the level of first line supervisor. Managers at this level devote maximum time in supervising the work of subordinates. Though the top or middle level managers also supervise the work of their subordinate managers, but it is the first line supervisors who are in direct and constant touch with operatives i.e., workers in the factory and clerical staff in the office. Thus, they are directly responsible for getting the work done through most of the employees in an organization.

Functions of a Supervisor

- Clarify orders and instructions issued to subordinates
- Ensure that they have understand and follow the orders and instructions
- Ensure that subordinates have the required facilities to perform their jobs
- Watch and guide the activities of subordinates in performing their jobs
- Broaden the horizon of his subordinates by making them aware of the wider aspects of their day - to-day work

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- Coordinate the work of different subordinates under control
- Detect errors and omissions and ensure their rectification

Motivation

Motivation is the process of inspiring employees to perform better than what they can normally do, including organizational development

Motivation

Needs ⟶	**Drives** ⟶	**Goals**
Wants	Motives	Incentives
Physiological or Psychological deficiency	Deficiency with direction	anything that alleviates a need and reduces a drive

Theories of Motivation

Type	**Theories**	**Managerial focus**
Content	Needs Hierarchy Theory Two-factor Theory ERG Theory	Motivation by satisfaction of individual's need for money, status and achievement
Process	Expectancy Theory Equity theory	Motivation by clarifying the individuals perception of work inputs, performance requirements and rewards

Maslow's Hierarchy of Needs

1. Physiological needs – food, water, shelter, clothing etc.
2. Security needs - protection against physical and financial threats
3. Belonging needs - Affection, appreciation, friendship, team
4. Esteem needs - self respect, social status, recognition, identity

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5. Self Actualization - experience the purpose of life, satisfaction at the accomplishments, realizing inner potentials.

Leadership

Leadership is the art or process of influencing people so that they will strive willingly and enthusiastically towards the achievement of organizational goals.

Features of Leadership

- Use of non-coercive influence
- Individuals exert influence over others
- Employees or followers help to define leader's status
- Leadership involves authority and responsibility
- Unequal distribution of power between leader and group members

Key Elements

- Using power in a responsible manner
- Understand people at fundamental level
- Inspire followers to perform better
- Develop a harmonious work culture

Leadership and Management

Management	**Leadership**
Drives people	Coaches people
Depends on authority	Depends on goodwill
Inspires fear	Inspires enthusiasm

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Leadership Styles

- Autocratic leadership.
- Bureaucratic leadership.
- Charismatic leadership.
- Democratic leadership/participative leadership.
- Laissez-faire leadership.
- People-oriented leadership/relations-oriented leadership.
- Servant leadership.
- Task-oriented leadership.
- Transactional leadership.
- Transformational leadership.

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Questions

1. The need for water to quench thirst is a safety need (True / False).

   Ans:False

2. Self respect represents basic need of people. (True / False).

   Ans:False

3. Leadership involves use of coercive force (True / False).

   Ans: True

4. Management depends on goodwill while leadership depends on authority (true/ False).

   Ans: False

5. Controlling refers to the duty of the manager to ensure that the employees perform the work as per instructions and plans. (True / False).

   Ans: True

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Lecture No.17

Coordination-meaning, types and methods of controlling-evaluation, control systems and devices

Coordination is a process of integration and synchronizing of the activities performed at all levels of the organization and also with those outside the organization to achieve the goals of the organization.

Importance of coordination

- Creates harmony and resolves conflicts
- Facilitates accomplishment of organizational goals
- Improves the effectiveness of management
- Maintains direction / adherence to plan
- Ensures flow of resources

Types of coordination

- Pooled interdependence – It involves minimum coordination as the units are not directly related. Different sub units are linked by pooled interdependence and make the coordination to the total enterprise.

  Ex. Independent project teams (sub units) connected to head office

- Sequential interdependence – In this case the later units depend on the earlier ones (as in flow chart). It requires greater coordination.
- Reciprocal interdependence – In this case the output of one unit is the input of the other and vice versa

Techniques of coordination

- Rules and procedures – They enable all units to follow common practices and reporting mechanisms. This enables the manager to coordinate the activities at various places.

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- Targets and goals – Time bound targets are fixed and all are expected to achieve the targets. Periodical monitoring is done to balance the progress in various units.
- Hierarchy – Managers at different levels coordinate the activities in their domain and across the levels also coordination is done by top management.
- Departmentation / groups – Departments are formed and the activities within the department are coordinated and linked with the top management for overall coordination.
- Liaison – Some firms may engage Liaison Officer who coordinates the activities of two or more different institutions.
- Committees / conferences / workshops – Periodical meetings such as conference & workshops are organized and committees are formed to facilitate coordination Ex. While preparing annual plans for the firm.

Control

Control is a process of examining whether the activities executed by the firm and its employees and the output generated are in line with the plan and the prescribed standards.

Importance of control

- Coping with uncertainty
- Detecting irregularities
- Identifying opportunities
- Improve performance – reduce costs / improve revenue
- Improve planning
- Maintain order

Control process

- Determining areas to control
- Establishing standards

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- Measuring performance
- Comparing performance against standards
- Recognizing good or positive performance
- Taking corrective actions if necessary
- Adjusting standards and measures if necessary

Types of control

a. Levels of Management

Level of management	**Type of control**
Top	Strategic
Middle	Tactical
Junior	Operational

b. Direct or Preventive

c. Control in functional areas

1. Quality control
2. Financial control (Budget / expenditure)
3. Inventory control
4. Production control (efficiency / cost)

Control system

1. **Determine what to control**. What are the objectives the organization hopes to accomplish?
2. **Set control standards**. What are the targets and tolerances?
3. **Measure performance**. What are the actual standards?

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4. **Compare the performance the performance to the standards**. How well does the actual match the plan?
5. **Determine the reasons for the deviations**. Are the deviations due to internal shortcomings or due to external changes beyond the control of the organization?
6. **Take corrective action**. Are corrections needed in internal activities to correct organizational shortcomings, or are changes needed in objectives due to external events?

Feedback from evaluating the effectiveness of the strategy may influence many of other phases on the strategic management process.

A well-designed control system will usually include feedback of control information to the individual or group performing the controlled activity.

Simple feedback systems measure outputs of a process and feed into the system or the inputs of a system corrective action to obtain desired outputs. The consequence of utilizing the feedback control systems is that the unsatisfactory performance continues until the malfunction is discovered. One technique for reducing the problems associated with feedback control systems is **feed forward control**. Feed forward systems monitor inputs into a process to ascertain whether the inputs are as planned; if they are not, the inputs, or perhaps the process, are changed in order to obtain desired results.

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Questions

1. Pooled interdependence involves minimum coordination (True / False).

   Ans: True

2. Rules and procedures enable all units in the firm to follow common practices. (True / False).

   Ans: True

3. In reciprocal interdependence all units depend on preceding units, as in a flow chart. (True / False).

   Ans: False

4. Coordination of activities within and outside the organization is essential (True / False).

   Ans: True

5. Liaison coordinates the activities of two or more different organizations. (True / False).

   Ans: True

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Lecture No.18

Budgeting as a tool for planning and Control. Record keeping as a tool of control

Budgeting as a Control

A budget serves as a control tool to provide standards for evaluating performance.

A budget can cover any of the following:

- Profit planning – forecast of revenues and expenses
- Cash budgeting – forecast of cash needs and sources
- Balance sheet forecasting – anticipating future assets, liability and net worth position of the business

Profit Planning (Pro-forma Income Statement)

The sales forecast and corresponding costs and expenses are the major inputs to a Profit Plan. Why is profit planning important? It enables the entrepreneur to see the complete picture and to analyze how each cost and expense item behaves in relation to changes in the level of sales. Budgeted amounts are then compared with actual results and variances are analyzed and corrected.

Cash Budgeting

A Cash Budget is used to determine anticipated cash inflows and outflows so that the business maintains the optimum level of cash (cash on hand being a non-earning asset). It also provides information on whether or not additional financing is required to address cash shortfalls.

The first step in preparing a Cash Budget is to list down all transactions having cash flow implications. For example, among the items included under Cash Receipts are: collection of accounts receivable, cash sales, and proceeds of borrowings. Cash Disbursements, on the other hand, may include cash operating expenses, raw material purchases, equipment and other asset purchases, and repayments on bank loans

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(including interest). From this exercise, a Net Cash Balance is derived. This is then carried over to the next period (month or quarter, depending on the level of detail of the cash budget) as the beginning cash balance. Some businesses choose to have a pre-determined minimum required cash balance which they maintain at all times.

Balance Sheet Forecasting (Pro-forma Balance Sheet)

This involves estimating asset levels to support the forecasted sales targets. For example, if the higher sales targets would necessitate opening more retail outlets, then necessarily, investments in fixed assets are a must. Moreover, changes in the funding mix (*i.e.*, a higher level of long-term loans vs. short-term borrowings) may also occur.

Record keeping as a control

Keeping accurate and up-to-date records is vital to the success of any business. The business must realise that records kept will be one of the most important management tools it possesses and, therefore, it should be allocated due importance. Many business owners invest a lot of time and effort into the running of their business and yet fail to realise the importance of maintaining good documentation. The business owner is looking for the maximum return from their investment and the maintaining of good records is part of that equation.

For the business to achieve its success and profit, it is necessary for the scores to be kept, as it were. Keeping records is really like score keeping - if you went to a football game where no one kept the score, you would have to ask “what was the point of that whole exercise?” By keeping the score you are able to work out who is winning and whether you are winning at all. Many people do not know the "current score" of their own business because they have failed to realise the importance of keeping good and adequate records. Any record keeping system should be accurate, reliable, easy to follow, consistent as to the basis used and be very simple. Good record keeping is vital in regards to meeting the financial commitments of the business and providing information on which decisions for the future of the business can be based. While the business maintains records to monitor and record its normal business activities, it is also necessary because of obligations under the taxation laws.

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Questions

1. P charts facilitate quality control (True/ False).

   Aus: True

2. Budget is a method of financial control. (True / False).

   Aus: True

3. ABC analysis facilitates _____ control (financial, production, inventory, relationship).

   Ans: Inventory

4. Control function provides inputs that could be used in planning (True / False).

   Aus: True

5. Six sigma is a method of production control. (True / False).

   Aus: False

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Lecture No.19

Functional areas of management- Operations Management- physical facilities, implementing the plan

Functional Areas of management

In any business organization, the commonly identified functional areas are production, marketing and finance. In recent years, the personnel and materials that go into the production process, packing process and marketing process have gained importance and given due importance by treating it separately as personnel and materials management.

Organization functional areas are

1. Production Management
2. Marketing Management
3. Financial Management
4. Personnel Management
5. Materials Management

The above functional areas are not watertight compartments. The decisions / action taken in one functional area affect the other functional area. The decisions in production and marketing are influenced by the actions on such maters as volume, terms and conditions of loan. The quantity, quality and timely availability of materials also has a bearing on production and marketing decisions. The labour motivation towards work, supervising, ability / skill of supervising personnel also affects production and marketing.

Production / Operations Management

In general, operations management refers to management of all operations of a production unit. So it may be interchanged with production management. Production is a system for converting inputs into finished products. The production often refers to manufacturing industries. Yet, in reality, production can be defined as the creation of value or wealth by producing goods and services. Production management refers to planning, organization, direction, co-ordination and control of the production functions

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carried out in such a way that the desired goods or services could be produced at the right time, in right quantity and at the optimum cost.

The production management involves the following activities:

a) Developing the product / service

b) Establishment of proper organization structure

c) Selection of personnel

d) Establishment and maintenance of factory building plant and equipment

e) Management of purchases, storage and transportation of raw materials

f) Ensuring effective control

In production management decisions to be taken consist of

a) What to produce

b) When to produce

c) How much to produce and

d) How to produce

Production includes a) manufacturing of commodity (physical output) and b) creation of services

Deciding whether to buy or make

The process of changing raw materials into finished products that is delivered to customer is a long process, unusually involving many companies performing different productive functions. One company many refine the raw materials, several many perform manufacturing processes, and another may assemble the parts into the finished product and so on. A given company many perform a large or small part of this process. Fixing the place and size of het segment is an important decision.

Deciding to specialize or generalize

A food (fruit) processor may

1. Grow or buy his fruit requirements

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2. Sell his output to a wholesaler, retailer or directly to consumer

The advantages of specializing and concentrating in a small segment are:

1. Less capital investment is needed
2. Management can concentrate better on small segment
3. Planning, directing and controlling are less complex

The advantages of a larger segment are

1. More control of the process
2. Less idling (time) of men and machinery
3. Greater potential of growth

The economics of decision to set up a production unit. The decision on what segment of the total transformation process to be depends on the economics of situation. Having decided on the segment of the transformation process, one can begin to plan, obtain and install the producing unit.

Physical Facilities

The physical facilities of the firm would include building, machineries and equipments, furniture and fixtures and others. They must be designed to aid employees in producing the desired product or service at a low cost. The design function includes lay out, selection of machines and equipments and determination of features desired in the planning.

Steps in planning the physical facilities

Planning the physical facilities require the following steps.

1. **Good selection and arrangement of physical facilities can pay dividends.**
2. **Determine the goods and services to be produced and performed.**

Break the product or services into parts, operations and activities. Parts are the divisions of the product that, when assembled form output. Some outputs have only one part while others may have many. Operations are the steps or segments of work performed to accomplish the conversion of inputs into outputs. Activities such as moving

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raw materials are necessary for the performance of operations. Non-activities including delays are caused by imbalance of times of the operation. Activities and non- activities may not be identified fully until the final lay out planning is done. The number and extent of non-activities should be minimized.

3) Determine the time to perform operations

Each operation required to produce a good or perform service consumes the time of work of machines and personnel. The total time includes the time to perform the operation plus time for unavoidable delays and personnel needs. The time of work determines the number of machines and the number of people needed to perform the work and speed of conveyors.

4) Estimate the number of machines and workers needed.

Knowing the time that a machine takes to perform an operation on a product, and knowing the planned production, the number of machines needed can be determined.

5) Decide the best arrangement for the sequence of operations.

The operations management has to ensure the least movement of product and people. However, people and machines should not be idle and space available should not be wasted. The plant can be planned according to either or a combination of both of the following two types of layout.

a) Product or Service layout

b) Processor or Function layout

a) The product layout places machines or serving units in such a way that the product moves along a line as it passes through the sequence of operations. Materials and people move forward from operation to operation with little back tracking.

Advantages

1. Specialization of workers an machines
2. Less inventory
3. Fewer instructions and control

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4. Faster movement
5. Less space for storage

b) The process layout is based on keeping machines and workers busy thus idle time is reduced to a minimum. Machines performing the same type of work and workers with similar skill are grouped together.

Advantages

1. It has flexibility to take care of chance
2. It uses general – purpose machines and equipment
3. Efficient use of machines and personnel
4. Few layouts are combination of both to take advantage of the situation. Decreasing inventory compensates idle time created by differing production.
5. Determine the general layout
6. Plan the detailed layout for efficiency and effectiveness

Some specific matters that the manager should include in the final layout planning are:

a) Space for movement
b) Utilities
c) Supply of equipments
d) Safety
e) Working conditions
f) Cleanliness and maintenance
g) Product quality

Implementing the plan

The first step in implementing the plan is to test it see whether it is sound (working well). There are many ways to do this. One method is to have employees or other persons who can give some experienced opinions – review of the plans and

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suggestions. Another method is to simulate the process by moving templates or models of the goods or people through the process so that their movements can be analyzed. Some mishaps can be deliberately included to see what happens. The actual implementation of the plan will depend on whether it is a brand new venture, a layout for an existing building or rearrangement of the present layout.

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Questions

1. In process layout the machines are placed such that the product moves along the line as it moves through the sequence of operations. (True / False).

   Ans: False

2. In product layout machines performing similar functions are grouped together. (True / False).

   Ans: **False**

3. Make or buy decisions are a part of production and operations management (True / False).

   Ans: True

4. Quality control is an important component of production management (True / False).

   Ans: True

5. Capacity planning is for long term (True / False).

   Ans: True

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Lecture No.20

Scheduling the work, controlling production in terms of quantity and quality

The planning and control process is a communication system designed to convey to employees what, how, where, who, when and why the work is to be done.

1. Work design

After the layout of the plant, plan for the movement of materials. Steps involved in work design and improvement are:

a) State the problem

b) State the functions

c) Collect the information

d) List alternatives

e) Formulate, review and test eh selected changes

f) Install and follow up changes

2. Work measurement

Physical work can be measured more precisely than mental work but it sill requires judgment. The time to perform can be divided into i) time to perform the work and ii) time for personal needs and irregular activities.

The methods used to determine time to perform the work are:

i) Estimates by people experienced in the work

ii) Time study, using a watch or timing device

Adding time for personal needs

Personal and irregular time allowances are added to normal time to obtain the total time in which operation should be performed under normal conditions. Time for use of rest rooms, poor working conditions and fatigue are some allowances of personal needs.

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3. Planning

The optimum plan from a production standpoint is to maintain a constant level of production to its capacity for both machine and person of one product, with inputs needed arriving and outputs taken by customers as and when they are finished.

4. Scheduling the time for work to be done

Orders are scheduled into production

a. On a preplanned schedule

b. When inventory is reduced to a certain low level

c. When orders are received and inventory is not available

Schedules set the times to produce specified goods. The scheduling can be done by one of the following methods.

1. Sending orders into the shop in sequence. The shop processes the job through operation on a first come first served basis.
2. Setting priorities and processing orders accordingly. Rush orders which have to priority.
3. Using either (i) or (ii) for each operation
4. Setting a specific time for each operation and for each job.

Controlling production: Quantity and quality

If no control is expressed over operations the process will fail. The principle of exception should be followed. Controlling by exceptions involves comparing the plans with the plant's performance. In simple systems, this comparison can be made informally by personally observing performance. Orders may be filed by due date, work to be completed in each department may be recorded each day or bar charts may be used. The record is obtained through feedback or by having forms returned with information on work performed. Changes may not be done when performance equals or exceeds the plans. An exception arises when performance does not reach the level desired. Then the operations manager has to decide what to do to improve future performance.

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The methods used in quality control have been developed further than those for other control systems and are used in many other systems, including cost control. The system begins with setting the level of quality desired. The quality level is based on :

1) The value of quality to the customer

2) The cost of the quality

Then controls should be established to obtain that quality. The cost will increase, if an attempt is made to exceed that level of quality. At the same time, if quality is allowed to go below the level, then the firm will lose its customers.

Steps needed in any system of control are:

1. Set standards for your quality range
2. Measure your actual performance
3. Compare performance with standards
4. Make corrections when needed

Standards of quality maybe set for dimension, colour, odour / flavor, strength, content weight, service and other characteristics.

ISO Standards

The World Trade Organization's agreement on technical barriers to trade emphasizes the vital role laid by International Standards in providing the technical foundation for global markets.

When this is done, conflicts are minimized and agreements are more. On this occasion it may be worthwhile to review the development of the new version of ISO 9000 Standards for Quality Management Systems, which have now become so essential for acceptance of products and services at the International Level.

The ISO 9000 Standards originally evolved for Quality Management Systems for manufacturing units. The same formulation was then extended to service and software fields. There has been a need felt over the years for a genetic system which is all comprehensive ad at the same time easily applicable to the business of the user, whether

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it be in manufacturing or service or software fields. Also in the meantime the environment management standards have come in.

Taking into account all these and the fact that the ISO 9000 Standards were last revised in 1994, ISO's Technical Committee TC 176 had taken up the task of bringing out "Year 2000" revision. This is expected to be announced at the end of year 2000, though by now the finalized draft has been circulated which contains all the essential features.

The Changes

The current ISO 9000 family of Standards contains over 20 Standards and documents. The year 2000 ISO 9000 Quality Management Standards (QMS) on the other hand will have only three primary standards, which are :

1. ISO 9000 Quality Management Systems – Fundamentals and vocabulary
2. ISO 9001 Quality Management Systems – Requirements
3. ISO 9004 Quality Management Systems – Guidance for Performance Improvement

The current ISO 9001, ISO 9002 and ISO 9003 Standards will be consolidated into a single ISO 9001 Standards. A reduction of scope of the ISO 9001 requirements will be permitted to omit clauses that do not apply to a particular organization. In addition to the three core standards, ISO 10011, the auditing standard will be consolidated with the ISO 14010, ISO 14011 and ISO 14012 environmental auditing standards.

Process Model

The revision of the ISO 9000 QMS makes a radical change and repositions the 20 elements of the current ISO 9001 into four parts.

1. Management Responsibility
2. Resource Management
3. Product and / or Service Realization
4. Measurement , analysis and improvement

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The process model is similar to the well-known Deming's PDCA (Plan, Do, Check and Act) cycle of quality improvement. This kind of a structuring permits the applicability of this model to any business or service. The concept of continuous improvement is intended to stimulate the efficiency of the organization, to increase its competitive advantage in the market and better respond to customers' needs and expectations.

Another new item that has been addressed is the measurements to evaluate customer satisfaction, providing key information for continuous improvement.

In terms of resources, attention has been given for the need to provide and make available all necessary resources, which will now include elements such as information, communication, infrastructures and work environment protection.

Changes have also occurred in terminology. Now the more natural term "organization" is used instead of "supplier" in the old standard. The expression "product and service" is used instead of only "product" as was in the old standard. These changes are friendlier with the normal use and meaning of the words. Also compatibility with ISO 14001 environmental standards is sought to be achieved through informative annexes correlating the clauses.

Transition

There is an ISO document on Transition Planning Guidance to help the change over. Further authentic information regarding revision can be obtained from the Bureau of Indian Standards (BIS) which has played a leading role in the deliberations of the ISO's Technical Committee. Since the new standards are integration and simplification of the older one, transition should be easy and also there is sufficient time given for the process.

The process model is well suited to really focus on the needs of customers and if genuinely implemented should help the growth of business. In fact this is the real essence of the change over. While the past standard no doubt implied this, there was no explicit requirement to measure customer satisfaction and initiate continuous improvements. On

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the other hand, in the new standard these are explicit and essential part of the elements. Also they include other interested parties (suppliers, owners, employees and society) under management responsibility.

Over 5,000 firms in India are estimated to have obtained ISO 9000 Certification so far. It is no more a luxury but has been considered commonplace for achieving standards of product or service. There has also been the unfortunate side, namely the creeping in of the "certificate culture". Once the certification is obtained, organizations tend to be complacent and do not effect continuous improvement. What the customer needs is not a certificate to be shown to him but provision of an improved product and service, which is by itself the best certificate that any organization can get. This has been the secret of the Japanese and Korean success. The new standards will help simplify the procedural part and invigorate the commitments of organizations to continuously provide better products and services to their customers.

Hazard Analysis Critical Control Point (HACCP)

Since its introduction in the early 1970's, HACCP system is a cost effective management tool for food safety assurance that can be applied to all sections of the food chain from primary production to processing, manufacturing, distribution and retails to the point of consumption. The WTO and Sanitary and Phytosanitary Measures (SPS) agreements emphasize that food safety standards be based on scientific principles as they relate to risk assessment. Currently, the emphasis by organizations like Bureau of Indian Standards is to issue certification on HACCP, which will enhance the marketability of Indian food products, like meat, poultry, vegetables, sea foods and processed foods in the global market. Training programmes need to be conducted to increase the awareness of HACCP among the food managers, which could also help in achieving certification.

Food safety is a social responsibility and its achievement can only be possible with the active participation of all segments, *viz*., the producer, the processor, the consumer and the government.

Farm operations

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The greatest amount of attention that needs to be paid is to the observance of hygienic and sanitary practices in various farm operations. Inadequate consideration given to potential hazards at the farm level is often responsible for making subsequent correction of the problems unnecessarily expensive or in some cases rendering them insoluble. Some of the typical problems and the foods in which they are encountered are pesticide residues in fruits, vegetable, egg and milk; pathogens in fruits, vegetables, spices, poultry and sea food; insects in fruits, vegetables, spices; high microbial load in most fresh produce, milk, meat and poultry; mycotoxins in cereals, oilseeds and milk. Almost all these problems can be effectively overcome by adherence to farm practices.

Total Quality Management (TQM)

ISO 9000 deals with the process. Total Quality management is about people. TQM link quality to customer satisfaction by acting on four aspects – customer requirements, management commitment, total company wide participation and systematic analysis of quality problems. TQM provides the overall concept that fosters continuous improvement. TQM philosophy stresses a systematic, integrated, consistent, organization wide perspective, involving every one and everything in an organization. ISO is a milestone in TQM journey.

Core concepts for TQM are

1. Customer satisfaction – be customer focused.
2. Internal customers are real
3. All work is process. Make it a good place to work, create a work culture, which will lead to satisfied customers.
4. Measurement – measure the work
5. Teamwork – top management must be involved
6. People make quality – Do it right first time, quality is an attitude, empowering.
7. Continuous improvement cycle
8. Prevention

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Questions

1. ISO 9004 Quality Management Systems is about Guidance for quality control. (True / False).

   Ans: False

2. PDCA stands for Plan DO Check Act (True / False).

   Ans: True

3. HACCP stands for Hazard analysis and critical control path. (True / False).

   Ans: False

4. Total Quality Management emphasizes continuous improvement (True / False).

   Ans: True

5. The level of quality is fixed based on cost of quality. (True / False).

   Ans: True

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Lecture No. 21

Materials Management-types of inventories, inventory costs, managing the inventories, economic order quantity (EOQ)

It deals with purchasing and controlling the materials used in the production process.

1. Material (goods) planning and control

Decisions to be taken in this are:

a) Amount of materials needed for output desired

b) Amount of inventory and its storage and recording

c) Vendor relations

d) Quality material and price per unit

e) Quantity and time of order

f) Methods of receiving and transporting

g) Handling of defective materials and stock

Policies and procedures should be established so that most of these decisions become routine in nature. When exceptions occur, the concerned authority should correct them.

Materials are a form of investment and unit they are sold and produce revenue, the money cannot be used for other income producing purposes. Consequently, the manager wants to buy (the materials) in small quantities and sell the output rapidly in order to obtain income. But, if quantities are too small, the income producing opportunities may be lost and customers may be missed. Also, purchasing in small quantities usually results in higher prices. The losses due to theft should be kept minimum. While increasing controls may reduce cost from losses, it also increases the controlling cost. The problem is to find the balance between these two costs.

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2. Inventory control of raw materials

The use of inventory is to take care of seasonal variations in demand. The inventory of materials, parts, goods and supplies represent a high investment in all business. Many companies failed because their inventories locked up too much money or the items in inventory become obsolete, impaired or lost. The purpose of inventory is to disconnect one segment of a process from another, so that each segment can operate at its optimum level of performance.

Types of Inventories

a) Purchased materials, parts, products

b) Goods in process or between operations

c) Finished goods at the factory, warehouse or store

d) Repair parts for machines

e) Supplies for the office, shop or factory

f) Tools

Each of these types of inventory is performing basically the same function and can be studied in the same way. Some of the inventories represent a much greater investment, cause more serious trouble if the items are not in stock and are more costly to restock than others.

Determining Economic Inventory Level

The detailed analysis made to determine economical inventory level must consider total inventory which should not be so great hat it make it difficult to pay current bills in cash. The fig 8.2 shows how the number of units of a purchased item varies over a period of time. When a purchased item is received the inventory increases instantly. The units are removed from inventory, as they are demanded. At certain levels or when inventory falls to a specific level, a purchase order is sent to the vendor. The order will be received sometime later. In the meantime, more units may be drawn from inventory. This cycle is repeated for each item purchased.

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For items in process and in finished goods, the inventory builds up over a period of time as goods are produced so that the vertical line in the figure will be sloping upwards to the right. The inventory builds up because production is greater than demand. Too little inventory may cause stock-outs (shortage of the material or product when it is required for production or sale). The problem is to strike the optimum inventory to carry converted in terms of Economic Order Quantity (EOQ) for consumption materials and economic lot size for batch production.

The variables are

a) Annual requirement of the item (c)

b) Ordering cost(S)

c) Inventory carrying cost per unit (I)

The model is given by the equation,

EOQ = _____

Uses of the model

The model is an excellent guide in scientitfic inventory management. This compels the manager to analyze the requirements and cost of inventory holding. It is useful in the inventory management by fixing.

1. Maximum and minimum level of stock holding.
2. Ordering level I (that is, the stock point when reordering is required, and
3. The most economic quantity to order.

The above is a simple and deterministic model, which assumes constant rate of consumption, constant cost of ordering and holding inventory and uniform lead-time (that is, the time lag between replenishment, action and actual supply or availability of the items).

3. Determining when to order

The level of inventory at which an order should be issued is based on :

1. The quantity to be used between times an order is issued and items are received.

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2. A quantity needed to provide a margin of safety.

The time to be allowed in (1) is determined by the time taken for

a) Order to be processed by the firm

b) Order to be transported to the vendor

c) Vendor to make and pack the items

d) Items to be transported to the firm

Estimates of cost of carrying inventory ranges from 15% to over 100% of the average inventory investment for a year. Values of 20% to 25% are often used. The recording point quantity can be estimated by computing various levels and reordering points and adding the cost of carrying the inventory and cost of running out of goods multiplied by the probability of running out. The lowest cost is the best order point.

4. Quantity per Order

The quantity per order affects the level of inventory and the time between orders. Orders may be placed at certain intervals such as once in a week, a month or quarter, when the amount ordered can bring the level of inventory up to a predetermined standard amount or when the inventory reaches a certain quantity.

5. Ordering Procedure

Many items can be ordered on a routine basis. The procedure starts with need as reflected by the reorder points and requires keeping a

a) Perpetual inventory which records when the inventory has reached the reorder point.

b) Quantities set aside that will not be used without making out a purchase order.

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Questions

1. Inventories are required to take care of seasonal variations in demand (True / False).

   Ans: True

2. Ordering cost per unit is assumed to be constant, while estimating EOQ (True / False).

   Ans: True

3. Economic order quantity is the level of inventory that minimizes the total inventory holding costs but maximizes ordering costs (True / False).

   Ans: False

4. Ordering cost includes the actual cost of the goods (True / False).

   Ans: False

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Lecture No. 22

Personnel Management-recruitment, selection and training, job specialization

1. Recruitment

- Identifying and attracting prospective candidates

Recruitment

- Sources – Internal (employees within the firm – promotion) and External
- Means – advertisement, campus placement talk, job fairs, referrals, online sourcing

Recruitment Process

Perform job analysis ⟹ Design job description ⟹ Develop a job specification ⟹ Attract a pool of aspirants

2. Job Analysis: It is the process of determining the tasks to be done in a job and the skills and abilities that the employee must have to fulfill the duties and responsibilities of the job.

(Processing unit - Production manager – tasks to be done - planning production, scheduling, managing production labour, quality control, expenditure control)

(Production manager – Skills and abilities required – Engineering knowledge and skills (B.E., labour management, production planning, quality management)

Job analysis involves;

- analyzing the environment (nature of competitors, customers etc)
- determining the duties and responsibilities of the job, and
- observing and recording various tasks of the job as they are performed

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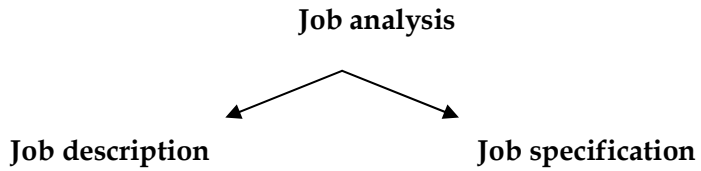
Job analysis forms the basis for job description and job specification.

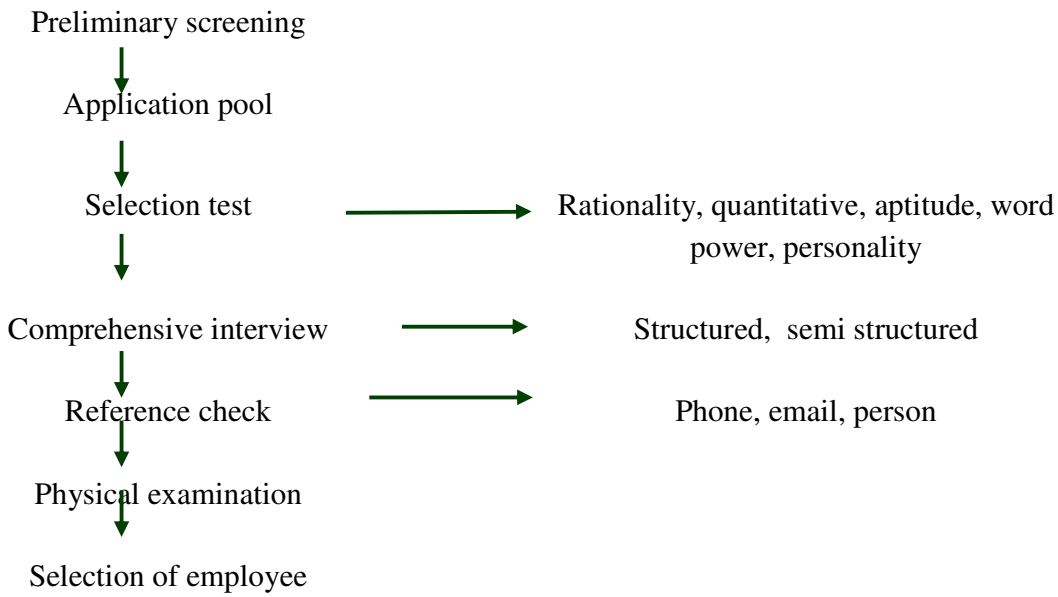


Job description (emphasis on the job): objectives of the job, work to be performed, skills and responsibilities required, working conditions and relationship with other jobs.

Job specification (emphasis on the individual): minimum qualification (education, skills, experience) required additional preferred experience.

3. Selection - Choosing particular candidates from a pool of prospective candidates

Selection Process



4. Training

Human resource capacity building is an important factor that contributes for organization and employees growth. Training is a process of imparting new knowledge or skill to an individual so that they are able to perform better in their job. Training is a process that tries to improve skills or add to the existing level of knowledge so that the

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employee is better equipped to do his present job or to mould him to be fit for a higher job involving higher responsibilities. It bridges the gap between what the employee has and what the job demands. Since training involves time, effort & money by an organization, so an organization should to be very careful while designing a training program. The objectives & need for training should be clearly identified & the method or type of training should be chosen according to the needs & objectives established.

Training is objective oriented. Trainings are designed to bring about a desired specific change in the individual; hence training programs are designed to accomplish the training objectives. The need for training is identified by analyzing the need for new knowledge or skill, improve organizational setting – team building, orient to new policies, new products or services of the firm, etc.

Training may be offered to new employees or existing employees, within the firm or by other institutions. Training new employees (Induction training) is important as it enables a new recruit to become productive as quickly as possible. It can avoid costly mistakes by recruits not knowing the procedures or techniques of their new jobs. The length of induction training will vary from job to job and will depend on the complexity of the job, the size of the business and the level or position of the job within the business.

For new employees training is offered on the job or field training, to familiarize the employee to the policies, systems, procedures, products and services, customers, industry trend and suppliers and distributors. For the existing employee, training is offered to improve knowledge / skill or managerial practices required to perform in a higher cadre.

On-the-job training

On the job training occurs when workers pick up skills whie working along side experienced workers at their place of work. For example this could be the actual assembly line or offices where the employee works. New workers may simply **“shadow”** or observe fellow employees to begin with and are often given instruction manuals or interactive training programmes to work through.

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Coaching is learning by doing. In this, the superior guides his sub-ordinates & gives him/her job instructions. The superior points out the mistakes & gives suggestions for improvement.

Job Rotation: - In this method, the trainees move from one job to another, so that he/she should be able to perform all types of jobs. E.g. In banking industry, employees are trained for both back-end and front-end jobs. In case of emergency, (absenteeism or resignation), any employee would be able to perform any type of job.

Off-the-job training

The employees are **taken away from their place of work** to be trained. Training can take the form of lectures or self-study and can be used to develop more general skills and knowledge that can be used in a variety of situations, e.g. management skills programme.

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Questions

1. The job specification is about the objectives of the job, work to be done and working conditions. (True / False).

   Ans: False

2. Job specification emphasizes on the skills and responsibilities. (True / False).

   Ans: False

3. The process of identifying and attracting prospective candidates for preferring a job is called recruiting. (True / False).

   Ans: True

4. Transfer is offered to employees to improve their skill and knowledge about the job. (True / False).

   Ans: False

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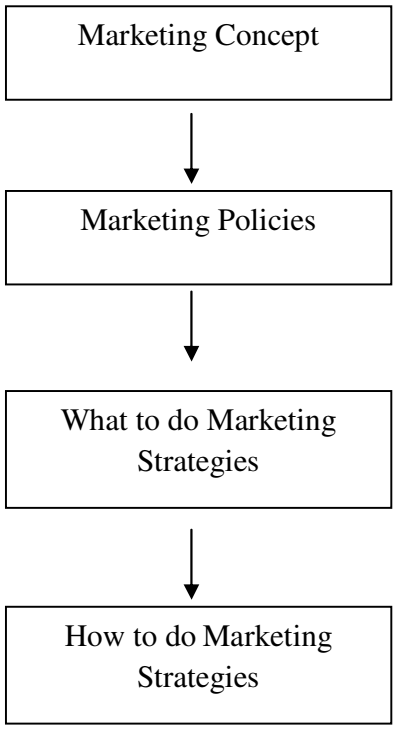
Lecture No. 23

Marketing Management – Meaning, Marketing functions

Marketing management refers to distribution of the firm's product or service to the customers in order to satisfy their needs and to accomplish the firm's objectives.

Marketing includes developing the product or service, pricing, distribution, advertisement, merchandising doing personal selling, promoting and directing sales and service to customers.

Marketing is an essential function because unless the firm has a market, or can develop a market, for its product or service, other functions of staffing producing and financing are futile.



Developing Marketing Strategies

Marketing Concept: the marketing concept is based on the importance of customers to a firm.

a) Determine what the customer's needs are and how those needs can be satisfied.

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b) Select the market that would be served.

c) Decide what advantage that will give a competitive edge over other firms.

- Meeting customer's needs
- Learning customer's needs
- Conscious about the firm's image
- Looking for danger signals

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Questions

1. Storage function creates time utility. (True / False).

   Ans: True

2. Transport function creates place utility. (True / False).

   Ans: True

3. Processing function creates form utility. (True / False).

   Ans: True

4. Marketing strategies is about identifying market opportunities in the long run (True / False).

   Ans: True

5. Marketing aims at fulfilling consumers' needs (True / False).

   Ans: True

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Lecture No. 24

Marketing Institutions - shandies, co-operative and regulated marketing institutions

Shandies

Shandies are village level markets that are under the supervision of the local panchayats or revenue department. These are markets which emerge either once a week, or month *or* during festivals. They usually occupy an established place whether it is pavements *or* squares or streets. Sometimes they *are* specific to a commodity such as cattle or wool *or* festival and ritual needs. Most of the time shandies are not specific to a commodity but offer a wide range of products. The characteristics of such markets which brings them their popularity is that their prices *are* often lower than the prices in built-up markets. This lower price is possible because of low overheads in terms of building space and also because often the producers themselves are the traders. Most of those who sell in these markets have other occupations and therefore the income on "market day" is supplementary income. Grading depends of the sellers. Infrastructure facilities are poor. In most cases prices are not displayed.

Co-operative marketing

Need for Development of Co-operative Marketing

With the commercialization of agriculture efficient marketing is as necessary as scientific agricultural operation and so side by side with the progress in cultivation, methods of suitable machinery for efficient sale of the farm produce should also be evolved. The income of the farmer today depends to a large extent on the ability with which he is able to market his produce for a fair price. Even if the production side is strengthened and cultivation improved the cultivator would not gain much, if there is no proper arrangement for marketing of his produce as the benefits of better farming would probably be reaped by middlemen intervening between them and the ultimate consumer. To a farmer, who is conscious of his economic interests, a marketing cooperative is as important as a co-operative providing agricultural productive credit.

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Organization, Membership and Resource s of Co-operative Marketing Societies

Under the system of co-operative marketing the whole responsibility of marketing of agricultural produce is undertaken by the farmers themselves organized on a co-operative basis. The area of operations of a marketing society is usually fixed with reference to local conditions. The area may be different according to the type of producers to be dealt with. As such, a paddy marketing society may have an area coterminous with that of a Taluka, whereas a marketing society dealing with commercial crops like cotton, jute or sugarcane may extend to a whole district or whole area growing the crops.

Membership of the marketing society is open to individual agriculturists, large-sized credit societies, service co-operatives, or other rural credit cooperative societies and multi-purpose societies. Traders are normally not taken as members except where the marketing society may have dealings with them. Even in such cases, their number is very small and they have usually no right to participate in the management of the society and share in profits.

The sources of capital are usually shares, deposits, loans from central enhancing agencies upto 8 to 10 times, the value of paid up share capital. Reserve Bank of India or Govt's grant or subsidy from government for consideration of godowns; issue of debentures, borrowings from State Bank of India against security of warehouse receipt or pledge of goods in the society's godown and reserves created out of profit.

Objectives and Functions of Co-operative Marketing Societies

The co-operative marketing societies play an important part in the following spheres:-

1. They arrange for sale of member's produce to the best possible advantage by enabling them to obtain better price because of the sale in bulk and consequent economy in the cost of marketing.
2. They undertake activities in connection with grading, pooling and procuring of produce of members. Unfortunately very few marketing societies have undertaken this activity and even those who undertake it., do it on a limited scale. It is confined to a few products only; cotton, jute, turmeric, potatoes etc.

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3. Some co-operative marketing societies have now undertaken other types of processing activities.
4. Co-operatives provide storage facilities to their members by renting or owning godowns and thereby facilitate grant of advances against pledge of produce, and sale of member's produce.
5. They make advances to members on the pledge of produce and support them in interim periods between deposit of produce and sale. Against the deposit of goods, members may receive advances upto the extent of 75% of the current market price.
6. They protect members from several malpractices like unauthorized deduction, incorrect weighments etc. They also eliminate the long chain of middlemen and connect the producer with the consumer.
7. Co-operative marketing reduces waste and stands for fair trading practices and uses its influence against rings and manipulation of prices.
8. Co-operative marketing teaches the farmers business methods and serves them as agencies for supplying market information.
9. Marketing societies stabilize prices over long periods by adjusting the supply according to market demand. In this way seasonal fluctuations of price or their evil effects can be eliminated.
10. Co-operative marketing societies are also being encouraged to participate in the export trade of the country so that the actual grower might get a better price for his produce.

National Agricultural Marketing Federation

A National Agricultural Marketing Federation was set up at New Delhi in 1958-59 with the object of coordinating and promoting the marketing and trading activities of its members in agricultural and other commodities. Its objectives are to: i) make arrangements for the supply of agricultural requirements to its members, ii) to promote inter-State and international trade in agricultural and other commodities.

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Regulated markets in India

The poor standard of primary and secondary commodity markets where producers convert their produce into cash, the prevalence of various malpractices such as short weights, excessive market charges, unauthorized deductions and allowances made by commission agents, adulteration of produce and the absence of machinery to settle disputes between sellers and buyers were recognized as the main hindrances in agricultural marketing as early as 1928 by the Royal Commission on Agriculture on a national scale, which observed that "these can only be removed by the establishment of regulated markets".

Growth and Development of Regulated Markets

The first attempt at regulation of markets in India dates back to 1897, when the Berar Cotton and Grain Markets Law was passed to purge marketing of many of its abuses. Subsequent market Acts wherever passed have virtually been based on the principles embodied in it. Its main salient features were:

i. All the markets as existed on the date of enforcement of the law came under its fold.
ii. The Resident could declare any additional markets or bazars for the sale of agricultural produce.
iii. The Commissioner was to appoint from among the list of eligible persons, a committee ordinarily of five members, two representing the municipal authority concerned and the remaining three from amongst the Cotton Traders-for enforcing the law.
iv. Trade allowances or Customs in usage were abolished.
v. Unauthorised markets and bazars were banned within 5 miles of the notified market or bazaar.
vi. Market functionaries were required to take licences.
vii. Rules were framed for the levy and collection of fees, the licensing of brokers and weighmen and also for the checking of weights and measures.
viii. The Act was applicable not only to the grain markets but also to the Cotton markets.

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ix. Penalties for breach of certain provisions of the law were laid down

Benefits of Regulated Markets

The economic and social benefits accruing to the cultivators, as a result of the regulation of markets are:

1. As a result of the rationalization of market charges alone, the producer-seller is benefitted to the tune of 3 to 5 rupees for every hundred rupees worth of produce marketed by him in regulated markets.
2. There has been an increase in the number of sellers bringing their produce to these markets.
3. A change has also been brought about in the socialistic behavior of the influential, powerful and economically well off trading sections towards the illiterate, ignorant, indebted and economically backward cultivators by constant diversion of their attention to the canons of fair trading and responsibilities that devolve on the licensed traders and commission agents of the market committees.
4. Market changes are clearly defined and specified. Excessive charges are reduced and unwarranted ones are prohibited.
5. Market practices are regulated and; and the undesirable activities of the market functionaries are brought under control so that a fair dealing is assured.
6. Correct weighment is ensured by periodical inspections and verifications of scales and weights. Only correct and stamped beam scales and weights are allowed to be used in the market. Weighment is done only by the licensed weighman.
7. A machinery for the settlement of disputes between traders and sellers is set up. This machinery provides suitable arrangements for the settlement of disputes regarding quality, weighment and deductions prevent litigation, safeguard the interests of the seller and smoothens business by creating good relation between sellers and buyers.
8. Besides, reliable statistics of arrivals, stocks and prices are easily maintained.

Organization of Regulated Markets

The primary object of regulating the markets is to safeguard the interest of the producers-sellers and raise the standard of the local markets where the first exchange of

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goods takes place. With a view to achieve this object in each of the regulated markets, Market Committees are established consisting of the representatives of the growers, traders, local bodies, sellers' co-operative shops and the State Government nominees. Producers are generally in the majority on these Committees.

All business transactions are conducted within the market area under the rules and laws framed and administered by the Market Committee. The charges, allowances and deductions that can be levied are fixed and prescribed by the Market Committee and anyone charging more is likely to have his licence cancelled. The Market Committees look after the weights and measures and prohibit any use of unauthorized weights and measures and all weighing is done by licensed weigh men. Dealers in regulated markets are required to fix prices in public and keep accounts or returns in such a way that their submission to Market Committee at regular intervals is facilitated.

Finances of the Market Committee

The finances of the Marketing Committee consist of the borrowed, funds (government loans), government subsidies and grants; and other sources including fines; market fees, licence fees, and others such as property income in the form of rent on godowns.

Functions of a Market Committee

Functions of a Market Committee include:

i. Maintaining and management of the market
ii. Enforcing in the market area the provisions of the Act, the Rules and the Bye-laws.
iii. Enforcing the conditions of licences granted to different market functionaries in connection with the purchase and sale of agricultural produce regulated by it;
iv. Granting, renewing, suspending, and cancelling a general or special license for the purchase and sale of regulated agricultural produce.
v. Providing all facilities in the market;
vi. Levying fees on the produce bought or sold in the market area and collecting them through agents.

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vii. managing the income, incurring the expenditure and investing the surplus funds;

viii. Preparing budget estimates of its income and expenditure for the nest year.

ix. maintaining a register of licensed traders, general commission agents; and of the fees collected;

x. Prescribing the market charges for the services of different market functionaries;

xi. Taking all possible steps to prevent adulteration of agricultural produce in the market area.

xii. Promoting grading and standardization of agricultural produce;

xiii. Collecting and maintaining daily lists of prices of different types and grades of agricultural produce regulated by it, and supplying them to the government, when required.

xiv. Appointing the Secretary of the Committee, other officers and servants for managing its affairs, and a Disputes Committee for settlement of disputes between buyers and sellers.

xv. Issuing directions for the guidance of the persons using the markets.

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Questions

1. The regulated market was established in Delhi during 1958 – 59 with the object of coordinating and promoting marketing and trading activities of its members in agriculture and other commodities (True / False).

   Ans: False

2. The maintenance and management of regulated market is done by market committee. (True / False).

   Ans: True

3. The primary objective of the regulated market is to safeguard the interest of the agricultural traders (True / False).

   Ans: False

4. Cooperative societies operate on democratic principles (True / False).

   Ans: True

5. Are farmers eligible to become Category "A" members of the Market committee. (True / False).

   Ans: True

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Lecture No. 25

Marketing Institutions-other marketing institution and WTO

1. CENTRAL WAREHOUSING CORPORATION

A premier Warehousing Agency in India, established during 1957 providing logistics support to the agricultural sector, is one of the biggest public warehouse operators in the country offering logistics services to a diverse group of clients.

CWC is operating 487 Warehouses across the country with a storage capacity of 10.6 million tonnes providing warehousing services for a wide range of products ranging from agricultural produce to sophisticated industrial products.

Warehousing activities of CWC include foodgrain warehouses, industrial warehousing, custom bonded warehouses, container freight stations, inland clearance depots and aircargo complexes.

Apart from storage and handling, CWC also offers services in the area of clearing & forwarding, handling & transporation, procurement & distribution, disinfestation services, fumigation services and other ancillary activities.

CWC also offers consultancy services/ training for the construction of warehousing infrastructure to different agencies.

2. AGMARK

The agricultural produce sector has been one of the most important components of the Indian economy. The increasing trend of agricultural production has brought, in its wake, new challenges in terms of finding market for the marketed surplus. There is also a need to respond to the challenges and opportunities, that the global markets offer in the liberalised trade regime. To benefit the farming community from the new global market access opportunities, the internal agricultural marketing system in the country needs to be integrated and strengthened. Government of India is striving to prepare the Indian agricultural markets and marketing environment so as to provide maximum benefit to the producers and in turn, compete with the global markets. Agriculture and agricultural

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marketing need to be re-oriented to respond to the market needs and consumer preferences. Agricultural marketing reforms and creation of marketing infrastructure has been initiated to achieve the above purpose.

3. MSAMB

The Maharashtra State Agricultural Marketing Board (MSAMB), Pune was established on 23rd, March 1984, under section 39A of Maharashtra Agricultural Produce Marketing (Development & Regulation) Act, 1963. MSAMB has done pioneering work in the field of Agricultural Marketing in the State and achieved success in various areas. MSAMB is having an important role in developing and coordinating agricultural marketing system in the State of Maharashtra.

Objectives

As per the provision of Maharashtra Agricultural Produce Marketing (Development & Regulation) Act, 1963 section 39(J), the Board shall perform the following functions and shall have power to do such things as may be necessary or expedient for carrying out these functions.

- To co-ordinate the functioning of the Market Committees including programmes undertaken by such Market Committees for the development of markets and market areas.
- To undertake State level planning of the development of the agriculture produce markets.
- To maintain and administer the Agricultural Marketing Development Fund.
- To give advise to Market Committees in general or any Market Committee in particular with a view to ensuring improvement in the functioning thereof.
- To supervise and guide the Market Committees in the preparation of plans and estimates of construction programme undertaken by them.
- To make necessary arrangements for propaganda and publicity on matters relating to marketing of agricultural produce.

- To grant subventions or loans to Market Committees for the purposes of this Act on such terms and conditions as it may determine.
- To arrange or organise seminars, workshops, exhibitions on subject relating to agricultural marketing & giving training to members and employees of marketing committee.
- To do such other things as may be of general interest relating to marketing of agricultural produce.
- To carry out any other function specifically entrusted to it by this Act.
- To carry out such other functions of like nature as may be entrusted to it by the State Government.

BOARD OF DIRECTORS

- MSAMB is committed towards smooth and orderly development of agricultural marketing in the State. The Board of Directors take all policy decisions in respect of this sphere of activity and such other important issues. The Board of Directors of the Maharashtra State Agricultural Marketing Board consists of the following members:

1	Hon. Minister for Marketing	Ex-Officio Chairman
2	Hon. Minister of State for Marketing	Ex-Officio Vice-Chairman
3	Commissioner for Co-operation & Registrar of Co-operative Societies	Ex-Officio Member
4	Commissioner of Agriculture	Ex-Officio Member
5	Chairman, Maharashtra State Market Committee's Co-operative Fedration, Pune	Ex-Officio Member
6	Agricultural Marketing Advisor to Govt. of India or his representative	Ex-Officio Member

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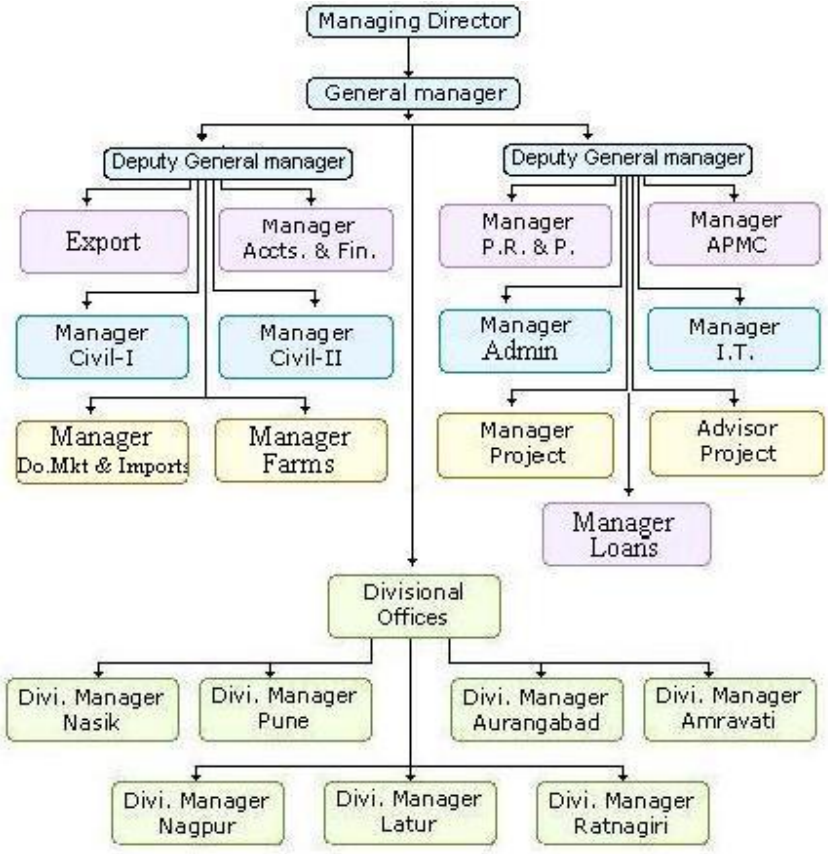
7	Representative of National Bank of Agriculture and Rural Development (NABARD) to be nominated by the State Government.	Ex-Officio Member
8	Members not exceeding six, to be nominated by the State Government from amongst theChairmanof the Market Committees, one each from the six Revenue Divisions.	Member
9	Director of Marketing, Maharashtra State, Pune	Ex-Officio Managing Director & Member Secretary

Organisation



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4. **SAFAL**

Fruit & Vegetable Unit, Delhi, India

Fruit and Vegetable Unit was set up in the year 1988 by National Dairy Development Board , an institute of national importance, a body corporate created by Government of India , with an objective to provide a direct link between fruit and vegetable growers and consumers. The unit has drawn on NDDB's three decades of dairy sector strengths in designing it's state of the art large and ultramodern central distribution facility to handle fresh and frozen fruit and vegetable.

Presently it is an unit of Mother Dairy Foods Processing Ltd, a wholly owned company of Mother Dairy Fruit & Vegetable Ltd. In April 2000, Mother Dairy Fruit & Vegetable Ltd was created as a subsidiary of NDDB. The processed products of the unit are marketed with the brand name 'SAFAL'

Unit complex is situated on 22 acres of land. It comprises a prefabricated building consisting of cold store chambers with different sets of temperature and humidity conditions suitable for storage of various fruit and vegetables. It has controlled atmosphere chambers and ripening rooms, deep freeze rooms, preparation hall, processing hall, dispatch hall, reception, dispatch facilities etc. Material handling is done in specially designed plastic crates with the help of forklifts..

The Unit also initiates and supports production enhancement activities at farm, improved pre and post harvest practices, efficient logistics from farm to the retail outlets, scientific quality assurance and education of grower, support staff and consumer.

Production of quality product begins at the farm level where the grower, in co-operation with unit officials,

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work to cultivate and supply quality produce to the Unit.

With the utmost care and dedication, the growers and Unit officials try to apply their professional knowledge and skills to give consumers the best return for their money. Standards are defined for each fruit and vegetable so as to link price to quality. Procurement specialists and trained field staff help the farmers in crop management and protection. Efforts are made to introduce new seed varieties and scientific methods of agriculture to increase the yield and improve the quality of produce.

279 specially designed modern retail outlets have been set up in and around Delhi to market fresh and frozen fruit and vegetables, directly to the consumers. Each shop caters to large number of customers, with a capacity to sell 1,600 kilos of fruit and vegetables a day. The shops are equipped with electronic machines that automatically weigh the produce and print item wise bills. Unit also manufactures products such as Jam, Squash , Ketchup etc at its Ramgarh unit. Fruit & Vegetable Unit is IS/ISO-9002:1994 / DIN EN ISO 9002: 1994 & HACCP Certified Organization.

Fruit Processing Plant, Mumbai, India.

The 100% export oriented ultra modern Fruit Processing Plant was established in 1996 at Mumbai, capitalizing NDDB's food processing strength. All the equipments and technical know-how has been supplied by Sasib-Manzini Cosmaco SPA of Italy. The plant is located in the heart of India's finest tropical fruit growing region that produces finest quality mango, banana, guava, papaya, grapes and tomato in abundance.The ultra modern mechanized fruit processing plant has an annual processing capacity of 15000 MTS. There are twelve ripening chambers having a total capacity of 420 MT.

The plant also have a facility to pack fruit pulp in 3.1 KG sterilized and hermetically sealed aluminum cans @ 1 MT / hr and a plat freezer to instantly block pulp @ 10 MT / hr. The frozen products can be shrink packed before dispatch in cartons. Other facilities in the plant include two tetra pack-filling machines for packing fruit drinks. The processing facility has obtained US Food & Drug Administration registration. HACCP

quality system is followed at every stage. The unit is ISO9002 certified. The products are Kosher certified. Mumbai unit is a registered member of SGF, Europe.

The fruit processing plant at Mumbai is engaged to process and refine products specially aseptic & frozen purees and concentrates from various varieties of finest tropical fruits such as mango, banana, papaya etc. These products can be packed in a plethora of bulk and small quantities in a wide range of packing materials. Fruit drinks in Tetrapacks are the other popular consumer products. The unit has established an office at Rotterdam in Netherlands to develop market at Europe , America and Asia. The unit enjoys active presence with all its products in Europe, USA, Canada , Australia, Middle East, Japan, Singapore and Hongkong. The unit also ensure its presence at major International Food/Trade fairs.

PRODUCTS		
Apple	Potatoes	
Grapes	Onions	
Litchi	Green Chillies	
Mango Alphonso	Okra	
Kiwi Fruit	Capsicum	Green Chilli
Mango Chausa	French Beans	Ganth Gobhi
Chikoo (Sapota)	Bitter Gourd	Jimikand
Pomegranate	Arvi	Karela
Mandarins	Brinjal	Lauki
Guava	Bathua	Kamal Kakdi
Pineapple	Ginger	Lobia
Coconut	Garlic	Sarson ka Sag
Dates	Cauliflower	Mint
Orange	Cucumber	White Petha
Plum	Carrot	Parwal
Water melon	Gwarfali	Pumpkin

Mango Banganpalli
Kharbooja Lucknow

Cherry Fresh
Sugarcane
Strawberry
Raspberry
Kinoo
Babugosha
Peer William
Banana
Ber
Muskmelon

Coriander
Methi
Tori
Tinda
Kathal
Drumstick
Kachalu
Chirchinda
Broccolli
Lettuce Iceberg

Raddish
Palak
Shalgam
Raw Banana
Raw Mango
Green Onion
Mashroom
Bakhala
Tomato

IQF Vegetables

Processed Food

Frozen Peas
Frozen Bhindi
Frozen Sarson Saag
Frozen Cauliflower
Frozen Tomato
Frozen Aloo Tikki
Frozen Frenchbeans
Frozen French Fries
Frozen Mixed Vegetables

Pickle
Squash
Jam
Tomato Product
Fruit Drink in Tetrapack

Safal Rice

Products for 100% Exports

Mango Pulp/Concentrate

Guava Pulp/Concentrate

Alphonso Mango Pulp

Papaya Pulp/Concentrate

Banana Pulp/Concentrate

5.TNSAMB

The Department of Agricultural Marketing, Tamil Nadu, has been functioning successfully since 1977, with prime objective of Regulating the Marketing of Agricultural produce thereby enriching the lives of the farmers through remunerative price realisations as well as supplying people with quality produce for a healthier life.

It has meticulously metamorphosed since 2001 as Department of Agricultural Marketing and Agri. Business focussing on other activities like Agri Export, Post Harvest Management, Food Processing, and Agricultural Marketing developmental activities in the wake of the liberalization of the economic policy of the country

The Vision of the Department of Agricultural Marketing & Agri Business is to ensure fair price to the farming community who are left behind in the competitive marketing scenario and the mission of achieving this is by enforcing the existing act and rules most effectively and also by devising, implementing new technologies aimed at reducing pre and post harvest losses through appropriate methods and encourage value addition.

PROFILE

The Tamilnadu State Agricultural Marketing Board (TNSAMB) was constituted by an executive order of the State Government in G.O. MS.No.2852 Agriculture Department dated 24-10-1970 and came into existence from December 1970.

The TNSAMB was functioning as a Non Statutory Board, has been reconstituted as Statutory Board in accordance with the new Act "The Tamilnadu Agricultural Produce

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Marketing (Regulation) Act 1987" which was brought into force from 1-2-1991, as per Government order No.299 Agriculture (AM I) Department,dated 13-6-1995.

The 1959 Act has been modified as the Tamil Nadu Agricultural Produce Marketing (Regulation) Act 1987 and Rules 1991 and was brought into force from 1-2-1991

Constitution:

The Board Constituted to govern the activities of market committees is headed by a President. The Secretary to Government, Agriculture Department, Director of Agricultural Marketing, Chairman of Market Committees, Registrar of Cooperative Societies, Managing Director of State Ware Housing Corporation, Agricultural Marketing Advisor, Government of India, President of Tamilnadu Cooperative Marketing Federation are the members of the Board.

Function:

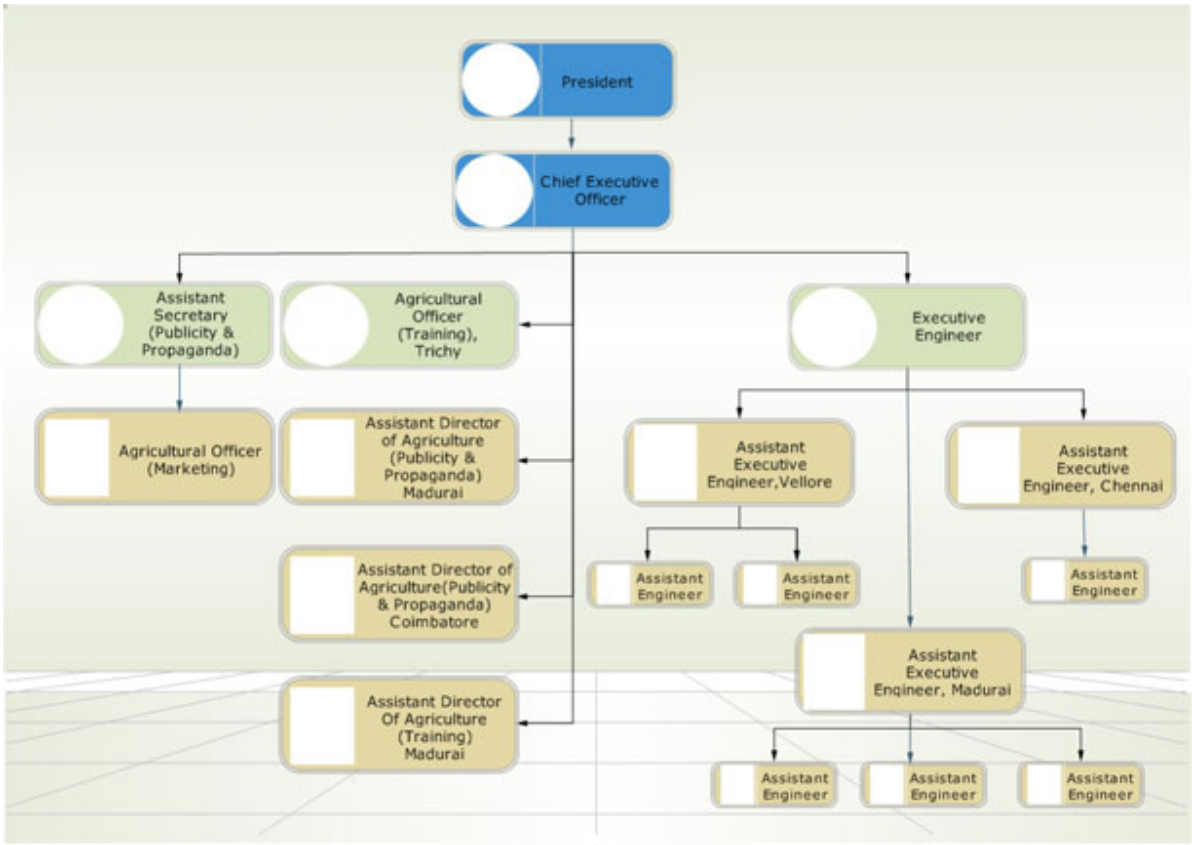
The Tamilnadu Agricultural Marketing Board is an apex body of the market committees and serves as an effective and crucial link among The Government, The Directorate of Agricultural Marketing and The Market Committees for ensuring uniformity in pratice and procedure in the day to day administration of market committees.

Functions And Powers of the Board

- The co-ordination of the working of the market committees and other affairs thereof including programmes undertaken by the market committees for the development of markets and market areas.
- To undertake State level planning of the development of the agriculture produce markets.
- To administer the Market Board Fund and the Market Development Fund.

- To the giving of direction of market committees in general of any market committee in particular with a view to ensure improvement thereof.
- To supervise and guide the Market Committees in the preparation of plans and estimates of construction programme undertaken by the market committees.
- To execute all works chargeable to the Market Board Fund.
- To maintain accounts in such forms as may be prescribed.
- To publish annually at the close of the year, its progress report, balance sheet and statement of assets and liabilities and send copies thereof to each member of the Board and the Government.
- To make necessary arrangements for propaganda and publicity on matters relating to marketing of agricultural produces.
- To provide facilities for the training of officers and staff of the Market Committees, Board, Department of Agricultural Marketing, Producers and Traders in the State.
- To prepare and adopt budget for the ensuing year.
- To grant subventions or loans to Market Committees for the purposes of this Act on such terms and conditions as the Board may determine.
- To arrange or organise seminars, workshops, exhibitions etc., on subjects relating to agricultural marketing.
- To impart education in regulated marketing of agricultural produce.
- To promote schemes for processing, grading and standardization of agricultural produce.
- The collection and dissemination of market information.
- For the publication of market statistics and studies.

- The levy of subscription for collection and dissemination of information relating to agricultural marketing.
- To conduct market research and market surveys.
- To do such other things as may be of general interest to market committee or considered necesssary for the efficient functioning of the Board.
- Any other function specifically entrusted to it by this Act; and
- Such other functions of like nature as may be enstrusted to the Board by the Government.



Training:

The training centre of Tamilnadu State Agricultural Marketing Board Chennai is functioning at Salem in an extent of 2.25 acres of land.

6. DEMIC:

Domestic and Export Market Intelligence Cell (DEMIC) was established in November 2004 at Centre for Agricultural and Rural Development Studies (CARDS) in Tamil Nadu Agricultural University, Coimbatore with the financial assistance from Tamil Nadu State Agricultural Marketing Board, and Department Agricultural Marketing and Agri Business

Department Activities

- Establishment and maintenance of Uzhavar Santhaigal for the benefit of farmers as well as consumers.
- To create marketing opportunities for small and marginal farmers in cultivation of fruits, vegetables and flowers by formation of groups which includes production, storing and export.
- Establishment and maintenance of regulated markets in order to facilitate buying and selling of agricultural produce for the benefit of the farming community.
- To create awareness among the farmers about the benefits of marketing their produce through regulated markets by taking up publicity and propaganda.
- Commercial grading of agricultural produce in the regulated markets and at farm holdings to help the producers to get remunerative price for their produce.
- To take up Agmark grading of agricultural, animal husbandry and forestry products for the benefit of the consumers.
- To set up Agriculture Export Zones for promoting export of agricultural produce by increasing the area under exportable crops, providing necessary post harvest

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management and other infrastructure required and information on prices prevailing at international markets as an integrated approach.

- To set up modern cold storage facilities to enable the farmers to store and sell their produce at favourable price level (Cold chain from farm to market).

- To promote Food Processing Industries.

Schemes

- **National Horticulture Mission**
- Since the climatic conditions prevailing in tamilnadu are favourable for cultivation of horticultural crops. The National Horticultural Mission was implemented in tamilnadu with vision of expanding the cultivation area of fruits, vegetables, flowers, medicinal and aromatic plants and thereby increasing the production of horticultural crops. This scheme has been successfully implemented in almost all states of India excluding the states of Himachal Pradesh, Jammu & Kashmir and Uttaranchal by the central government of India. This scheme is implemented with 85% of financial assistance by the central government and 15% of financial assistance by the respective state government in the tenth five year plan...
- **Uzhavar Santhaigal**

UZHAVAR SANTHAIGAL (Farmers Market) for the benefit of farmers as well as the consumers have been set up in the urban areas in Tamil Nadu. This Department has opened all the 28 closed Uzhavar Santhais and rejuvenated the existing 75 Uzhavar Santhais. At present in total 103 Uzhavar Santhais are functioning to ensure farmers to get a better price for their produce and to enable the consumers to get the commodities at a lesser price than in open market.

- Every day on average 1010 M.T. of vegetables and fruits worth Rs. 1 Crore is being brought and sold by 7500 farmers on an average benefiting 1,90,000 consumers.

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- **Agmark Grading**

Grading under "AGMARK" has already become a symbol of quality. In order to help the consumer to get quality food products, one Principal Laboratory, 30 State Agmark Grading Laboratories and 15 Agricultural Officer (Marketing) Centers are functioning in the State. Agmark grading is done for centralised and de-centralised commodities by the technically qualified staff. Agmark labels are issued to the authorised packers under the direct supervision of the staff for certifying the quality and purity of the food products.

- During the year 2006-2007, sophisticated equipments has been purchased under Part- II Scheme for State Agmark grading Labs and Agricultural Marketing Centres in order to benefit the packers and consumers.
- **AGRI EXPORT ZONES**

To promote Agri Horticultural Produce Exports from Tamil Nadu, four Agri Export Zones for specific commodities have been established as detailed below.

1. Agri Export Zone for Cut Flowers at Hosur comprising of Dharmapuri and Krishnagiri Districts

2. Agri Export Zone for flowers in Nilgiris District

3. Agri Export Zone for Mangoes in Theni District

4. Agri Export Zone for Cashew in Cuddalore District

Agri Export Zones Proposed

1. Export Zone for Banana in Tiruchirappalli District

Irrigated Agriculture Modernization and Water Bodies Restoration

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Management

IAMWARM Project is a World Bank assisted project. Agricultural Marketing plays an important role in marketing the agricultural produce and this department along with other line Departments will strengthen the sub basins. This project will be implemented in the selected 63 sub basins over a period of 6 years.

In the first year, this project will be implemented in the 9 sub basins at a cost of Rs. 8.30 Crores. The Projected cost for 63 sub basins is Rs. 28.48 Crores.

- Under this project, the following components like Drying yard, Storage shed, Collection Centre, Pack House, Agri Business Centre, Goods Auto, Mini Lorry, Moisture Meter, (Weighing Scale, Dunnages and Tarpaulin will be provided to benefit the water users Association.

Food Processing Industries

Food processing is gaining momentum as food processing industries ensure steady and better price to the farming community as well as availability of the commodities in processed form to the consumer throughout the year. Processing of food eliminates wastage of agricultural produce to a greater extent. By cultivation of good quality processable agricultural produce the farmers stand to gain better returns. Food Park at Dindigul District, Nilakkottai Industrial Estate is being set up at a total cost of Rs.13.00 crores. The Agricultural Marketing and Agri Business department act as a Nodal agency for Ministry of Food Processing Industries, Government of India, It processes applications recommends and forward the project to Ministry of Food Processing Industries for obtaining grant.

During the financial year 2006-07, 21 proposals worth of Rs.25.17 crores to establish food processing related projects have been forwarded to the Ministry of Food Processing Industries, Government of India with recommendations for grant

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of Rs.5 Crores. So far an amount of Rs.1.76 Crores grant has been released for 5 projects.

In Total from Tamilnadu, 378 proposals worth Rs.443.88 crores to establish food processing related projects have been forwarded to the Ministry of Food Processing Industries, Government of India with recommendations for grant of Rs.72.80 Crores. So far an amount of Rs. 37.92 Crores grant has been released for 180 projects.

7. DMI- MARKET INFORMATION

Tamil Nadu Uzhavar Santhai information

List of Regulated Markets in Tamil Nadu

Minimum Support Price for Crops

Locate your KVK

Major Traders - Database

Analyze the Market Trends

Database of Federations & Associations in Tamil Nadu

1. The Tamil Nadu Cooperative Marketing Federation Ltd., popularly known as "TANFED" commenced its business on 20.2.1959.

2. The area of operation is whole of Tamil Nadu except composite Thanjavur and Nilgiris Districts.

3. From the inception (i.e.1959) till June 1976, there was elected board of Management. Subsequently, from November 1998 to 25.6.2001 TANFED functioned under the elected Board of Management. Now TANFED is functioning under the control of Special Officer.

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A. Membership

The Members are:-

(a) Primary Cooperative Marketing Societies working at taluk levels (except those PCMS in the districts of Thanjavur, Thiruvarur and Nagapattinam Districts which come under the purview of Thanjavur Cooperative Marketing Federation Limited, Thiruvarur and (ii) Nilgiris District).

(b) Thanjavur Cooperative Marketing Federation Limited, Tiruvarur.

(c) Tamil Nadu Warehousing Corporation,

(d) Government of Tamil Nadu.

B. Authorised and paid up share capital

The authorised share capital is Rs.5 crores which is made up of one lakh shares at rupees five hundred each. The admission fee is Rs.50/-.

Details of share capital as on 31.3.2008 are furnished below:-

(Rs. in lakhs)

S.No. (1)	Name of the Member (2)	No.of shares (3)	Share Capital (4)
1	Co-operative Marketing Societies	109	79.94
2	Thanjavur Co-operative Marketing	1	0.10

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	Federation		
3	Tamil Nadu Warehousing Corporation	1	0.10
4	Government of Tamil Nadu	1	118.17
		112	198.31

A) Distribution of Fertilisers

1. The crop loan issued by Cooperative banks consists of cash portion and kind portion. The kind portion includes Fertilisers, Pesticides, Seeds and Agricultural Implements which are being supplied by Tamil Nadu Cooperative Marketing Federation through Primary Agricultural Cooperative Banks.

2. TANFED purchase Chemical Fertilisers from the leading manufacturers like M/s.IFFCO, IPL, Coromandal, KRIBHCO, FACT, RCF, GNFC, SPIC, etc. and distributing through Primary Agricultural Cooperative Banks.

3. Details of Chemical Fertilisers distributed during the last 5 years are as follows :

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Year (1)	Quantity (Mts) (2)	Value (Rs. in crores) (3)
2003 - 2004	78,597	48.78
2004 - 2005	1,46,765	90.10
2005 - 2006	1,68,310	105.80
2006 – 2007	2,18,077	141.07
2007 – 2008	2,93,849	207.14
2008 – 2009	8,83,144	606.64
2009 – 2010	8,21,120	569.03
2010-2011 (Upto 31.8.2010)	**2,94,190**	**217.83**

1. TANFED has since started cash sale of fertilisers. The farmers get fertilisers at lesser price than the market price under this scheme.

B) MANUFACTURE OF FERTILISERS

1. TANFED is undertaking manufacture of its own granulated mixtures of Pamani 17:17:17 fertilisers with right mix up of NPK with special ingredient, ie., neem cake.

2. This product is very popular among the farmers in Tamil Nadu.

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3. This Plant was commissioned in April 1971 with the cost of Rs.110/- lakhs with an annual production capacity of 30,000 Tonnes. It is situated at Pamani Village, Mannargudi, Tiruvarur District.

4. Details of production and sale of Pamani NPK 17:17:17 for the last 5 years are given below

Year	Production (2)		Sales (3)	
(1)	Qty.in MTs.	Value (Rs.in Lakhs)	Qty.in MTs.	Value (Rs.in Lakhs)
2003 – 2004	1023	166.10	3421	278.71
2004 – 2005	5391	402.45	6279	513.82
2005 – 2006	16188	1138.47	15186	1244.48
2006 – 2007	18650	1303.95	18099	1492.32
2007 – 2008	18711	1338.98	20322	1649.41
2008 – 2009	11895	882.85	12039	1004.65
2009 – 2010	14,813	1099.42	14,248	1189.00
2010-2011 (Upto 31.8.2010)	**4325**	**357.61**	**4213**	**374.96**

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1. Pamani Fertilisers are sold through PACBs. In addition, Tamil Nadu Government has permitted TANFED to appoint private dealers, to sell the Pamani 17:17:17 from Dec.2005 onwards. TANFED has proposed to increase its production from 2 shifts to 3 shifts at the Pamani Fertiliser Plant.

C) TANFED FERTILISER MIXTURES

1. At present Fertiliser mixtures are produced in Trichy, Madurai and Vellore. Details of production and sale of Mixtures for the last 5 years are as follows:

Year	Production (2)		Sales (3)	
	Qty.in MTs.	Value (Rs.in Lakhs)	Qty.in MTs.	Value (Rs.in Lakhs)
2003 - 2004	1062	35.71	1021	40.20
2004 - 2005	1933	62.08	1987	78.75
2005 – 2006	5545	188.59	5474	228.30
2006 – 2007	8839	304.69	8810	375.20
2007 – 2008	11157	385.57	10961	476.73
2008 – 2009	21537	835.42	20856	894.31
2009 – 2010	20,689	802.53	19,838	850.65

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2010-2011 (Upto 31.8.2010)	**6641**	**307.41**	**6760**	**358.28**

D) DISTRIBUTION OF PESTICIDES, SEEDS & AGRICULTURAL IMPLEMENTS

1. TANFED draw Pesticides, Seeds and Agricultural Implements from leading manufacturers and distribute through the Primary Cooperatives in the districts.

1. The details of the value of these inputs distributed during past few years are as follows:-

(Value : Rs.in Lakhs)

Year (1)	Pesticides (2)	Seeds (3)	Implements (4)	Total (5)
2003-2004	10.75	7.23	0.32	18.30
2004-2005	23.44	3.70	3.04	30.18
2005-2006	107.88	28.16	6.02	142.06
2006–2007	77.87	23.86	4.87	106.60

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2007 – 2008	140.80	34.74	11.77	187.31
2008 – 2009	117.53	33.72	20.67	171.92
2009 – 2010	213.00	189.00	39.00	441.00
2010 - 2011 (Up to 31.8.2010)	**104.56**	**265.27**	**32.42**	**402.25**

1. TANFED owns a seed processing plant at Mannargudi which was commissioned during 1980 with a cost of Rs.3/- lakhs where quality paddy seeds are processed and distributed to the farmers to the extent of 300 MTs annually.

E) AGRICULTURAL MARKETING

1. Being a marketing Federation, TANFED does the work of procurement of Agricultural commodities such as cotton, chillies, coriander, pulses, oil seeds, pepper, turmeric, etc.
2. Procurement operation is undertaken through the Cooperative Marketing Societies and the Regulated Markets to fetch remunerative price for the farmers.
3. This activity is being done under joint venture basis, tie-up arrangements with National Agricultural Cooperative Marketing Federation (NAFED) etc.
4. Year-wise performance made in the activity of Agricultural Marketing are as follows:-

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Year	Qty in Tonnes	Value (Rs. in lakhs)
(1)	(2)	(3)
2003 – 2004	2287	645.27
2004 – 2005	1852	328.92
2005 – 2006	1334	272.26
2006 – 2007	1161	218.86
2007 – 2008 Copra	1072 5676	209.98 2054.93
2008 – 2009	2486	443.96
2009 – 2010	2625	553.45
Copra	27045	12035.00
2010 - 2011 **(Up to 31.8.2010)**	**566**	**254.75**
Copra	**7429**	**3306.00**

1. TANFED sell crackers at very reasonable price to the general public. In 2006 the total sales was Rs.19.77 lakhs whereas in 2007 the total sales was Rs.99.29 lakhs. TANFED also act as Nodel Agency for distributing crackers to the rural area through PACBs in the State during the last 3 years.

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F) COLD STORAGES

1. TANFED has established two Cold Storage units at Chennai for the purpose of storing vegetables, fruits and perishables of the traders and General Public. The storage space are allotted on monthly rental basis.

2.

	% of Utilisation	Rent earned
Cold Storage I	**77%**	**10.83 lakhs**
Cold Storage II	**35%**	**19.03 lakhs**
(upto 31.8.2010)		

(1) BASIN BRIDGE :

1. The first Cold Storage Godown of TANFED was established in the year 1973 at Basin Bridge , Chennai.
2. The installed capacity of this godown is 1350 tonnes. Total cost of this project is Rs.9.55 lakhs and the details of funding are as follows :-

1. NCDC Loan - 2.94 lakhs

2.Govt.Share Capital assistance - 4.90 lakhs

3.TANFED Share - 1.71 lakhs

Total - 9.55 lakhs

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(2) KOYAMBEDU :

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1. TANFED installed its second Cold Storage with 2500 MTS capacity at Koyambedu Vegetable Market Complex availing loan facility from NCDC, Share Capital assistance from the State Govt. and subsidy from Ministry of Food Processing.

1. The total cost and pattern of financial assistance received are as follows.

1. NCDC Loan	- 44.00 lakhs
2. Govt. Share Capital assistance	- 55.00 lakhs
3. TANFED Share	- 47.75 lakhs
4. Subsidy from Ministry of Food Processing Industries.	- 52.00 lakhs
Total	- 198.75 lakhs

G) STORAGE GODOWNS

1. For the purpose of storing agricultural inputs as well as agricultural commodities, TANFED constructed 39 godowns with the financial assistance from NCDC at various places with a combined storage capacity of 28,140 MTs. In addition to the own godowns TANFED hired 9 godowns with the capacity of 3,450 MTs. in needy areas with a view to minimise the transport carrying cost of agricultural inputs.

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H) KEROSENE DISTRIBUTION

1. TANFED installed one kerosene bunk at Kodambakkam with a storage capacity of 15 Kilo Litres in the year 1969 and continue its function as wholesaler till date.
2. In addition to the wholesale distribution, in order to cater to the needs of the ration card holders, four retail kerosene bunks are functioning in Kodambakkam (Chennai), Mannargudi, Madurai and Coimbatore under Public Distribution Scheme.
3. Around 50,000 litres of kerosene is supplied to the card holders every month in each of these retail outlets.
4. The allocation of kerosene for both wholesale and retail distribution is made by the Civil Supplies Department and is drawn from the Indian Oil Corporation Limited.
5. The details of distribution of Kerosene as wholesaler and retailer during the past years are as follows:

Year	Qty.(Kilo Litres)	Value (Rs.in Lakhs)
2003 - 2004	2517	267.99
2004 - 2005	2426	233.20
2005 – 2006	3428	288.00
2006 – 2007	3428	272.94
2007 – 2008	3019	250.37
2008 – 2009	2876	242.33

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2009 – 2010	2703	228.85
2010 - 2011 **(Up to 31.8.2010)**	**999**	**91.35**

Functions and Objectives

1. To identify the agricultural input requirements of the farmers and arrange for storage and distribution of Fertilisers, Seeds, Pesticides and Agricultural Implements through Co-operative outlets.

2. To provide market support to the affiliated member Co-operative Marketing Societies in procuring, storing and marketing of agricultural commodities.

3. To provide storage facilities of specialized nature of perishable agricultural commodities and agro-based products by maintaining cold storage plants.

4. To undertake manufacture of agricultural inputs such as granulated fertilisers, manure mixture and quality seeds.

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5. To undertake the distribution of kerosene.

Finance and Accounts

Sources of Funds

1. TANFED has raised its funds from

   a) Share Capital paid by members
   b) Reserves & Surplus from out of profit
   c) Borrowings in the form of short term loans, long term loan from State / Central Government, NCDC and cash credit from financing bank,
   i.e., Tamilnadu State Apex Cooperative Bank.

Accounts

1. As in the case of Public Limited Companies, TANFED also maintains its accounts under 'Double Entry System of Book Keeping'.

2. But instead of preparing Trial Balance, TANFED is preparing Receipts and Charges statement as directed in the Tamil Nadu Cooperative Societies Act from the Receipts and Charges statement, the final accounts are prepared.

3. Every year Budgets are prepared and approved by the Board. The Annual accounts are prepared as per the Act.

Computerisation

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1. The entire accounting system were computerized for which a separate Computer wing is working with six terminals under LAN system with one Pentium II server.

2. The computer environment commenced from 1.4.1998 at the cost of Rs. 10/- lakhs.

3. It is working under Foxpro software package.

4. In addition to the above systems, six more latest Pentium IV are installed for general purpose.

Plan to switch over the present software to latest software is under progress.

Audit

- The Audit Wing consists of Internal Audit and Statutory Audit.
- The Internal Audit constituted with the own staff of TANFED.
- The Statutory audit of the TANFED is being done by the Audit Officers of Director of Co-operative Audit which is working under the Finance Department of the State Government.
- There are one Assistant Director, 5 Co-operative Audit Officer and 1 Co-operative Auditor working in TANFED on concurrent basis.
- The Audit Certificate up to 2006 – 2007 had been received. The audit for 2007 – 2008 has been completed.

NAFED

National level farmers cooperating marketing organization provides remunerative prizes to the farmers for their produce & ensures

promotes co operative market for agricultural produce & ensures timely payment

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stabilizes prizes for essential commodity

bridges the prize gap between producers & consumers

Questions

1. CWC also offers services for clearing and forwarding, handling and transportation (True / False).
   Ans: True
2. Grading of agriculture produce for export market is voluntary (True / False).
   Ans: False
3. The Tamil Nadu State Agricultural Marketing Board was reconstituted based on the Tamil Nadu Agricultural Produce marketing regulation Act 1987. (True / False).
   Ans: True
4. In Tamil Nadu, Agri Export Zone for flowers is functioning at Ooty. (True / False).
   Ans: False
5. Establishment of “GATT” at 1967. (True / False).
   Ans: False

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Lecture No 26

Marketing channels, marketing costs, margins, price spread and marketing efficiency

Marketing Cost

Marketing costs include "the outlays for marketing products at farm and local shipping points, and at the mines, forest or factory. They include outlays for transportation and storage from point to point as products move to market; they include the margins taken out by various wholesale middlemen; and the marketing expenses of producers who market their own products; they include the cost of retailing and also the expenses involved in inspection, standardization assorting and packaging, in financing and in risk taking, and in gathering, disseminating, and interpreting market news.

The difference between the consumer's and the producers' price is known as spread. A distinction can be made between the expenses and the profits of which this spread s composed but since net profit usually make up but a small part it is correct to refer to the spread as the cost of marketing.

Factors Affecting Costs

The analysis of the cost of marketing is not a study for costs accountants alone. It is a dual problem which confronts every business executive.

Factors affecting the cost of marketing are many and vary from time to time, between different markers and with different products. The most important factors, however, are : (1) Perishability, (2) Breakage and spoilage (3) Standardization and grading, (4) Transportation, (5) Storage, (6) Unfair and wasteful trade customs, (7) Business failures, (8) Returns and approvals (9) Risk from depreciation, (10) Seasonal demand and supply (11) Extent of selling operation, (12) Degree of identification, (13) Relation between bulk and value, (14) Size of order, (15) Packaging and cost, (16) the need to retail products and, (17) Need for mechanical serving.

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Marketing Efficiency

Marketing efficiency is a measure of market performance. The movement of goods from producers to the ultimate consumers at the lowest possible cost consistent with the provision of service desired by the consumers is termed as efficient marketing.

a) Shepherd's Formula

Efficiency of supply chain was calculated with the help of the following formula. The higher this ratio, higher would be the efficiency and vice versa. This can be expressed in the following form:

$$ESC = [(V/I)-1]$$

Where,

ESC = Index of Efficiency of Supply Chain

V = Value of goods sold

I = Total marketing cost

b) Calkin's index

The Calkin's index of marketing efficiency is estimated using the following formula.

$$\text{Marketing efficiency} = 1 + \left[\frac{\text{Sum of profit or margin}}{\text{Sum of marketing cost}} \right]$$

The lower the value of the index, higher would be the efficiency.

c) Acharya's Approach

According to Acharya (2003), an ideal measure of marketing efficiency, particularly for comparing the efficiency of alternate markets channels should take into account all of the following:

a) Total marketing costs (MC)

b) Net marketing margin (MM)

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c) Prices received by the farmer (FP)

d) Prices paid by the consumer (RP)

Further, the measure should reflect the following relationship between each of these variables and the marketing efficiency.

i) Higher the (a), the lower the efficiency

ii) Higher the (b), the lower the efficiency

iii) Higher the (c), the higher the efficiency

iv) Higher the (d), the lower the efficiency

As there is an exact relationship among four variables, *i.e.*, a+b+c = d, any three of these could be used to arrive at a measure for comparing the marketing efficiency.

The following measure is suggested by Acharya,

$$ME = FP \div (MC + MM)$$

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Questions

1. The difference between the price paid by the consumer and the price received by the producer for the same quantity of the product is called price sprad. (True / False).

   Ans:True

2. Sheperd's formula is used to estimating marketing cost. (True / False)

   Ans:False

3. For the same form, quality and quantity of the product, if the price spread is higher, the marketing efficiency will be high (True / False).

   Ans:False

4. Higher the price received by the producer, lower the marketing efficiency (True / False).

   Ans:False

5. Acharya's formula is used to estimating marketing efficiency. (True / False).

   Ans:True

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Lecture No. 27

Price forecasting techniques and market integration

Price forecasting techniques

An important part of anticipating both future price levels and the risk that anticipated prices will not be achieved is developing strategies for forecasting prices. Different forecasting models work best for different situations- the nature of the business, the nature of data, forecast granularity, forecast horizon, shelf life of the model and the expected accuracy of the forecasts. Forecast granularity is the unit of time of each forecast. Forecast horizon is the number of time units into the future for which forecasts are required. For example, weekly forecasts for the next 2 months have a granularity of a week and a horizon of 8 weeks. Shelf life is the time after which a model becomes useless and there is a need to switch to another model.

In general, there are two basic approaches to forecasting prices in markets:

1. Fundamental analysis
2. Technical analysis

While they are often presented as substitutes or competitors in price forecasting, the two can be complimentary. Most market analysts pay attention to both fundamental and technical factors even though they may emphasize one over the other.

1. Fundamental analysis

Fundamental analysis of a business involves analyzing its financial statements and health, its management and competitive advantages, and its competitors and markets. When applied to futures and forex, it focuses on the overall state of the economy, interest rates, production, earnings, and management. When analyzing a stock, futures contract, or currency using fundamental analysis there are two basic approaches one can use; bottom up analysis and top down analysis. The term is used to distinguish such analysis from other types of investment analysis, such as quantitative analysis and technical analysis.

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It is performed on historical and present data, but with the goal of making financial forecasts. It is based on the notion that the underlying supply/demand conditions in a given market ultimately determine price. The market may be “shocked” by new information; resulting in traders’ changing their assessments of what the equilibrium price will be in the future. Fundamental analysis attempts to both anticipate changes in supply/demand information, and to evaluate the direction and range of price movement resulting from new information.

Strengths of Fundamental Analysis

- Long-term Trends
- Value Spotting
- Business acumen
- Knowing who's who

Weaknesses of Fundamental Analysis

- Time Constraints
- Industry/Company Specific
- Subjectivity
- Analyst Bias
- Definition of Fair Value

2. Technical analysis

Technical analysis is the attempt to forecast stock prices on the basis of market-derived data. Technicians (also known as quantitative analysts or chartists) usually look at price, volume and psychological indicators over time. Trends and patterns in the data indicate future price movements.

It is based on three assumptions. They are,

a) The market discounts everything

b) Price moves in trends

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c) History tends to repeat itself

Strengths of technical analysis:

1. Focus on Price
2. Supply, Demand, and Price Action

In its most basic form, higher prices reflect increased demand and lower prices reflect increased supply.

3. Support/Resistance
4. Pictorial price history
5. Assist with Entry Point

Some analysts use fundamental analysis to decide what to buy and technical analysis to decide when to buy.

Weaknesses of technical analysis

1. Analyst Bias
2. Open to Interpretation

It should be pointed out that technical analysis is more like an art than a science, somewhat like economics.

3. Too Late
4. Always another level
5. Trader's remorse

Other techniques

There are also other methods also known as "time-series" methods. They project or extrapolate historical values of the variable being forecasted into the future by identifying past patterns. The table below lists the most common time series models.

Model Type	Most Suited Data Types	Forecast Horizon	Shelf Life of Model
Exponential Smoothing	No Trend, Varying Levels	Short	Short

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Holt's Method	Varying Trends, Varying Levels, No Seasonality	Short	Short
Winter's Method	Varying Trends, Varying Levels and Seasonality	Short to Medium	Medium
ARIMA	Varying Trends, Varying Levels, Seasonality	Short to Medium	Long

MARKET INTEGRATION

Definition

Market integration occurs when prices among different location or related goods follow similar patterns in a long period. Group of prices often move proportionally to each other and when this relation is very clear among different markets it is said that the markets are integrated. Market integration is defined as a process which refers to the expansion of firms by consolidating additional marketing functions and activities under a single management.

Removal of barriers between two markets for the same product, so that prices on the two markets become more closely linked. Trade liberalization contributes to international market integration.

Reasons for market integration

- To remove transaction costs
- Foster competition
- Provide better signals for optimal generation and consumption decisions.
- Improve security of supply

Theoretically one can integrate two markets without interconnection.

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Types of market integration

1. Horizontal integration

This occurs when a firm or agency gains control of other firms or agencies performing similar marketing functions at the same level in the marketing sequence. In this type of integration, some marketing agencies combine to form a union with a view to reducing their effective number and the extent of actual competition in the market. It is advantageous for the members who join the group.

2. Vertical integration

This occurs when a firm performs more than one activity in the sequence of the marketing process. It is a linking together of two or more functions in the marketing process within a single firm or under a single ownership. This type of integration makes it possible to exercise control over both quality and quantity of the product from the beginning of the production process until the product is ready for the consumer. It reduces the number of middle men in the marketing channel.

a) Forward integration

If a firm assumes another function of marketing which is closer to the consumption function, it is a case of forward integration. Example: wholesaler assuming the function of retailing

b) Backward integration

This involves ownership or a combination of sources of suppl. Example: when a processing firm assumes the function of assembling/purchasing the produce from the villages.

3. Conglomeration

A combination of agencies or activities not directly related to each other may, when it operates under a unified management, be termed a conglomeration.

Degree of integration

- **Ownership integration**

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- This occurs when all the decisions and assets of a firm are completely assumed by another firm. Example: a processing firm which buys a wholesale firm.

➢ **Contract integration**

- This involves an agreement between two firms on certain decisions, while each firm retains its separate identity. Example: tie up of a dhal mill with pulse traders for supply of pulse grains.

Effects of integration

❖ **Vertical integration**

- More profits by taking up additional functions
- Risk reduction through improved market co-ordination
- Improvement in bargaining power and the prospects of influencing prices
- Lowering costs through achieving operational efficiency

❖ **Horizontal integration**

- Buying out a competitor in a time bound way to reduce competition
- Gaining larger share of the market and higher profits
- Attaining economies of scale
- Specializing in the trade

❖ **Conglomeration**

- Risk reduction through diversification
- Acquisition of financial leverage
- Empire – building urge

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Questions

1. Fundamental analysis of a business involves analyzing its financial statements and health. (True / False).

   Ans: True

2. The forecast horizon of forecasting with Exponential Smoothing method is long. (True / False).

   Ans: False

3. Market integration occurs when prices among different location or related goods follow similar patterns in the long run. (True / False).

   Ans: True

4. Vertical integration occurs when the same firm links and performs two or more functions in the marketing process of the product. (True / False).

   Ans: True

5. Horizontal integration leads to diseconomies of scale (True / False).

   Ans: True

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Lecture No.28

Planning the marketing programmes, marketing mix and four P's of marketing mix

Planning Marketing Programs

To transform marketing strategy into marketing programs, marketing managers must make basic decisions on marketing expenditure, marketing mix, and marketing allocation.

Marketing Mix is the set of marketing tools that the firm uses to pursue its marketing objectives in the target market.

A four factor classification of these tools is called the four Ps product, price, place (*i.e.*, distribution), and promotion. The four Ps of the Marketing Mix is

	Marketing Mix		
Product	**Price**	**Promotion**	**Place**
Product variety	List price	Sales promotion	Channels
Quality	Discounts	Advertising	Coverage
Design	Allowances	Sales force	Assortments
Features	Payment period		Public relations
Brand name	Credit terms	Direct marketing	Inventory
Packaging			Transport
Sizes			
Services			
Warranties			
Returns			

The most basic marketing mix tool is product-the firms' tangible offer to the market, which includes the product quality, design, features, branding and packaging.

A critical marketing mix tool is price, the amount of money that customers pay for the product.

Place, another key marketing mix tool, includes the various activities the company undertakes to make the product accessible and available to target customers.

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Promotion, the fourth marketing-mix tool, includes all the activities the company undertakes to communicate and promote its products to the target market.

4Ps	4Cs
Product	Customer needs and wants
Price	Cost to the customer
Place	Convenience
Promotion	Communication

Managing the Marketing Effort

The final step in the marketing process is organizing the marketing resources and then implementing and controlling the marketing plan. The company must build a marketing organization that is capable of implementing the marketing plan.

Marketing department are typically headed by a marketing vice-presidents who performs three tasks. The first is to coordinate the work of all of the marketing personnel. The second task is to work closely with the other functional vice-presidents. The third task is selecting training, directing, motivating and evaluating personnel. Managers must meet with their subordinates periodically to review their performance, praise their strengths, point out their weaknesses, and suggest ways to improve.

There are likely to be surprises and disappointments as marketing plans are implemented. For this reason, the company needs feedback and control. There are three types of marketing control:

- Annual-plan control is the task of ensuring that the company is achieving its sales, profits, and other goals. First, management must state well-defined goals for each month or quarter. Second, management must measure its ongoing performance in the market place. Third, management must determine the underlying causes of any serious performance gaps. Fourth, management must choose corrective actions to close gaps between goals and performance.
- Profitability control is the task of measuring the actual profitability of products, customer groups, trade channels, and other sizes. This is not a simple task. A company's accounting system is seldom designed to report the real profitability of

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products, customer groups, trade channels and order sizes. This is not a simple task. A company's accounting system is seldom designed to report the real profitability of different marketing entities and activities. Marketing efficiency studies try to determine how various marketing activities could be carried out more efficiently.

- Strategic control is the task of evaluating whether the company's marketing strategy is appropriate to market conditions. Because of rapid changes in the marketing environment, each company needs to reassess periodically its marketing effectiveness through a control instrument known as the marketing audit.

Contents of a marketing plan

i.	Executive summary and table of contents	Presents a brief overview of the proposed plan
ii.	Current marketing situation	Presents relevant background data on the market, product, competition, distribution, and microenvironment
iii.	Opportunity and issue analysis	Identifies the main opportunities/threats, strengths/weaknesses, and issues facing the product line
iv.	Objectives	Defines the plan's financial and marketing goals in terms of sales volume, market share and profit
v.	Marketing strategy	Presents the brand marketing approach that will be used to achieve the plan's objectives
vi.	Action program	Presents the special marketing programs designed to achieve the business objectives
vii.	Projected profit and loss statement	Forecasts the plan's expected financial outcomes
viii.	Controls	Indicates how the plan will be monitored

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Questions

1. Marketing mix is the set of marketing tools that the firm uses to pursue it marketing objectives in the target market. (True / False).

   Ans: True

2. Brand name is a component of _____ (Product, Price, Place, Promotion).

   Ans: Product

3. Place is designed to create availability to the customer. (True / False).

   Ans: False

4. Marketing strategy presents the brand marketing approach that will be used to achieve the marketing objectives of the firm in the long run. (True / False).

   Ans: True

5. Public relation is a component of (Product, Price, Place, Promotion).

   Ans : Promotion

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Lecture No. 29

Market Segmentation- methods of market segmentation, product life cycle

A market should be defined in terms of various characteristics such as economic status, age, education, occupation and location. The best opportunity is to identify a market segment that is not well served by other firms. In determining the firm's market segment, the fundamental aspects to be considered are:

a) What is the place of the firm in the industry and how it can compete with others?

b) Whether the firm is known for its quality or price

c) Image of the firm among the customers

d) If the firm has limited number of customers the reasons for it.

A common error found in many retailing firms is straddling the market' or attempting to sell both high quality and low quality goods. As a result, the retailer has a limited inventory of everything but does not have a good selection of anything. In sum, the firm should asses its share in the market. This perception is possible only when the firm stresses quality, reliability, integrity and service rather than low prices.

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Questions

1. Markets can be segmented based on climate. (**True / False**).

   Ans: False

2. During growth stage the product sales reaches maximum levels. (True / False).

   Ans: False

3. During maturity stage market communication mainly focuses on brand loyalty. (True / False).

   Ans: True

4. Straddling refers to a firm selling both high quality and low quality goods in the same market. (True / False).

   Ans: True

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Lecture No. 30

Pricing policy, pricing method, price at various stages of marketing

One half of the failures in small business can be traced to a product or service that was being sold at the wrong price.

Relating price to costs: All items should be priced at a level to provide an adequate profit margin.

Setting a Price Strategy

The firm's goal should be to find the price – volume combination that will maximize profits. The product, price, delivery, service and fulfillment of psychological needs form the total package that the customer buys. The price should indicate the product image.

Price cutting

It should be considered as a form of sales promotion. Price cutting will be useful wherever the added sales resulting from price-cutting offsets the added cost. However, in case of inelastic demand price – cut will not increase sales.

Other Aspects of Pricing

i) **Mark – up Pricing**

An initial mark – up price should cover operating particularly selling expenses, operating profit, and subsequent price reduction. An initial mark-up maybe expressed as a percentage of sales price or product cost. Mark – up price is needed to meet competitors' prices and promotional activities.

ii) Price Lining refers to offering of merchandise at distinct price levels. Shirts sold at rs.50, Rs.75, and Rs.100 etc. income level and buyer's desires of a store's customers are important factors. Advantages of price lining are the simplification of customer's choice and reduction of the store's minimum inventory.

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iii) Odd Pricing: Small businesses managers believe customers will react more favourably to prices ending in add numbers E.g.Rs.13, Rs.15, beta prices – Rs.179.95, Rs.499.95.

1. Determining Channels of Distribution

A marketing channel is the pipeline through which a product flows on its way to its ultimate consumer.

a) Design own channel of distribution

Channels should be tailor – made to meet its needs of firm. New products commonly require different distribution channels from those needed for products, which are well established and widely accepted.

b) Avoid multiple channels

Multiple distribution channels sometimes create conflicts. Distribution will be adversely affected unless these conflicts are resolved.

c) When to change the channel

Change in buyer's location may dictate a change in marketing channels. Changes in concentration of buyers may also require a change in marketing channels.

The Marketing Mix

In considering the needs of their customers, companies must think in terms of the product itself, the price of the product and the place where the customers needs it, while making sure that the existence of the product is known through effective promotion. These various components are described in more detail below:

Product

The product is the focus of markting. Although many aspects of the prodct are not marketing responsibilities (such as production and processing), marketing is concerned with the product's attributes and what these mean to the customer. Such factors include quality, appearance and performance.

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Price

Price creates sales revenue and is therefore important in determining the total value of the sales made. Price is really determined by what customers perceive as the value of a commodity or service as well as how much they are prepared to pay in relation to the benefit they expect to earn.

Place

The place factor deals with the various methods of transporting and storing commodities and then making them available to the customer. Getting the product to the right place at the right time depends on the distribution system. The choice of distribution method will depend on market circumstances and the nature of both the commodity and the customer.

Promotion

Promotion is the business of communicating with and influencing the customer. Although the cost associated with promotion can be a significant element in the overall cost of a product, successful product promotion increases sales so that costs are spread over a larger output. While increased promotional activity may be a response to competitor activity or a new product launch, it is important to maintain a constant flow of messages to the consumer as well as visibility in the market place.

Mix

Mix is an appropriate word to describe the marketing process, as it is a blending of ingredients to fulfill a common purpose. Each ingredient is vitally important and each depends upon the other for its contribution. Different markets will require a different balance of ingredients. The mix should comprise;

A time scale

A company must have a plan, which indicates when it expects to achieve its objectives, both in the short, medium and long term.

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Strategic elements

These will involve the overall development strategy of the company and require considerable judgment and expertise; such decisions might involve the development of a new product range or a new distribution system.

Tactical or medium – term elements

The business environment requires constant monitoring; a company should have sufficient flexibility in order to react quickly to changing market circumstances, e.g. in response to competitor activity, which may require changes in pricing and promotional strategies or amendments to marketing plan.

Short-term operational elements

These involve predictable everyday decisions such as contacts with customers, organizing advertising and point of sale material and planning distribution.

Every small business manager is a personnel manager in the sense that work is done through people, with people and for the people. Consequently, the owner manager should be personally capable of handling employee relations until the company becomes large enough to afford a personnel manager. Planning personnel requirement, developing sources from which new employees can be recruited, choosing (recruiting) the needed people, training and developing them into productive workers, evaluating their performance, compensating them and dealing with various personnel relationship, including industrial relation.

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Questions

1. An initial mark up could be expressed as a percentage of sales price or product cost (True / False)

   Ans: True

2. Promotion is the business of communicating with and influencing the customer. (True / False).

   Ans: True

3. Odd pricing is done for products such as gold. (True / False).

   Ans: False

4. The firm's goal should be to find a price volume combination that will maximize profits. (True / False).

   Ans: True

5. The components of marketing mix are; product, price, promotion and people. (True / False).

   Ans: False

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Lecture No. 31

Financial Management – credit, types of credit, 3R's of credit, types of repayment

Financing the business

The capital of a business consists of those funds used to start and run the business. Capital may be of two types: fixed and working.

Fixed capital refers to items bought once and used for a long period of time. This includes such things as land building fixtures and equipment.

Working capital is the type of funds, which is needed for carrying out day to day operations of the business smoothly. The management of working capital is no less important than the management of 'long term' financial investment.

Working Capital Management

Significance of working capital

Every running business needs working capital. Even a business which is fully equipped with all types of fixed assets required is sure to fail without i) adequate supply of raw materials for processing ii) cash to pay wages, power and other costs, iii) creating a stock of finished goods to feed the market demand continuously and iv) the ability to grant credit to customers. All these require working capital. Thus working capital is the lifeblood of a business without which a business will be unable to function. No business will be able to carry on day to day activities without adequate working capital.

Components of working capital

The working capital has following components, which are in several forms of current assets. The basis for assigning value to each component is shown against each.

Components of working capital	Basis of valuation
Stock of cash	Purchase cost of raw materials
Stock of raw materials	Prime cost

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Stock of finished goods	Cost of production
Value of debtors	Cost of sales or sale value
Miscellaneous current assets like short term investment loans and advances etc	Working expenses

Each constituent of the working capital is valued on the basis of valuation enumerated above of the holding period estimated. The total of all such valuation becomes the total estimated working capital requirement.

Factors influencing working capital requirement

The important factors that influence the working capital requirements of business are furnished below.

1. Nature of business
2. Seasonality of operations
3. Production policy
4. Market condition
5. Conditions of supply
6. Growth and expansion
7. Price level changes
8. Manufacturing cycle

Planning financial needs

Planning the financial needs of a business is very important. The owner or manager needs to be able to ask the following questions.

Why do I need the money?

The general area of need for money is: (a) starting a new business, (b) inventory, (c) expansion, (d) remodeling, and (e) improving working capital.

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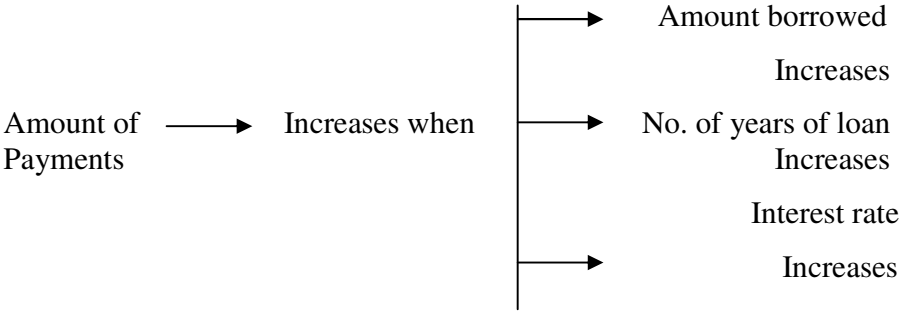
How much money will I need?

It is important to be able to specify how much money you will need. It is advisable when doing any financing to be able to stipulate the amount of money that you will be using and to specify if it is to purchase inventory, pay salaries or wages or even to be used to purchase a new equipment.

When I will be able to repay the money?

Friends, bankers, and business associates are always interested in knowing when and how you anticipate repaying the loans. The majority of loan repayments come from sales of merchandise, inventory and payments received for services rendered.

Factors that increase loan repayments



Where will I obtain money?

Compare the advantages and disadvantages of obtaining money from different sources in terms of interest payment and control over business.

Sourcing of capital for business

There are two major forms of financing any business; equity financing and debt financing.

Equity capital (ownership) may come from personal savings, from partnership or by selling stock in a corporation. Equity financing involves giving up ownership to the investors of the business. It also involves dividing of the business ownership among the various investors. That is instead of repaying an investor or one is giving money to the business, the investor now becomes an owner and receives money from business primarily through dividend or profit sharing system.

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1. **Common stock.** This is the most widely used form of equity financing and provides the greatest potential return on investment for the investor. It is important to remember that if the firm does fail, all of the creditors, and investors would be repaid before the common stockholders are repaid.
2. **Preferred stock.** It provides a preference for stock holders during failure or bankruptcy. Preferred stockholders must be paid in full before other common stockholders are repaid. Because of this preferential treatment, the preferred stockholders receive smaller dividends or returns on investment than do common stockholders; therefore, convertible preferred stock may be used, allowing the investors to convert their preferred stock at any time in the company's future.
3. **Convertible debentures.** This is a long-term debt that would be paid off by an investor, with the option of the investor to convert the debentures to common stock before being repaid.
4. **Debt warranties** are similar to convertible debentures but would allow the investor or creditor the option to purchase a specified stock at a specific set price. This option to purchase is available to the investor or creditor, even after the debt has been repaid but before the warranty has expired. This generally provides a longer time period for investment (ownership) for one providing debt financing to a corporation. That is, the debt warranty would allow someone loaning money to a business the opportunity to own part of the business even after the debt has been repaid until the time when the warranty expires.

Both debentures and debt warranties are debts and, therefore, must be paid before either common stockholders or preferred stockholders are paid in case the business fails. All four of these opportunities are good opportunities to invest in business and provide potential ownership to investors who are interested in that specific business.

Venture capital has become an increasing source of equity funds for new business ventures. Venture capital individuals or firms supply funds for a percentage ownership of the new business. This source of capital has been popular in business start –ups involving new technology.

Source of debt capital are commercial banks, co-operative banks, mutual funds, vendors, equipment manufactures and distributors, factors, private investors, special type of finance lending institutions. Commercial banks in India include State Bank of India and its Associate Banks, all nationalized banks and private commercial banks. Many of the commercial banks have industries branches. They provide both fixed capital and working capital with over draft facility.

Special financial institutions like

- Industrial Development Bank of India
- Tamil Nadu Industrial Investment Corporation
- Small Industries Development Bank of India
- Mutual Funds
- National Bank for Agricultural and Rural Development
- Co-operative banks
- Industrial Credit Investment and Investment Corporation of India
- National Agricultural Marketing, Federation of India
- Export – Import Bank (Exim bank)

Vendors can be an important source of short – term credit for small business firms. Firms that sell inventories to a business usually will finance the purchase of these goods for short periods of time, usually 30 to 90 days.

Factors are financial firms that finance accounts receivable for business firms. They may either purchase or discount accounts receivable. If they discount accounts receivable, they function exactly as the commercial bank. When factors purchase accounts

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receivable, they make an analysis of the receipt of the accounts and pay the business firm a percentage of the total amount.

Documents required to apply for loan

Bankers generally look for three things when considering a loan application: (1) ability to repay the loan, (2) collateral, and (3) record. The small business entrepreneur should take along three recent financial statements when applying for a loan or a line of credit : (1) a balance sheet, (2) an income statement, and (3) a cash flow statement.

Collateral refers to the personal or business possessions an owner is willing to assign to the lender as a contract for debt repayment. If the borrower does not repay the debt, all collateral remits to the lender to repay the loan.

PRINCIPLES OF CREDIT MANAGEMENT - 3R CONCEPT

1. Return
2. Repayment capacity
3. Risk bearing ability

1. Returns from an investment: The first R of credit

The returns from an investment, the first test of credit, has great significance to both creditor and borrower. It requires that both borrower and lender are satisfied about the returns from credit which cover the principal and interest.

However, the following points may be kept in mind while calculating the expected returns from the borrowed funds.

- Estimate the gross returns by multiplying average yields with its corresponding expected average prices, the conservative prices should be used for safety purpose. These gross returns should be worked out both with and without borrowed funds.
- Estimate the total cost both with and without borrowed funds, these costs should be slightly on higher side to take into account the risk.

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- Estimate the additional cost and additional returns from the investment, do not use average cost and average returns.

The use of credit becomes an economically sound proposition, if the net cash income is more due to the use of borrowed funds, with a sufficient margin for income variability.

2. Repayment capacity: The second R of credit

The repaying capacity is the amount of money that a farm family would be able to spare from their total earnings so as to repay the loan after meeting his farm and family expenses. Ability to repay a loan is influenced by the income generating capacity of the farm business, off farm earnings, the liquidity of the farm as reflected by the balance sheet and the cash flows on the farm (with due consideration for farm and family obligations). Furthermore, the ability to repay may be influenced by numerous factors but willingness to repay a loan is quite essential.

Types of repayment

Self-liquidating loans: - These are loans to acquire goods or services that are completely used up in one production season or in annual production process. These are infact, the short-term loan (operating expenses) which become a part of working expenses in the single production process. In estimating repaying capacity the borrowed funds are not deducted as costs are included in working expenses. The repaying capacity for such loans should be determined as below:

Repaying capacity = (Gross income including off-farm income) minus (living expenses + working expenses excluding proposed loan + taxes and L.I.C. premiums + other loans and repayments due).

Non-liquidating loans: - These are loans where resources acquired are not expended or consumed up in a single production process, i.e. the acquired resources are consumed over a number of years. Such loans do not completely become a part of the first year's costs and returns from such investments are spread over a number of years. A loan for the purchase of tractor or land reclamation is an example of non-liquidating loan, *i.e.*, all the medium and long term loans are non-liquidating loans. These loans may contribute indirectly to the repayment capacity by enabling the farmer to produce more net income

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than otherwise would be possible without the use of such resources. The repaying capacity for such loans is worked out as:

Repaying capacity = (Gross income including off farm income) minus (working expenses including seasonal loans + living expenses +taxes and LIC premiums + repayment of other loans due).

3. Risk bearing ability

Risk bearing ability, the third R of credit, determines the quantum of credit which can be safely used by the farm-firm. It means the ability of borrower to withstand the unexpected low incomes, unpredictable losses and expenses and to continue the farming. It provides the "***last line of defence***" in the use of credit.

The risk bearing ability of a borrower depends upon the following factors:

1. Ability and willingness to save.
2. Ability to borrow, *i.e*., credit worthiness of the borrower as a person, especially in bad times.
3. Ability and willingness to adjust and withstand the adverse conditions, i.e., reducing both operating and living expenses in bad periods.
4. Equity and net worth, the backbone of risk bearing ability. The risk bearing ability can be enhanced by certain measures such as:

a. Taking crop, livestock and other insurances.

b. Adoption of financial strategies (e.g. internal cash or asset rationing, internal and external credit rationing and reducing farm and family expenses.)

c. Adoption of suitable marketing strategies (such as hedging, forward contracts for sale of farm products and purchase of input supplies to reduce price risk).

d. Adoption of suitable production strategies (such as flexible production programmes, use of plant protection, weedicides and other farm practices, growing less risky or more stable farm enterprises, diversification of farm production programmes).

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e. Building up of owner's equity or net worth through savings and personal credit through fair dealings.

Questions

1. Production policy influences working capital requirement of a firm. (True / False).

   Ans: True

2. Preference stock is a source of equity capital. (True / False).

   Ans: False

3. Venture capital has been popular in funding business start – ups involving new technology. (True / False).

   Ans: True

4. Mortage refers to the personal or business possessions an owner is willing to assign to the lender as a contract for debt repayment. (True / False).

   Ans: False

5. Reduction in interest rate increases loan repayment duration. (True / False).

   Ans: False

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Lecture No. 32

Important financial institutions

Financial institutions are those organizations that are involved in providing various types of financial services to their customers. The financial institutions are controlled and supervised by the rules and regulations delineated by government authorities.

Some of the **financial institutions** also function as mediators in share markets and debt security markets. There the principal **function of financial institutions** is to collect funds from the investors and direct the funds to various financial services providers in search for those funds. These are the various financial institutions deal with various financial activities associated with bonds, debentures, stocks, loans, risk diversification, insurance, hedging, retirement planning, investment, portfolio management, and many other types of related functions. With the help of their functions, the **financial institutions** transfer money or funds to various tiers of economy and thus play a significant role in acting upon the domestic and the international economic scenario.

For carrying out their business operations, financial institutions implement different types of economic models. They assist their clients and investors to maximize their profits by rendering appropriate guidance. Financial institutions also impart a wide range of educational programs to educate the investors on the fundamentals of investment and also regarding the valuation of stock, bonds, assets, foreign exchanges, and commodities. Financial institutions can be both private and public in nature.

Types of Financial Institutions

Financial institutions are the firms that provide financial services and advices to its clients. The financial institutions are generally regulated by the financial laws of government authority.

Various types of Financial Institutions are as follows:

- Commercial banks
- Credit unions
- Stock brokerage firms

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- Asset management firms
- Insurance companies
- Finance companies
- Building Societies
- Retailers

The various financial institutions generally act as the intermediaries between the capital market and debt market. But the service provided by financial institution depends on its type.

The financial institutions are also responsible to transfer funds from investors to the companies. Typically, these are the key entities that control the flow of money in the economy. The services provided by the various types of financial institutions may vary from one institution to another.

Functions of Financial Institutions

Financial institutions include banks, credit unions, asset management firms, building societies, and stock brokerages, among others. These institutions are responsible for distributing financial resources in a planned way to the potential users. There are a number of institutions that collect and provide funds for the necessary sector or individual. On the other hand, there are several institutions that act as the middleman and join the deficit and surplus units. Investing money on behalf of the client is another of the variety of functions of financial institutions.

Financial institutions in India

The financial institutions in India are divided in two categories. The first type refers to the regulatory institutions and the second type refers to the intermediaries.

Regulatory bodies

- The regulators are assigned with the job of governing all the divisions of the Indian financial system. These regulatory institutions are responsible for maintaining the transparency and the national interest in the operations of the institutions under their supervision.

The regulatory bodies of the financial institutions in India are as follows:

- Reserve Bank of India (RBI)
- Securities and Exchange Board of India (SEBI)
- Central Board of Direct Taxes (CBDT)
- Central Board of Excise & Customs

Intermediaries

Apart from the Regulatory bodies, there are the Intermediaries that include the banking and non-banking financial institutions.

- **Banks**
  - **Nationalized commercial banks**
    - A commercial bank is a type of financial intermediary and a type of bank. Commercial banking is also known as business banking. It is a bank that provides checking accounts, savings accounts, and money market accounts and that accepts time deposits
    - Commercial bank is the term used for a normal bank to distinguish it from an investment bank or retail bank.
    - Commercial banking can also refer to a bank or a division of a bank that mostly deals with deposits and loans from corporations or large businesses, as opposed to normal individual members of the public (retail banking).
    - Example – State Bank of India, Indian Overseas Bank, etc.
  - **Private banks**
    - Private Banks are banks that are not incorporated. A private bank is owned by either an individual or a general partner(s) with limited partner(s). In any such case, the creditors can look to both the "entirety of the bank's assets" as well as the entirety of the sole-proprietor's/general-partners' assets.
    - "Private Banks" and "private banking" can also refer to non-government owned banks in general, in contrast to government-

owned (or nationalized) banks, which were prevalent in communist, socialist and some social democratic states in the 20th century. Private Banks as a form of organization should also not be confused with "Private Banks" that offer financial services to high net worth individuals and others.

- Example – Axis bank, ICICI bank, etc.

- **Foreign banks**
  - Foreign Banks in India always brought an explanation about the prompt services to customers. After the set up foreign banks in India, the banking sector in India also become competitive and accurative.
  - Example – HSBC, Standard Chartered Bank, etc.
- **Non-bank financial companies (NBFCs)**
  - Non-bank financial companies (NBFCs) are financial institutions that provide banking services without meeting the legal definition of a bank, i.e. one that does not hold a banking license. Operations are, regardless of this, still exercised under bank regulation.
  - For regulatory purposes, NBFCs have been classified into 3 categories:
    - those accepting public deposits,
    - those not accepting public deposits but engaged in financial business and
    - Core investment companies with 90 per cent of their total assets as investments in the securities of their group/ holding/subsidiary companies.
  - Example-Sakthi Finance Ltd.,
    Shriram City Union Finance Ltd., etc.

Specialized financial institutions in India are as follows

- Unit Trust of India (UTI)

- Securities Trading Corporation of India Ltd. (STCI)
- Industrial Development Bank of India (IDBI)
- Industrial Reconstruction Bank of India (IRBI), now (Industrial Investment Bank of India)
- Export - Import Bank of India (EXIM Bank)
- Small Industries Development Bank of India (SIDBI)
- National Bank for Agriculture and Rural Development (NABARD)
- Life Insurance Corporation of India (LIC)
- General Insurance Corporation of India (GIC)
- Shipping Credit and Investment Company of India Ltd. (SCICI)
- Housing and Urban Development Corporation Ltd. (HUDCO)
- National Housing Bank (NHB)

National Bank for Agriculture and Rural Development (NABARD)

NABARD is set up as an apex Development Bank with a mandate for facilitating credit flow for promotion and development of agriculture, small-scale industries, cottage and village industries, handicrafts and other rural crafts. It also has the mandate to support all other allied economic activities in rural areas, promote integrated and sustainable rural development and secure prosperity of rural areas. In discharging its role as a facilitator for rural prosperity NABARD is entrusted with

1. Providing refinance to lending institutions in rural areas
2. Bringing about or promoting institutional development and
3. Evaluating, monitoring and inspecting the client banks

Besides this pivotal role, NABARD also:

• Acts as a coordinator in the operations of rural credit institutions

• Extends assistance to the government, the Reserve Bank of India and other organizations in matters relating to rural development

• Offers training and research facilities for banks, cooperatives and organizations working in the field of rural development

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• Helps the state governments in reaching their targets of providing assistance to eligible institutions in agriculture and rural development Acts as regulator for cooperative banks and RRBs.

Regional Rural Banks (RRB)

Regional Rural Banks were established under the provisions of an Ordinance promulgated on the 26th September 1975 and the RRB Act, 1976 with an objective to ensure sufficient institutional credit for agriculture and other rural sectors. The RRBs mobilize financial resources from rural / semi-urban areas and grant loans and advances mostly to small and marginal farmers, agricultural labourers and rural artisans. The area of operation of RRBs is limited to the area as notified by GoI covering one or more districts in the State. RRBs are jointly owned by GoI, the concerned State Government and Sponsor Banks (27 scheduled commercial banks and one State Cooperative Bank); the issued capital of a RRB is shared by the owners in the proportion of 50%, 15% and 35% respectively.

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Questions

1. NABARD is nationalized commercial bank. (True / False).

   Ans: False

2. SBI is a regulatory body of financial institutions. (True / False).

   Ans: False

3. Axis bank is a private commercial banks. (True / False).

   Ans: True

4. NABARD is a refinancing bank. (True / False).

   Ans: True

5. ICICI is a Non-Banking Financial Institution. (True / False).

   Ans: False

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Lecture No. 33

Financial statements and ratios, capital budgeting

Financial Statements

Definition: Financial statements are a collection of reports about an organization's financial condition. The standard contents of a set of financial statements are:

- Balance sheet. Shows the entity's assets, liabilities, and stockholders's equity as of the report date.
- Income statement. Shows the results of the entity's operations and financial activities for the reporting period.
- Statement of cash flows. Shows changes in the entity's cash flows during the reporting period.

Businesses report information in the form of financial statements issued on a periodic basis.

- **Balance Sheet** - statement of financial position at a given point in time.
- **Income Statement** - revenues minus expenses for a given time period ending at a specified date.
- **Statement of Cash Flows** - summarizes sources and uses of cash; indicates whether enough cash is available to carry on routine operations.

Balance Sheet

The balance sheet is based on the following fundamental accounting model:

Assets = Liabilities + Equity

Assets can be classified as either current assets or fixed assets. Current assets are assets that quickly and easily can be converted into cash, sometimes at a discount to the purchase price. Current assets include cash, accounts receivable, marketable securities, notes receivable, inventory, and prepaid assets such as prepaid insurance. Fixed assets include land, buildings, and equipment. Such assets are recorded at historical cost, which often is much lower than the market value.

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Liabilities represent the portion of a firm's assets that are owed to creditors. Liabilities can be classed as short-term liabilities (current) and long-term (non-current) liabilities. Current liabilities include accounts payable, notes payable, interest payable, wages payable, and taxes payable. Long-term liabilities include mortgages payable and bonds payable. The portion of a mortgage long-term bond that is due within the next 12 months is classed as a current liability, and usually is referred to as the current portion of long-term debt. The creditors of a business are the primary claimants, getting paid before the owners should the business cease to exist.

Equity is referred to as owner's equity in a sole proprietorship or a partnership, and stockholders' equity or shareholders' equity in a corporation. The equity owners of a business are residual claimants, having a right to what remains only after the creditors have been paid. For a sole proprietorship or a partnership, the equity would be listed as the owner or owners' names followed by the word "capital". For example:

In the case of a corporation, equity would be listed as common stock, preferred stock, and retained earnings.

The balance sheet reports the resources of the entity. It is useful when evaluating the ability of the company to meet its long-term obligations. Comparative balance sheets are the most useful; for example, for the years ending December 31, 2000 and December 31, 2001.

Income Statement

The income statement presents the results of the entity's operations during a period of time, such as one year. The simplest equation to describe income is:

Net Income = Revenue - Expenses

Revenue refers to inflows from the delivery or manufacture of a product or from the rendering of a service. Expenses are outflows incurred to produce revenue.

Income from operations can be separated from other forms of income. In this case, the income can be described by:

Net Income = (Revenue – Expenses) + (Gains – Losses)

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where gains refer to items such as capital gains, and losses refer to capital losses, losses from natural disasters, etc.

Cash Flow Statement

The nature of accrual accounting is such that a company may be profitable but nonetheless experience a shortfall in cash. The statement of cash flows is useful in evaluating a company's ability to pay its bills. For a given period, the cash flow statement provides the following information:

- Sources of cash
- Uses of cash
- Change in cash balance

The cash flow statement represents an analysis of all of the transactions of the business, reporting where the firm obtained its cash and what it did with it. It breaks the sources and uses of cash into the following categories:

- Operating activities
- Investing activities
- Financing activities

The information used to construct the cash flow statement comes from the beginning and ending balance sheets for the period and from the income statement for the period.

Financial ratios

Financial ratios are a comparison of two selected numerical values taken from financial statements of a company. These ratios can be used to evaluate the financial position of a company.

Financial ratios can be classified according to the information they provide. The following types of ratios frequently are used:

1. Liquidity ratios
2. Asset turnover ratios
3. Financial leverage ratios

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4. Profitability ratios
5. Dividend policy ratios

1. Liquidity Ratios

Liquidity ratios provide information about a firm's ability to meet its short-term financial obligations. They are of particular interest to those extending short-term credit to the firm. Two frequently-used liquidity ratios are the current ratio (or working capital ratio) and the quick ratio.

The current ratio is the ratio of current assets to current liabilities:

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

The quick ratio is an alternative measure of liquidity that does not include inventory in the current assets. The quick ratio is defined as follows:

$$\text{Quick Ratio} = \frac{\text{Current Assets - Inventory}}{\text{Current Liabilities}}$$

2. Asset Turnover Ratios

Asset turnover ratios indicate of how efficiently the firm utilizes its assets. They sometimes are referred to as efficiency ratios, asset utilization ratios, or asset management ratios. Two commonly used asset turnover ratios are receivables turnover and inventory turnover.

Receivables turnover is an indication of how quickly the firm collects its accounts receivables and is defined as follows:

$$\text{Receivables Turnover} = \frac{\text{Annual Credit Sales}}{\text{Accounts Receivable}}$$

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The receivables turnover often is reported in terms of the number of days that credit sales remain in accounts receivable before they are collected. This number is known as the collection period. It is the accounts receivable balance divided by the average daily credit sales, calculated as follows:

$$\text{Average Collection Period} = \frac{\text{Accounts Receivable}}{\text{Annual Credit Sales / 365}}$$

The collection period also can be written as:

$$\text{Average Collection Period} = \frac{365}{\text{Receivables Turnover}}$$

Another major asset turnover ratio is inventory turnover. It is the cost of goods sold in a time period divided by the average inventory level during that period:

$$\text{Inventory Turnover} = \frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$$

The inventory turnover often is reported as the inventory period, which is the number of days worth of inventory on hand, calculated by dividing the inventory by the average daily cost of goods sold:

$$\text{Inventory Period} = \frac{\text{Average Inventory}}{\text{Annual Cost of Goods Sold / 365}}$$

The inventory period also can be written as:

$$\text{Inventory Period} = \frac{365}{\text{Inventory Turnover}}$$

Other asset turnover ratios include fixed asset turnover and total asset turnover.

3. Financial Leverage Ratios

Financial leverage ratios provide an indication of the long-term solvency of the firm. Unlike liquidity ratios that are concerned with short-term assets and liabilities, financial leverage ratios measure the extent to which the firm is using long term debt.

The debt ratio is defined as total debt divided by total assets:

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$$\text{Debt Ratio} = \frac{\text{Total Debt}}{\text{Total Assets}}$$

The debt-to-equity ratio is total debt divided by total equity:

$$\text{Debt-to-Equity Ratio} = \frac{\text{Total Debt}}{\text{Total Equity}}$$

Debt ratios depend on the classification of long-term leases and on the classification of some items as long-term debt or equity.

The times interest earned ratio indicates how well the firm's earnings can cover the interest payments on its debt. This ratio also is known as the interest coverage and is calculated as follows:

$$\text{Interest Coverage} = \frac{\text{EBIT}}{\text{Interest Charges}}$$

where EBIT = Earnings Before Interest and Taxes

4. Profitability Ratios

Profitability ratios offer several different measures of the success of the firm at generating profits. The gross profit margin is a measure of the gross profit earned on sales. The gross profit margin considers the firm's cost of goods sold, but does not include other costs. It is defined as follows:

$$\text{Gross Profit Margin} = \frac{\text{Sales} - \text{Cost of Goods Sold}}{\text{Sales}}$$

Return on assets is a measure of how effectively the firm's assets are being used to generate profits. It is defined as:

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$$\text{Return on Assets} = \frac{\text{Net Income}}{\text{Total Assets}}$$

Return on equity is the bottom line measure for the shareholders, measuring the profits earned for each dollar invested in the firm's stock. Return on equity is defined as follows:

$$\text{Return on Equity} = \frac{\text{Net Income}}{\text{Shareholder Equity}}$$

5. Dividend Policy Ratios

Dividend policy ratios provide insight into the dividend policy of the firm and the prospects for future growth. Two commonly used ratios are the dividend yield and payout ratio.

The dividend yield is defined as follows:

$$\text{Dividend Yield} = \frac{\text{Dividends Per Share}}{\text{Share Price}}$$

A high dividend yield does not necessarily translate into a high future rate of return. It is important to consider the prospects for continuing and increasing the dividend in the future. The dividend payout ratio is helpful in this regard, and is defined as follows:

$$\text{Payout Ratio} = \frac{\text{Dividends Per Share}}{\text{Earnings Per Share}}$$

Capital budgeting

Capital budgeting is a required managerial tool. One duty of a financial manager is to choose investments with satisfactory cash flows and rates of return. Therefore, a financial manager must be able to decide whether an investment is worth undertaking and be able to choose intelligently between two or more alternatives. To do this, a sound

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procedure to evaluate, compare, and select projects is needed. This procedure is called **capital budgeting**.

Capital budgeting techniques

Net present value (NPV)

The NPV method is used for evaluating the desirability of investments or projects.

$$NPV = \frac{C_1}{I+r} + \frac{C_2}{(I+r)^2} + \frac{C_3}{(I+r)^3} + \ldots + \frac{C_2 \ldots I_o}{(I+r)^n} \quad ; \quad NPV = \sum_{t=1}^{n} \frac{C_t}{(I+r)^t} - I_o$$

Where:

C_t = the net cash receipt at the end of year t

I_o = the initial investment outlay

r = the discount rate/the required minimum rate of return on investment

n = the project/investment's duration in years.

The discount factor r can be calculated using:

$$q(t,i) = \frac{1}{(1+i)^t}$$

Decision rule: If NPV is positive (+): *accept the project,* If NPV is negative (-): *reject the project*

The internal rate of return (IRR)

The IRR is the discount rate at which the NPV for a project equals zero. This rate means that the present value of the cash inflows for the project would equal the present value of its outflows. The IRR is the break-even discount rate. The IRR is found by trial and error.

$$\sum_{t=1}^{n} \frac{C_t}{(I+r)^t} - I_o = o$$

Where,

r = IRR

IRR of an annuity:

$$\mathbf{Q(n,r)} = \frac{I_o}{C}$$

Where

Q (n,r) is the discount factor, $\mathbf{I_o}$ is the initial outlay,

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C is the uniform annual receipt ($C_1 = C_2 =....= C_n$).

Payback

Small businesses use this method because it is simple. It requires calculation of number of years required to pay back original investment

Payback-based decisions:

- Between two mutually exclusive investment projects, choose project with shortest payback period
- Set a predetermined standard

  Ex. “Accept all projects with payback of less than 5 years and reject all others”

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Questions

1. Balance sheet reveals the financial position of the firm at a particular point of time. (True / False).

   Ans: True

2. Cash in hand is a current asset. (True / False).

   Ans: True

3. A pair of bullocks is fixed asset. (True / False).

   Ans: True

4. The cash flow statement is usually prepared on a before tax basis. (True / False).

   Ans: False

5. Cash ratio is estimated to assess the liquidity of the firm. (True / False).

   Ans: True

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Lecture No. 34

Project Management – definition, project preparation and evaluation measures

Project management is the science (and art) of organizing the components of a project, whether the project is development of a new product, the launch of a new service, a marketing campaign, etc.

Project Management Basics

No matter what the type of project, project management typically follows the same pattern:

1. Definition
2. Planning
3. Execution
4. Control
5. Closure

1. Defining the Project

In this stage the project manager defines what the project is and what the users hope to achieve by undertaking the project. This phase also includes a list of project deliverables, the outcome of a specific set of activities.

2. Planning the Project

In this stage, the project manager lists all activities or tasks, how the tasks are related, the duration of each task, and how each task is tied to a specific deadline. This phase also allows the project manager to define relationships between tasks. Identification of human resources, costs and expenses involved are also part of this phase.

3. Executing the Project

In this phase, the project manager knows how many resources and how much budget should be allotted for the project. The project manager then assigns those resources and allocates budget to various tasks in the project.

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4. Controlling the Project

The project manager is in charge of updating the project plans to reflect actual time elapsed for each task. By keeping up with the details of progress, the project manager is able to understand how well the project is progressing overall.

Project preparation

Project Preparation consists of all the work necessary to ensure that a proposed project is feasible and appropriate and that it can be successfully implemented. The process ensures the identification and elimination of key risks at the earliest possible time and maximizes development opportunities by ensuring that projects are well conceptualized. A Project Report is a written document pertaining to any investment proposal. It contains relevant data, on the basis of which the project has been appraised and found relevant to the entrepreneur. A project Report is prepared by the expert after detailed study & analysis of the various aspects of a project.

Elements of a project report

- Description of the entrepreneur
- Description of the enterprise & brief summary of the project.
- Inputs for the proposed project
- Financial Aspects
- Economic Viability
- Total income, operative net profit, etc.
- Profitability analysis
- Information regarding technical feasibility, marketing, present demand, etc.

Project Evaluation measures

The methods/criteria more often used for evaluating a project are

(1) Simple rate of return (SRR)

(2) Payback Period (PBP)

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(3) Benefit Cost Ratio (BCR)

(4) Net present Value (NVP) or Net Present Worth (NPW) and

(5) Internal Rate of Return (IRR).

The SRR and the PBP are the undiscounted measures while BCR, NPV and IRR are the discounted measures of project worth of Investment.

1. Simple Rate of Return

The SRR is a commonly used criterion of project evaluation. It basically expresses the average net profits (Net Cash Flows) generated each year by an investment as a percentage of investment over the investment's expected life. It is as

SRR = Y/I

Where

Y = the average annual net profit (after allowing depreciation) from the investment

I = the initial investment

The calculated SRR should be compared with the investor's Required Rate of Return (RRR) to judge the profitability of the investment. The investment will be accepted if SRR > RRR, otherwise it will be rejected.

2. Pay Back Period (PBP)

The Payback period is the length of time required for an investment to pay itself out. It is computed as

PBP = I/E

When the projected net cash flows (E) are uniform or

$$PBP = I / \sum_{t=1}^{n} En = 1$$

When the projected net cash flows are non-uniform.

Where,

I = the initial investment.

E = the projected net cash flows per year from the investment.

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PBP = Pay Back Period expressed in number of years.

Individual investments are ranked according to their relative payback period with the shortest being the most favored.

3. Benefit Cost Ratio (BCR)

It is the ratio of present worth of benefit stream to present worth of cost stream *i.e.*,

$$BCR = \frac{\text{Sum of the present worth of benefit}}{\text{Sum of the present worth of cost}}$$

Mathematically, it can be shown as

$$BCR = \frac{\sum_{t=1}^{n} Bn / (1 + i)^{n}}{\sum_{t=1}^{n} Cn / (1 + i)^{n}}$$

Where,

Bn = Benefit in each year

Cn = Cost in each year

n = number of year

i = interest (discount) rates.

The investment is said to be profitable when the BCR is one or greater than 1. This method is widely used in economic analysis and not in private investment analysis.

4. Net Present Value (NVP)

Net present value is computed by finding the difference between the present worth of benefit stream less the present worth of cost stream. Or it is simply the present worth of the cash flow stream since it is a discounted cash flow measure of project worth along with internal rate of return.

NPV = Present worth of Benefit Stream – Present Worth of Cost Stream.

Mathematically, it can be shown as

$$NPV = \sum_{t=1}^{n} Bn / (1 + i)^{n} - \sum_{t=1}^{n} Cn / (1 + i)^{n}$$

Or NPV = Present worth of the cash flow stream.

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The project is profitable or feasible if the calculated NVP is positive when discounted at the opportunity cost of capital.

5. Internal Rate of Return (IRR)

Internal Rate of Return (IRR) is that discount rate which just makes the net present value (NVP) of the cash flow equal zero. It is considered to be the most useful measure of project worth and used by almost all the institutions.

Mathematically,

IRR is that discount rate 'i' such that

$$\sum_{t=1}^{n} (Bn - Cn) / (1 + i)^{n} = 0 \text{ i.e. } NVP = 0$$

Where

Bn = Costs in each year of the project.

Cn = Costs in each year of the project.

n = number of years in the project.

i = interest (discount) rate.

A project is profitable or feasible for investment when the internal rate of return is higher than the opportunity cost of capital.

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Questions

1. Simple Rate of Return analysis is an undiscounted measure of project evaluation (True/False).

   Ans: True

2. The investment is said to be profitable when the BCR is less than 1. (True/False).

   Ans: False

3. The project is profitable or feasible if the calculated NVP is positive when discounted at the opportunity cost of capital (True/False).

   Ans: True

4. Internal Rate of Return (IRR) is that discount rate which just makes the net present value (NVP) of the cash flow equal zero (True/False).

   Ans: True

5. Project is repetitive permanent intervention to achieve wide range of goals (True/False).

   Ans: False