ENTREPRENEURSHIP DEVELOPMENT

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‘Entrepreneurship Development’

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A Manual on ‘Entrepreneurship Development’

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Foreword

The Indian agriculture is currently undergoing a transitional phase where agriculture is witnessing multi-dimensional changes with respect to cultivation, value chain and marketing. The policies of the government are gradually inclining towards a paradigm shift from subsistence agriculture to commercial agriculture. The active implementation of the Scheme of "Doubling the farmers' income" warrants elimination of agrarian distress and improve their livelihoods. It requires multiple actions and solutions to bring it close to reality. The transformation of agriculture into agri-business opportunities open up avenues for both the existing farmers and also attracts the people who aren't involved in farming activities. It essentially facilitates the transition of farmers from being a mere cultivator to become agripreneurs. Emphasis must be laid on equipping the farmers and non- farmers with entrepreneurship skills by training them on relevant aspects.

This Training Manual on Entrepreneurship Development is designed to address the needs of the people who intend to establish business units, with special emphasis on agricultural units. The candidates with agricultural background possess sufficient knowledge on agriculture, but the existing lacuna with respect to entrepreneurship traits sets up the core purpose of this manual.

This Manual will be helpful for all those who are interested to become entrepreneurs I appreciate and congratulate Dr. P. Kanaka Durga, Assistant Director, MANAGE and Dr. K.C. Gummagolmath, Director (M&E), for writing this Manual

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Chapter I

Introduction

The Indian agriculture is currently undergoing a transitional phase where agriculture is witnessing multi-dimensional changes with respect to cultivation, value chain and marketing. The policies of the government are gradually inclining towards a paradigm shift from subsistence agriculture to commercial agriculture. The active implementation of the Scheme of "Doubling the farmers' income" warrants elimination of agrarian distress and improve their livelihoods. It requires multiple actions and solutions to bring it close to reality. The transformation of agriculture into agri-business opportunities open up avenues for both the existing farmers and also attracts the people who aren't involved in farming activities. It essentially facilitates the transition of farmers from being a mere cultivator to become agripreneurs. Emphasis must be laid on equipping the farmers and non- farmers with entrepreneurship skills by training them on relevant aspects.

This Book on Entrepreneurship Development is designed to address the needs of the people who intend to establish business units, with special emphasis on agricultural units. The candidates with agricultural background possess sufficient knowledge on agriculture, but the existing lacuna with respect to entrepreneurship traits sets up the core purpose of this Book.

Objectives of the Manual:

The overall objective of the Manual is to equip the trainers who intend to establish agribusiness units, with the basic concepts of entrepreneurship and knowledge of business planning essential to the success of the entrepreneurs.. The Manual is specifically intended to:

- Learn how to identify, generate, and select business ideas
- Practice the preparation of specific comprehensive business plans tailoring to the requirements of the each individual business units
- Exploring the linkages between an entrepreneur, the available and services required to successfully launch agribusiness units resources

Approach

In this manual, the trainer acts as a "facilitator" and the trainees will have participatory and experiential learning, i.e., creates the conditions and the environment in which trainees themselves will discover and practice knowledge and skills. By means of exercises, trainees will explore and share their own experience and knowledge, critically conceptualize and reflect upon solutions from which they will derive learning, implementation of an enterprise, and preparation of business plans, bankable project reports and project appraisal techniques.

Design of the Manual

This Manual has seven Modules and all deal with different entrepreneurship related topics focused on practical skills needed for an entrepreneur to set up a successful agribusiness units. Module 1 discusses, along with the activity charts the meaning of entrepreneurship and entrepreneur and the skills required by an entrepreneur to successfully run the business. Module 2 explains the generation of business ideas and various opportunities in agriculture. Module 3 & 4 covers the business plans such as production plan, organisation plan, market plan financial plan and how to draw these plans and conduct market and financial feasibility analysis. For getting loan from the bank the trained candidate need to know the project appraisal techniques that the bank would use in financing the project of the candidate. That is why Module 5 discusses the various project appraisal techniques along with the numerical examples and case studies. The candidate who is applying for loan to the bank needs to know how to organise or format his Project Report and Module 6 deals with format of the Project Report. Module 7 provides two Model Detailed Project Reports for the candidate to understand its preparation better.

Module 1

Introduction to Entrepreneurship

Learning Objectives: By the end of this Module you will be able to understand

- Meaning of entrepreneurship and entrepreneur
- Qualities of an entrepreneur
- Entrepreneurial process

In order to help you understand the concepts of entrepreneurship and entrepreneur and the skills and qualities for successful entrepreneur we begin this Module with the help of a success story of S.V. Agri.

Success Story of S.V. Agri

Indians consume one lakh tonnes of potatoes daily. India is the second largest producer (after China) with 6.0 crore tonnes of potatoes produced in 2017. Potato is the fourth most popular food in the world after wheat, rice, and maize. It is a fact that potato is a highly nutritious, easily digestible, wholesome food containing carbohydrates, proteins, minerals, vitamins and high quality dietary fiber. *Many farmers* treat this crop as a cash crop and benefits associated with its cultivation, where as many vegetable farmers in the lower end of technology grow potato because they need quick cash.

Forty-five-year-old Hemant, who had worked in the corporate sector for 16 years with organisations like Marico, ITC, and Walmart, realised that potato business was a good business idea. The entire potato supply chain from the farm to the plate is highly disconnected, and Hemant knew that if he could bring some order and integrate the chain, then a lot of value could be generated. Hemant was making a stopover in Bengaluru while on a tour of south India to meet farmers. He quit his corporate job and decided to take a deep dive into entrepreneurship. But the question was who would back him?

He came from a typical middle-class family from a village near Delhi called Patparganj and none of the family members had any experience in conducting business. With nothing more than his conviction and the assurance of some potato farmers, he has adopted this business idea.

Hemant established SV Agri with Co-founder Ganesh Pawar in 2009 to provide a range of pre-and-post-harvest solutions to potato farmers. The company has raised Rs 25 crore with help of Aspada. In 2011, SV Agri had raised Rs 5 crore from SONG, a fund backed by Soros Economic Development Fund, Omidyar Network and Google, which is also managed by Aspada. The company is making approximately Rs. 60 crore revenue and in the next three years, they have projected to do Rs 500 crore.

Expectedly, the potato market is huge. But the concern for all the stakeholders in the potato industry is how to negotiate this hurdle-infested path. Explaining the broken chain, Hemant says, "The guy who sells seeds has nothing to do with the output and does not buy back the produce from the farmers. There's another guy who buys the produce. Then there's a third guy who stores the produce, but he has nothing to do with quality.

For him, it is 'these many bags in, these many bags out.' He is just into the renting (storage) business. And then there's yet another guy who is a processor (manufacturer of chips and potato products) who gets his material from whatever is available. So, we decided to stitch the chain together and develop some volume, because without volume you cannot do anything. The second important thing we did was to apply technology wherever we could."

SV Agri makes good quality seeds available to the approx 3000 farmers it works with across India and buys back a substantial amount of produce from them. This allows them to introduce new varieties. In India, only 10 to 12 varieties are available commercially. While in the Netherlands, 50 varieties of potato are available in the market," Hemant explains. Though it is difficult for the consumer to identify the variety, Hemant says there are always takers for quality products. "Even in a market like Bihar, there are varieties that will get a premium of a rupee or two a kg which is 10 to 15 percent of the cost of potato. Thus, we have a lot of opportunities to introduce good variety seeds to the farmers." Hemant feels it also creates a lot of competition in the market and in all likelihood the farmer will have few chances of getting exploited.

Once the company buys back the produce, it is then sold to around 65 small and large processors or manufacturers like MacCain, Akash Namkeen, Yellow Diamond, Pepsico, ITC and others. The company also works closely with the processors in terms of providing training and expertise as well as supplying machinery -- thus, taking care of the whole stack. "Many times the manufacturers do not have the capability or awareness to use the produce to its maximum. Sometimes, in the peeling process itself, he may lose 10 percent of the potato. We work with them so that they can get the best out of their machines."

SV Agri has a joint venture with a Dutch company Mooij to set up and modify storage rooms for potatoes. If the storage conditions are not conducive, the produce is as good as useless because of the accumulation of large sugar content. “We have good access to technology on ventilation and storage to provide modified facilities in Gujarat, Indore, Uttar Pradesh, and Bengal.”

According to Kartik Srivatsa, Co-founder and the Managing Partner of Aspada Investment Advisors, nuanced understanding of the challenges faced by farmers.”

“The focus for us was that SV Agri was an end-to-end supply chain from the farm to the consumer. They have a strong farm engagement and are adding a lot of social capital with a When Hemant started his agri-business, he knew he would be competing against some heavyweights. “There are only a few organized players in this market. Companies like ITC, Pepsico, Cadila (agro), and Mahindra agri-business have their own streamlined supply chain. I wouldn’t say that Pepsico is our competitor because we also supply them with potatoes. Though we also supply to ITC, I compete with them in the seed division,” says Hemant. As far as 'real' competition is concerned, Hemant adds that the availability of good quality seeds is only three percent. “So I am essentially competing with the rest 97 percent of the potato growers who use the tubers directly.”

Though the SV Agri team today has the strength of 50 employees, in the early days it was difficult for him to employ the right people.

“Asking people to sell potatoes is a tough challenge. At that time, I could not offer much money, only dreams.”

His team today includes graduates from IIMs and IITs. “My first employee from IIT Kharagpur was introduced to me through a common friend. He had worked in ITC for five years and wanted to do something that created an impact. He went through a steep learning curve as he was coming from a large organization to a small company. Today, he holds five percent equity in the company.”

Source: https://yourstory.com/2016/01/sv-agri-potato/

Now you have learnt the story of SV Agri. What did you understand by this story? The probable reasons behind his success is the business idea that he has got, meticulously developed marketing plan which includes marketing strategies for his product, operational plan, choosing of the right candidates for right work, and the most important one is the financial plan. Let us learn each of these concepts to have a better understanding and importance of these elements in success of any business.

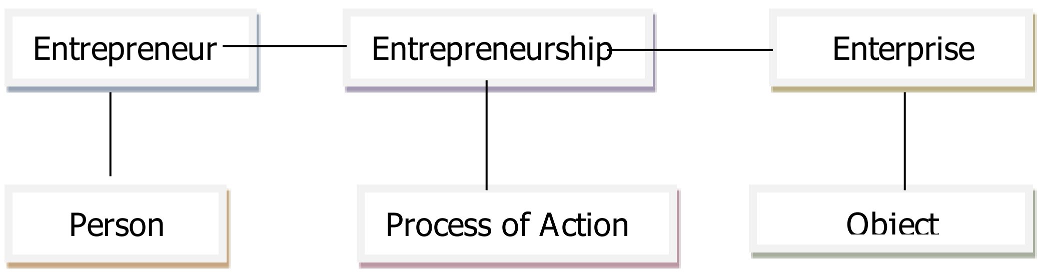
2.1 Meaning of Entrepreneurship

The word “entrepreneurship” refers to:

- A process of identifying opportunities in the market place and developing business ideas

- Arranging and investing the resources to exploit these opportunities or to initiate the business ideas

Entrepreneurship would result in creativity, innovation and growth of business.



2.2 An Entrepreneur[1] :

An entrepreneur is one

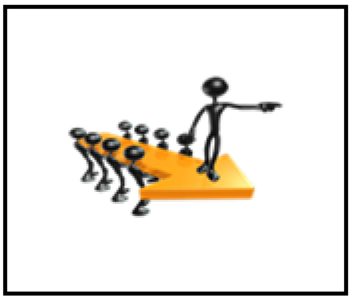
- Who is able to identify and exploit the opportunities
- Undertakes a business venture
- Raises the capital to finance it
- Gathers the necessary physical, financial and human capital needed for the business
- Set goals for himself and for others
- Undertakes major portion of the risk

2.2 Qualities of an Entrepreneur:

- The most important qualities associated with successful entrepreneurship is ***passion.*** When you feel committed to what you are doing and when you are deeply about it, you stand the best chance of being successful at it.

- Another key quality of the successful entrepreneur is ***self-confidence***. If you are thinking that you would like to be an entrepreneur, do you have confidence in your ability to succeed? Every entrepreneur encounters problems, and you have to believe you can overcome them.

- An entrepreneur is able to analyse the environment in search of opportunities. He should be able to ***seek the opportunities*** that are prevailing in and around him.
- An entrepreneur always makes concerted efforts towards the successful completion of a goal. An entrepreneur perseveres and is undeterred by uncertainties, risks, obstacles, or difficulties which could challenge the achievement of the ultimate goal.



Source:

Madhurima Lall and Shikha Sahai "Entrepreneurship" Excel Books, 2008

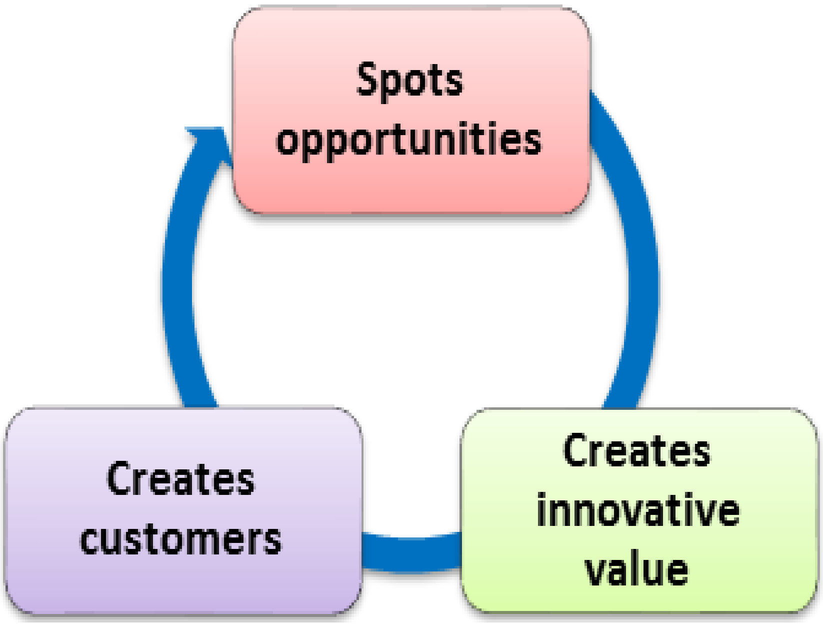
Shyam S. Salim "Project Appraisal Techniques" Central Institute of Fisheries Education, Mumbai

Vasant Desai "Dynamics of Entrepreneurial Development and Management" Himalaya Publishing House, 2007

Vasant Desai " Small Scale Industries and Entrepreneurship" Himalaya Publishing House, 2008

Entrepreneur

A visionary and passionate person who habitually spots opportunities, creates innovative customer value and gets it acquired by target beneficiaries



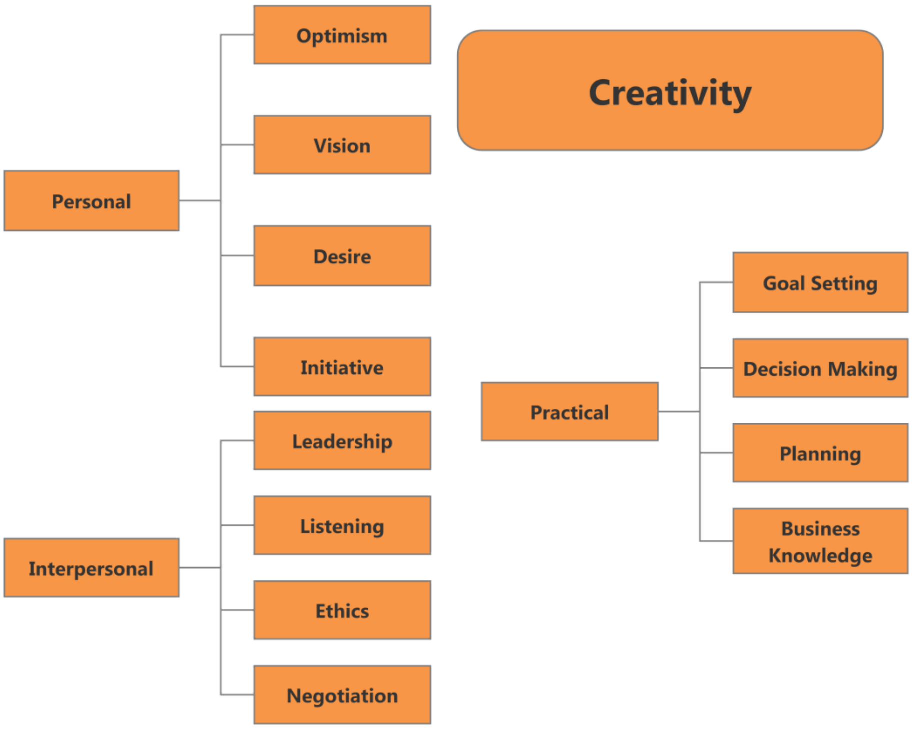
- The best entrepreneurs tend to set their own objectives where there is moderate risk of failure and will take only calculated risks.

➢ Entrepreneurs tend to thrive on ***competition***. While they may actively compete with others, they are more likely to compete against themselves. In other words, they are constantly trying to improve their own performance regardless of what others may be doing.

➢ Most entrepreneurs are ***creative.*** It means they find innovative ways to problem solve. They always look for new and better ways to do things.

➢ entrepreneurs are willing to learn and they are information seekers

2.3 Skills Required for an Entrepreneur:



Madhurima Lall and Shikha Sahai "Entrepreneurship" Excel Books, 2008

Vasant Desai " Small Scale Industries and Entrepreneurship" Himalaya Publishing House, 2008

Having the right attitudes and characteristics can carry you only so far. You also need the skills that will help you succeed. Entrepreneurs can acquire skills if they are willing to learn them. Additionally, they can hire people to work for them who have the needed skills. Either way, the following skills are important if the entrepreneur's business is to succeed.

- The ***ability to plan*** is a key skill for entrepreneurs. They must be able to develop plans to meet goals in a variety of areas, including finance, marketing, production, sales and personnel (hiring and maintaining productive and satisfied employees).
- Entrepreneurs should have good ***communication skills*** to explain, discuss, sell and market their good or service. It is important to be able to interact effectively with your business team. Additionally, entrepreneurs need to be able to express themselves clearly both verbally and in writing. They also should have strong reading comprehension skills to understand contracts and other forms of written business communication.

- ***Good marketing skills*** that result in people wanting to buy your good or service—are critical for entrepreneurial success.
- ***Interpersonal Skills:*** Entrepreneurs constantly interact with people, including customers and clients, employees, financial lenders, investors, lawyers and accountants, to name a few. The ability to establish and maintain positive relationships is crucial to the success of the entrepreneur's business venture.
- ***Basic Management Skills:*** The entrepreneur must be able to manage every component of a business. Even if entrepreneurs hire managers to attend to daily details, they must understand if their business has the right resources and if those resources are being used effectively.

2.4 Activity Charts on Personal Review and Assessment[2]

Kindly fill up the following Charts for your Personal Review and Assessment

Activity Chart 1: Personal Review & Assessment on Entrepreneurial Qualities. Fill the below Chart, selecting the number that most closely associate with your qualities with 1 may strongly disagree and 10 strongly agree

I am a person who										
Passionate, with strong feelings about things important to me	1	2	3	4	5	6	7	8	9	10
Is self-confident										
Have high self esteem										
Is capable of accomplishing whatever, wanted to do										
Is opportunity oriented										
Is forward thinking										
Has drive & ambition										
Is willing to work hard										
Is willing to take risk										
Is competitive especially against myself										
Is creative										
Is willing to learn										

If you score more than 100 then you are considered as a good candidate for entrepreneurship.

Activity Chart 2: Personal Review & Assessment on Entrepreneurial Qualities. Fill the below Chart, selecting the number that most closely associate with your qualities with "1" least amount of skill and 10 highest amount of skill Add your score. If your score is 70 or above, you

[2] www.dsw.org/uploads/tx_aedswpublication/ENTREPRENUERSHIP_TRAINING_MANUAL.pdf

have the key skills necessary to be successful entrepreneur. If your score is less, you can improve your skill

Skill Parameter	1	2	3	4	5	6	7	8	9	10
Able to plan effectively										
Communication skills : Speaking										
writing										
Reading										
Promoting a good product /service										
Interpersonal skills										
Basic management ability										
Team building skills										
Leadership skills										

Summary

The entrepreneur is an individual (or team) who identifies the opportunity, gathers the necessary resources, creates and is ultimately responsible for the performance of the organisation. Entrepreneur and entrepreneurship are two sides of the same coin; while an entrepreneur is an individual who creates and establishes a business, entrepreneurship is the process adopted by entrepreneur to do so. Entrepreneurs are hardworking, independent, innovative and risk-taking individuals.

Module 3

Generating Business Ideas[3]

Learning objectives:

By the end of the module you will be able to generate a number of business ideas for carrying out your business

3.1 What is a business idea?

A good business starts with a good business idea. It is an idea about what products you are going to offer, what services you are going to provide or what goods you are going to sell; where and how you are going to sell them and for whom you are going to sell them. be able to pay for these products and services you are intended Your business idea should always have the customer and the customer's present and future needs in mind. Your business idea should be based on your knowledge or skill in products you have or services you are good at. At the same time the customers should to do business.

3.2 How do you get business ideas?

- Business ideas are identified
- Through positive, creative thinking.
- Ideas built on local resources, local needs, local activities, interests and hobbies.
- From observations on potential opportunities.
- Developed from someone's education and past experience.
- Analysing various business ideas will also help you to focus on the type of business you will be able to carry out.

3.3 ACTIVITY

Now you are given an activity to learn how successful entrepreneurs of your locality generated business ideas before carrying out the business. The following activities you need to carry out:

[3] www.dsw.org/uploads/tx_aedswpublication/ENTREPRENUERSHIP_TRAINING_MANUAL.pdf

1. Identify three successful businesses in your local area. Write down in the space given below the name of each business and the product or service they sell.

....

....

....

2. Ask these entrepreneurs how they have chosen these businesses?

Did they do need assessment of their product or service that they are doing business? Did they have some experience, contacts or skill to build upon?

Did they know someone else in the business?

Was this the first business they ever worked in?

Any other information relevant, please find out and write in the space given below

....

....

....

3. What do you think has made the business a success?

What mistakes do you think the owner made?

What lessons can you draw from the experience of these entrepreneurs?

How can you avoid the same mistakes? Write in the space given below:

....

....

....

S.No	**Business Ideas Information Form**	
1	Name of the business	
2	Name of the Product	
3	Who are the customers	
4	Date and year of commencement of business	
5	Why he has chosen such a business	
6	How did the owner find out what local people wanted	
7	What strengths or assets did the owner use to start this business? (E.g. previous experience , training, family background, contacts, hobbies)	
8	What problems the entrepreneur faced in the beginning	

9	Did he carry out any diversification in product or service	

3.4. List of your business Ideas:

Business Ideas (products / Services)
Description of the idea
List Your Contacts
Write your experience for each business idea
Write experience of other entrepreneurs for each business idea
Conduct the SWOT Analysis for each Idea
Choose the Best Idea

3.5 Entrepreneurial Opportunities in Agriculture

Diversification:

Diversification in agriculture involve shift in cropping pattern from traditionally grown less remunerative crops to more remunerative crops like oilseeds, pulses, fodder crops, horticulture, medicinal and aromatic plants, floriculture etc. It also includes livestock and fishery enterprises and small scale agro-based industries. Diversification increases the employment opportunities, optimum use of resources and profitability

Organic farming:

The importance of organic farming is growing very fast particularly in international market. This sector provides great business opportunities to agro-based entrepreneur. Area under organic farming is increasing but unable to meet the demand of organic produce.

Food preservation, processing and packaging

Large proportion of agricultural produce is wastage due to improper storage and warehousing, lack of transportation and food processing facilities. There is a significant shift in consumer food preference towards processed food products. Entrepreneurs can add value with proper management and marketing initiatives. The processed food market opens a great potential for entrepreneurs be it fast food, packaged food or organic food.

Floriculture

Floriculture is a very lucrative sector. India's share in world trade of floriculture is just 0.18 per cent. This is a huge market to be tapped considering the rising demand for fresh flowers.

Production of agro-inputs

Those entrepreneurs who have land can start production of agro inputs business

Summary:

Innovation can be defined as the successful exploitation of new ideas – incorporating new technology, design, best practice is a key business process that enables the businesses to compete effectively.

AC & ABC Activities List:

1	Agri-Clinics and Agribusiness Centres	17	Cultivation of Medicinal Plants
2	Dairy/Poultry/Piggery/Goat farm	18	Landscaping + Nursery
3	Agri-Clinics	19	Contract Farming
4	Veterinary Clinics	20	Floriculture
5	Farm Machinery Unit	21	Soil Testing Laboratory
6	Nursery	22	Apiary
7	Vermicomposting / Organic manure	23	Organic Production/ Food Chain
8	Fisheries Development	24	Rural Godowns
9	Seed Processing and Marketing	25	Animal Feed Unit
10	Vegetable Production and Marketing	26	Sericulture
11	Value Addition	27	Pesticides Production and Marketing
12	Crop Production	28	Tissue Culture Unit
13	Horticulture Clinic	29	Production & Marketing of Bio-Control Agents
14	Direct Mkt.	30	Fishery clinic
15	Bio-fertilizer production and Marketing	31	Agriculture Journalism
16	Mushroom Cultivation	32	Agro-Eco Tourism

Source: Guidelines AC &AB, GOI

Chapter 4

Developing a Business Plan

Learning objectives:
By the end of the module, you will be able to

- understand what a business plan is
- process of business plan
- project report preparation
- sample business plans

Planning is the first and the most crucial step for starting a business. A carefully chatted and meticulously designed business plan can convert a simple idea / innovation into a successful business venture.

4.1 What is a Business plan?

A business plan is the blueprint of the step by step procedure that would be followed to convert a business idea into a successful business venture. It is a written summary of your proposed business. It includes entrepreneur's personal background, objectives of the proposed business, its marked opportunities and strategies, as well as the financial details. You have to write the plan both in words and numbers. In other words you need to indicate your goals, expenses, how much you plan to charge for your product / services etc., how to attract the customers means how to create / increase the demand for your product /service. A business plan is a dynamic document as the plan goes on under revision once you actually start your business.

4.2 Purpose of a Business Plan

- To give directions to the vision formulated by entrepreneur
- To objectively evaluate the prospects of business
- To monitor the progress after implementing the plan
- To persuade others to join the business
- To seek loans from banks
- To guide the entrepreneur in actual implementation of the plan
- To identify the resources required to organise the business
- To clarify ideas and identify gaps in management information about their business, competitions and market
- The business plan is written document has to presented to various stakeholders to get their consent.

4.3 Preparing a Business Plan:

Before preparing a business you have to follow the following steps:

4.3.1 Preliminary Investigation:

- You should review available business plans
- Try to analyse the external environment to assess the strengths, weakness, opportunities and threats (SWOT Analysis)
- Seek advice from a friend or a relative who is in the same business

4.3.2 Business Planning Process:

Idea Generation

Environmental Scanning

Feasibility Analysis

Project Report Preparation

Evaluation, Control & Review

Business Planning Process

1. Idea Generation :

Business Planning Process starts with the idea generation. This idea generation differentiates an entrepreneur from a business man. An entrepreneur is highly creative person with innovative business ideas about a product or service. Innovation does not mean only a new product should be thought. It also means an value addition to the existing product is also thought of as an innovation. In other words, the business idea of the product or services that about the current need, latent demand and future demand.

1.1 Sources of getting business ideas

- Customers
- Existing competitors
- Research and development
- Employees
- Dealers, retailers

1.2 Methods to generate new ideas

- Brainstorming
- Group discussion
- Data collection through questionnaires / schedules etc from customers, dealers and retailers
- Market research
- These days even contests are being conducted for best business plans and prizes are given to the winners

2. Environmental Scanning :

After you develop a business idea you need to scan the internal and external environment. External environment should be scanned to find out the possible opportunities and threats and internal environment to know about the strengths and weaknesses.

2.1 External Environment :

External environment refers to

- The socio cultural, economic aspects, government policies, technological and demographic changes.
- The analysis of socio cultural aspects will indicate how rigid or flexible the society is in accepting your product or service.

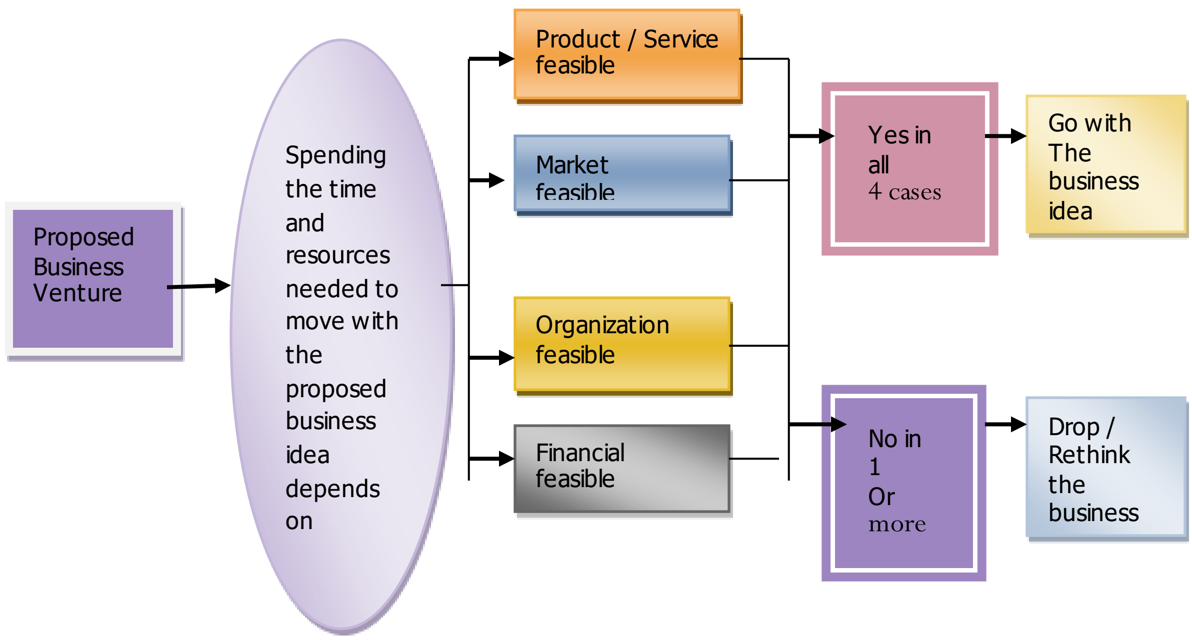
- The knowledge of existing available technologies and their costs is also important to adopt cost effective, environmental friendly technologies.
- An entrepreneur needs to understand the economic conditions prevailing in the economy and their future direction for him to analyse the prospects of his business.
- The analysis of demographic profile of the society will give direction to the entrepreneur the demand for his product as age and sex composition of the population of the society is one of the important determinants of demand for any commodity.
- Government policies with regard to taxes and subsidies, grants etc are also important determinants of prospects of the business

Internal Environment refers to:

- The availability of raw material now and future
- The availability of capital such as plant, equipments, tools and techniques
- The availability of finances from various sources
- The availability of skilled and unskilled labour and their rewards

The internal environment would enable you to assess your strengths and weaknesses of organising this venture.

3. Feasibility Analysis:



Feasibility Analysis has four forms:

Product / Service Feasibility	Market Feasibility
Financial Feasibility	Organization Feasibility

3.1 Product / Service Feasibility:

- It is an assessment of the overall appeal of the product / service being proposed
- The reason for this assessment is that before launching a product or a service the entrepreneur should be confident that the product or service will be accepted by the prospective buyers
- There are two components in product feasibility – viz., concept testing and usability testing

➢ **Concept testing**: A concept test entails showing a representation of the product or service to the prospective buyers to gauge the customer interest, desirability, and purchase intent.

❖ A concept statement is one page description of a business that is distributed by a start-up entrepreneur to people who are asked to provide feedback on the potential of the business idea.

❖ Concept testing requires the following information on:

i. description of the product or service
ii. the intended target market
iii. the benefits of the product or service
iv. description of how the product or service will be positioned relative to similar ones in the market
v. description of how the product or service will be sold and distributed
vi. information about the founder or founders of the firm

- **Usability Testing:** It is a method by which users of a product or service are asked to perform certain tasks to measure the product's ease of use and user's perception of the experience. Usability tests are sometimes called as user tests, beta tests, field trials, depending on the circumstances involved.

Usability tests are conducted with the prototype[4]. Virtual proto type is a computer generated 3D image of an idea.

3.2 Market Feasibility:

Market Feasibility is the assessment of the overall appeal of the market. Three main issues to be considered while doing market feasibility analysis viz., market attractiveness, market timeliness and identification of niche market.

- Market attractiveness – market attractiveness means the market should be growing and large; important to customers; market should be fairly younger rather than older; have high operating margins and are not crowded. The information on these aspects can be conducted by market research
- Market timeliness – market timeliness is it good to time to enter into the market. In other words whether customer are buying, are entrepreneurs making margins?
- Identification of niche market – a niche market is a place within a larger market segment that represents a narrower group of customers with similar interests.

3.3 Organisational Feasibility

Organisational feasibility refers to the assessment of the organisation itself in terms of having skills and resources available with it. In other words, an assessment of market prowess and resource sufficiency has to be conducted.

- Market prowess – an entrepreneur should analyse the prowess of the management to make sure that the management has the requisite passion and expertise to launch the venture.
- Resource sufficiency – is to be assessed to find out whether the entrepreneur has sufficient resources to launch the proposed venture. 6-12 critical non-financial resources has to be listed to find out whether the resources are sufficient. If critical inputs are not there, it may be impractical to proceed with the business idea.

3.4 Financial Feasibility:

Financial feasibility is the last stage of business plan preparation. Following cost estimates have to be carried out:

a) Cost of land and building – depending on the required and the availability of funds the land and building can be hired, can be taken on lease or purchased.

[4] Proto type is the first description of a new product, which is usually is in a tentative mode.

b) Cost of plant and machinery – it includes estimates of cost of plant and machineries, their running and maintenance cost.
c) Preliminary cost estimation is done to assess the money required to conduct market survey, preparing feasibility report, expenses in registering and incorporating machines, establishment expenses, etc.
d) Provision for contingencies needs to be made to cover certain unexpected expenses which can emerge due to change in the external environment like in increase in price of raw material, or transport costs, labour charges etc.
e) Working capital expenses for running business also needs to be calculated
f) Cost of production viz., raw material cost, labur cost, overhead expenses, utilities like power, water, fuel etc.
g) Sales and production estimates : based on the size business the production and sales estimates are made, which help in estimating profitability
h) Profitability projections are made based on cost of production, sales expenses, administrative expenses, and expected sales
i) Based on the above information, the following projections are model
    - ✓ Break-even point
    - ✓ Cash flow statement
    - ✓ Balance sheet statement
    - ✓ Multiyear projections

Module 4

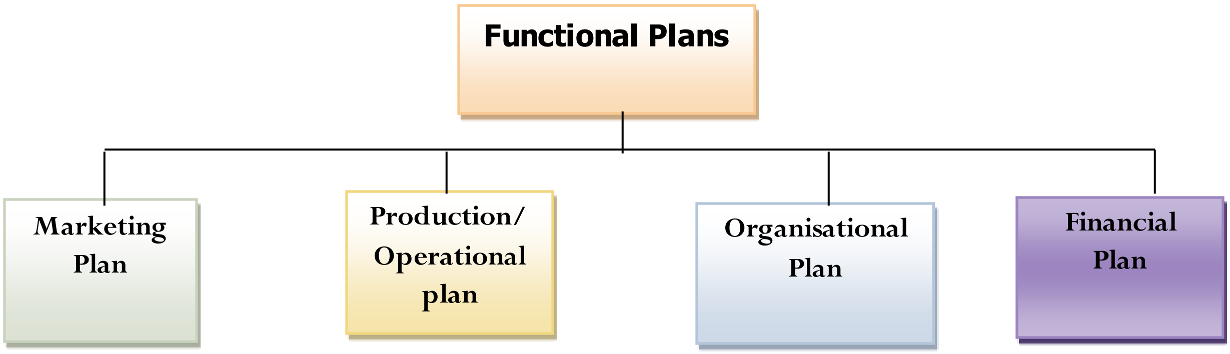
Drawing Functional Plans

Learning objectives

After the end of the Chapter, you will be able to prepare

- Marketing plan
- Production plan
- Organisational plan
- Financial plan

After positive results from feasibility study, functional plans are drawn. The functional plans would indicate the strategies for all the required operations such as marketing, finance, HR and production.



5.1: Marketing Plan:

Marketing plan lays down the strategies of marketing which can lead to success of business. These strategies are in terms of marketing mix (product, price, place and promotion). From the marketing research and market feasibility survey, potential customers can be identified. This will in turn help in understanding the profile of the customers and hence helps on laying down the strategies for segmentation of the market, identification of the target market and laying down strategies for target market.

5.1.1 Market Research

After having a business idea, you need to analyse the market by conducting a market research or survey to find out the people's buying habits and your competition. This will be helpful in assessing the viability of your business.

A market is a place or internet where an interaction takes place between buyers and sellers for a product / service which means exchange takes place between these two groups of people.

Now you need to identify buyers for your product or service in terms of their number and quantity that they are going to buy from you. In other words you also need to know the total demand for your product and the prices that are prevailing at present in the market. For doing this, you require to carry out market research.

Project Work: Go to your place with the business idea developed by you. Find out the potential buyers for your product or service and gather the necessary information from them as given in the above template. Identify the competitors of your business and strengths and weaknesses as discussed in the above template.

How market research is conducted?

Get information from buyers on the following:

- What products or services they want to buy?
- What do they currently buy?
- Where do they buy?
- Why do they buy from *XY*?
- When do they buy?
- How much do they buy?
- Which price do they pay?
- What are their preferences?
- Do they get any extras?
- Find out the satisfaction levels of buyers from your competitors

Study your competitors' businesses with regard to

- Their products or services, for example quality and design
- What prices they charge
- What exactly do they sell?
- How does their product differ from yours?
- Where do they get their inputs?
- Where do they sell?
- How do they promote their product/service?
- Do they have any special approaches to customer care?
- • How can you compete?

Use the following check list to conduct the market survey:

S.No.	Item
1	Who are the potential customers of your business (Number and Quantity)
2	Competitors of your product - How many sellers in the area of your business operation - The competitors cost (production cost, marketing cost, publicity cost, administrative cost, their staffing structure, any other) - Methods of publicity of their product
3	Pricing policy of competitors - How are they fixing the price - Precautions taken while fixing the price
4	Any other relevant information

5.2 Production / Operational Plan:

Production Plan is drawn for business enterprises in the manufacturing sector whereas operational plans are drawn for business enterprises in the service sector. The production plan should include the following strategies:

1. Location and reasons for selection of the location
2. Physical layout
3. Cost of availability of machinery, equipment, raw material
4. List of suppliers
5. Cost of manufacturing /running operations
6. Quality management

5.3 Organisational Plan:

The organisational plan indicates the pattern of flow of responsibilities and duties amongst people in the organisation, it provides details about the board of directors, it can also enlist the manpower plan that would be required to run the business.

5.4 Financial Plan[5]

Finance is the life blood of an enterprise. All the key and critical decisions are based on finance. The success and failure of the business enterprise is to great extent, dependent on financial planning. A business plan is all conceptual until you start filling in the numbers and terms. The sections about your marketing plan and strategy are interesting to read, but they don't mean a thing if you can't justify your business with good figures. The financial section of a business plan is one of the most essential components of the plan, as you will need it if you have any hope of winning over investors or obtaining a bank loan. Even if you don't need financing, you should compile a financial forecast in order to simply be successful in your business. This is what will tell you whether the business will be viable or whether you are wasting your time and/or money.

The Financial Section of your business plan relies on Forecasted Financial Statements. Forecasted financial statements help an entrepreneur determine the feasibility of his/her business venture. Also, forecasted financial statements help to estimate the amount of money an entrepreneur will need in order to successfully launch and operate the proposed endeavour. In addition, these statements help investors determine the plan's feasibility and its potential profitability. It is for these reasons that many refer the financial section as the "heart of a business plan". All other sections of the plan (operations section, management section, marketing section, etc.) show an investor whether or not an entrepreneurs' financial projections can materialize as envisioned.

The financial section is not the same as accounting. Many people get confused about this because the financial projections that you include--profit and loss, balance sheet, and cash flow--look similar to accounting statements your business generates. But accounting looks back in time, starting today and taking a historical view. Business planning or forecasting is a forward-looking view, starting today and going into the future.

You don't do financials in a business plan the same way you calculate the details in your accounting reports. You don't have to imagine all future asset purchases with hypothetical dates and hypothetical depreciation schedules to estimate future depreciation. You can just guess based on past results. And you don't spend a lot of time on minute details in a financial forecast.

[5] https://www.wallstreetprep.com/knowledge/income-statement-forecasting/

You have to include the following forecasted statements and analysis in your financial plan

- Forecasted Income Statements
- Forecasted Balance Sheets
- Forecasted cash Flow Statements
- Forecasted Break Even Analysis
- Sensitivity Analysis
- Ratio Analysis

5.4.1 Forecasted Income Statements

Existing businesses develop their income statement using actual revenues and expenses incurred over a specific time frame. If you are planing to open a business, however, you will not have actual revenues or expenses, since you are only in the planning stages of your business. In this case, you will be required to anticipate (forecast) revenues and expenses over a one year period, for a minimum of three years.

Illustration 5.1:

	2019	2020	2021
Total Revenue from Sales (note 1)	582,401	673,775	784,411
Cost of Goods Sold (note 2)	130,191	146,378	152,846
GROSS MARGIN **	**452,210**	**527,397**	**631,566**
OPERATING EXPENSES:			
Advertising Expense (note 3)	130,000	150,000	170,000
Wages & Benefits (note 4)	122,366	136,153	167,421
Casual Labor (note 5)	2,400	3,000	3,600
Office Supplies (note 6)	1,500	1,715	1,908
Rent Expense (note 7)	12,000	12,600	13,230
Telephone/Fax Expense (note 8)	3,600	3,840	4,080
Professional Services (note 9)	7,000	3,500	4,000
Insurance Expenses (note 10)	1,500	1,650	1,815
Toll-free Charges above Variable Cost (note 11)	15,685	20,706	25,408
Bad Debt Expense (note 12)	5,824	6,738	7,844
Interest on Operating Loan (note 13)	2,000	nil	nil
Internet Storage & Accounts Expense (note 14)	2,550	2,700	2,865

Miscellaneous Expenses (note 15)	2,400	2,600	2,800
Depreciation Exp. - Equipment (note 16)	3,142	4,392	6,392
Depreciation Exp. - Furniture (note 17)	606	906	1,306
Amortization of Initial Development Costs (note 18)	15,924	15,924	15,924
Amortization of Future Development Costs (note 19)	24,720	55,215	86,575
TOTAL OPERATING EXPENSES **	353,218	421,638	515,168
Net Income Before Taxes	98,992	105,759	116,397
Less: Taxes (note 20)	29,698	31,728	34,919
NET INCOME AFTER TAXES	**69,294**	**74,032**	**81,478**

- Forecasted total revenue can be obtained from the forecasted selling price and forecasted total volume of sales. The selling prices can be forecasted with the help of competitor's prices and total volume of sales is based on your sales target.
- Production cost to retailers and service providers is simply are total product cost (per unit) plus all costs required to ship each product to their place of business, plus any other per unit cost(s) that directly pertains to the specific business or product.
- The cost to purchase enough raw material to make one finished product becomes part of a manufacturer's total product cost. The cost to ship these raw materials also becomes part of their total product cost (per unit). In addition, manufacturers generally make substantial changes to the raw materials in order to produce one finished product. These changes usually require labor costs; better known as Direct Labor Costs (labor directly associated with manufacturing a product). As a result, direct labor costs, needed to make one finished product, becomes part of a manufacturer's total product cost per unit.
- Another cost most manufacturers must consider when determining their total product cost per unit is Factory Overhead. Factory Overhead expenditures are costs that are directly associated with operating the production facility or manufacturing plant. Examples of these costs include electricity, heat, utilities, and maintenance costs of the production facility. Other examples might include deprecation of the manufacturing facility (building) and depreciation of the production machinery and/or equipment.

5.4.1 **Forecasted Balance Sheets:** The Forecasted balance sheets show investors the items your business anticipates to own at the beginning and end of each forecasted year. The Asset, Liability, and Equity "items" are listed on the left hand side, while each year's forecasted account balances (values) are shown in a column to the right. Your forecasted balance sheet for a year three period should appear in a similar fashion; investors can compare your expected financial position from year to year.

Illustration 4.2:

Forecasted Balance Sheets

	2019	2020	2021
Ending Cash	63,314	57,608	61,968
Office Supplies	0	500	735
Finished Diskette Inventory	0	6,683	2,803
Finished CD Inventory	0	3,103	2,072
Total Current Assets	**63,314**	**67,894**	**67,578**
Net Computer Equipment	7,602	9,426	10,034
Net Office Furniture	1,412	2,425	3,018
Net Intangible - Initial R&D	47,772	31,848	15,924
Net Intangible - Future R&D	0	74,161	140,923
Total Fixed Assets	**56,786**	**117,860**	**169,900**
TOTAL ASSETS	**120,100**	**185,753**	**237,477**
Accounts Payable	0	4,975	5,274
Wages & Employee Benefits	0	1,686	2,049
Operating Loan Payable	20,000	0	0
Taxes Payable	0	29,698	31,728
TOTAL LIABILITIES	**20,000**	**36,359**	**39,051**
100 Class A Common Shares	100	100	100
50 Class B Common Shares	100,000	100,000	100,000
Retained Earnings	0	49,294	98,326
TOTAL SHAREHOLDER'S EQUITY	**100,100**	**149,394**	**198,426**
TOTAL LIABILITIES & EQUITY	**120,100**	**185,753**	**237,477**

5.4.2 Forecasted cash Flow Statements

The Cash Flow Statement is a tool used to forecast the movement of cash into and out-off the business.

The movement of cash into a company may result from

- sales to customers
- cash from investors
- cash from bank loans
- cash from the owners
- cash from interest earned,
- cash from commission sales
- From any other source that provides cash to the business.

The movement of cash out-off the company might include items such as

- advertising
- wages and salaries
- inventory purchases
- payment on taxes
- payment on business loans
- utilities
- owner withdrawals
- rent, dividends

Without the necessary cash, a business will not survive. Therefore, a forecasted cash flow statement is constructed to determine if an entrepreneur's business will have enough cash to carry out the day to day (month to month) operations.

A cash flow statement can be organized on a daily, weekly, monthly or quarterly bases. Most bankers and other investors, however, prefer a monthly cash flow statement for a three year period. In other words, you will be required to develop three forecasted cash flow statements, each consisting of a twelve month period. With the aid of a spreadsheet program such as Lotus 123 or Excel, the task becomes rather simple. If you do not have a spreadsheet program, you are advised to purchase one and learn how it operates - It is an invaluable business tool that will save you lots of time and money.

Illustration 4.3

Forecasted Cash Flow Statement for 2019

ASSUMPTIONS:	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.
% of Total Sales per month	3%	3%	8%	8%	9%	9%	10%
Total Unit Sales/ Month)	236	236	631	631	709	709	788
Diskette Sales	142	142	378	378	426	426	473
CD Sales	83	83	221	221	248	248	276
Internet Sales	12	12	32	32	35	35	39
Weighed Average Selling Price	73.89	73.89	73.89	73.89	73.89	73.89	73.89
CASH INFLOWS:							
Cash From Product Sales (100%)	17,472	17,472	46,592	46,592	52,416	52,416	58,240
Less: Bad Debt (1%)	175	175	466	466	524	524	582
NET CASH INFLOWS	**17,297**	**17,297**	**46,126**	**46,126**	**51,892**	**51,892**	**57,658**
CASH OUTFLOWS:							
Purchase of Diskettes	8,670	0	0	8,670	0	8,670	0
Purchase of CD	2,500	0	0	0	2,500	0	0
Credit Card Charges	877	877	2,339	2,339	2,632	2,632	2,924
Packaging Charges	130	130	347	347	391	391	434
Actual Shipping Charges	636	636	1,696	1,696	1,908	1,908	2,120
Toll Free Charges	0	471	471	1,255	1,255	1,412	1,412
Commission on Sales	0	236	236	631	631	709	709
Product Miscellaneous	118	118	315	315	355	355	394
Advertising	5,000	5,000	12,000	12,000	12,000	12,000	12,000
Wages & Employee Benefits	6,217	6,900	10,464	10,857	10,857	10,857	10,857
Research & Development	7,630	8,240	8,240	8,240	8,240	8,240	8,240
Casual Labor	0	0	0	800	0	0	0
Office Supplies	0	500	0	0	500	0	0
Rent	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Telephone/Fax	0	300	300	300	300	300	300
Professional Services	0	2,250	2,250	250	250	250	250
Business Insurance	1,500	0	0	0	0	0	0
Toll-free Charges above Variable	0	471	471	1,255	1,255	1,412	1,412
Miscellaneous Charges	200	200	200	200	200	200	200
Office Furniture	1,618	0	0	0	0	0	0
Office Equipment	4,966	0	0	0	0	0	0

Payment on Operating Loan	0	0	0	0	0	0	0
Interest on Loan	0	0	0	0	0	0	0
Internet Storage & Accounts	150	150	150	150	150	150	150
Dividends Paid	0	0	0	0	0	0	20,000
TOTAL CASH OUTFLOWS	**41,213**	**27,480**	**40,480**	**50,305**	**44,422**	**50,485**	**62,402**
Net Cash Flow (Deficiency)	-23,915	-10,183	5,646	-4,179	7,470	1,407	-4,744
Beginning Cash Balance	63,314	39,398	29,216	34,862	30,683	38,153	39,560
ENDING CASH BALANCE	**39,398**	**29,216**	**34,862**	**30,683**	**38,153**	**39,560**	**34,816**

Like this for other months and for other years it should calculated. The inflows and outflows are subtracted and the difference is known as the Net Cash Flow (Deficiency). The cash at the beginning of the month is then added to the Net Cash Flow (Deficiency) to produce the Ending Cash Balance for the month.

5.4.4. Forecasted Break Even Analysis

The next analysis to appear in your financial plan is the Forecasted Break-even Analysis. A Break Even Analysis is a tool used to determine the level of sales a business must earn in order to achieve neither a profit nor a loss. In other words, the point at which a company's Net Income is ZERO (revenues - expenses = 0).

The break-even analysis focuses mainly on the items included in a company's income statement (IE revenues and expenses). Moreover, the Break-even Analysis relies on your forecasted Fixed Costs, your forecasted Variable Costs and your forecasted Selling Price(s). Forecasted Fixed Costs are costs and expenses that do NOT fluctuate with sales increases or decreases. Forecasted Variable Costs are costs and expenses that do fluctuate with sales increases or decreases. A Forecasted Selling Price (s) is the price or prices you plan to sell your product at.

Performing a Break-Even Analysis: Fixed Costs

Fixed costs are ones like rent and administrative payroll that don't change much from month to month, regardless of how many units you sell. If you're creating a business from scratch, don't rely on guesswork to estimate your costs. Ask the utility company for the past year of bills for your location. Call an insurance broker for a real quote for your particular business. Check with trade associations or web sites such as www.bizstats.com for information on average costs in your particular industry.

Performing a Break-Even Analysis: Variable Costs

Variable costs are ones like inventory, shipping and sales commissions that rise or fall with your sales volume. As with fixed costs, talk to trade associations, vendors and even other business owners in your field to come up with the most accurate estimate.

"Look up the financials of public companies in your industry. Even though those companies are much larger, you can size it down. The ratios are not going to be that far off."

Performing a Break-Even Analysis: Pricing

Start by looking at your competition, and how they price their products. You can also do informal focus groups to see what people might be willing to pay for your wares or services. You'll also need to consider your costs when setting prices. If you spend Rs 120 on meat and condiments to produce a biryani, you'll obviously need to price it at more than Rs 120 But how much more - Rs140? 150? 170? That's where a break-even analysis can come in handy.

Performing a Break-Even Analysis: The Formula once you've got your cost data and a target price, put them in to this formula:

BEQ = Fixed costs / (Average price per unit – average cost per unit)

This will tell you your break-even quantity (BEQ), the number of units you need to sell to cover your costs. Any sales above that are pure profit. Anything below means you're losing money. You can use a basic Excel spreadsheet to run different break-even scenarios, or download one of many break-even templates available online

Example

Suppose you're turning a jewelry-making business. You have Rs 1,000 per month of fixed costs (studio rent, utilities, equipment, etc.). Your variable costs for each necklace are Rs 50 for materials and labor. You'd like to charge Rs 70 per necklace, since that's what similar pieces are selling for.

$$BEQ = 1000 / (70 – 50) = 1000 / 20 = 50$$

That means you'd need to sell 50 necklaces a month at Rs 70 each in order to break even. Use your break-even formula to compare different pricing strategies. For instance, if you raised the price to Rs 80, you'd only need to sell 33 necklaces—but it might be harder to attract buyers. On the other hand, if you lowered the price to Rs 60, you'd attract bargain shoppers—but would need to sell 100 necklaces to break even.

5.4.5 Sensitivity Analysis

Since your forecasted sales will never be one hundred percent accurate, the sensitivity analysis shows investors how your forecasted net income will change if your original sales forecast increases by 30%, 20% and 15% or if your original sales forecast decreases and a 15% or 20%, for example. The percentages chosen for your sensitivity analysis is up to you but not should not be less than 15%.

Like Break-even Analysis, the Sensitivity Analysis uses your forecasted income statement as its starting point. The analysis relies on distinguishing between Forecasted Fixed Costs and Forecasted Variable Costs. Forecasted Fixed Costs are costs and expenses that do not fluctuate with sales increases or decreases. Forecasted Variable Costs are costs and expenses that DO fluctuate with sales increases or decreases.

5.4.6 Ratio Analysis

Ratio Analysis is a general technique for analyzing the performance of an existing or potential business. Ratios involve dividing numbers from the Balance Sheet and Income

1. Current Ratio = Current Assets / Current Liabilities
   If for instance current assets are worth of Rs 670000 and current liabilities are 350000 then the current ratio = 670000/ 350000 = 1.91
2. Quick Ratio = (Current Assets – Current Liabilities) / Current Liabilities = (670000-350000)/350000 = 0.91
3. Debt Ratio = Total Debt / Total Assets = 500000/1200000 = 0.42
4. Debt to Equity Ratio = Total Debt /Total Equity = 500000/100000 =0.50
5. Net Profit Margin = Net Income after tax /Sales
6. Return on Equity = Net Income after tax / total equity

Statement to create percentages and decimals. When aspiring entrepreneurs and existing business owners apply for a loan, for example, bankers usually look at their forecasted ratios and compare them to ratios of other businesses operating within the same industry. Your projected ratios should be calculated over a three year forecasted period. The following are the various types of ratios. For calculation of these ratios, the forecasted income statement and forecasted balance sheets should be ready. The following are the various types of ratios.

Summary:

After positive results from feasibility study, functional plans are drawn. The functional plans would indicate the strategies for all the required operations such as marketing, finance, HR and production. The success and failure of the business enterprise is to great extent, dependent on financial planning. A business plan is all conceptual until you start filling in the numbers and terms. The sections about your marketing plan and strategy are interesting to read, but they don't mean a thing if you can't justify your business with good figures. The financial section of a business plan is one of the most essential components of the plan, as you will need it if you have any hope of winning over investors or obtaining a bank loan. Even if you don't need financing, you should compile a financial forecast in order to simply be successful in your business

Module 5

Project Appraisal Techniques

6.1 Introduction:

Many economic decisions involve benefits and costs that are expected to occur at future time period. The construction of fish tank, for example, requires an immediate cash outlay, which with the production and sale of fish, will result in future cash inflows or returns .In order to determine whether the future cash inflows justify present initial investment, we must compare money spent today with the money received in the future.

The time value of money influences many production decisions. In order to invest a rupee in fish production today, one must be guaranteed a return In the future that is equal to or greater than the rupee invested today. The difference between the present value and future value of money arises mainly due to Inflation as Inflation affects the purchasing power of the rupee.

There are two types of measures of project appraisal techniques i.e. undiscounted and discounted. The basic underlying difference between these two lies in the consideration of time value of money in the project investment. Undiscounted measures do not take into account the time value of money, while discounted measures do.

Undiscounted measures of project worth includes

- Ranking by inspection
- Payback period
- Proceeds per unit outlay
- Average annual proceeds per unit out lay method

6.2 Discounted Measures of project worth

The techniques of discounting permits us to decide whether to accept for implementation of the project. The means of doing this is to subtract year by year the costs from the benefits to arrive at the incremental net benefits stream – the cash flow- and then to discount this cash flow. This approach will give four discounted cash flow measures of Project Net worth viz.,

1) Net Present Worth
2) Internal rate of return
3) Net Benefit investment ratio

4) Find out the present worth of the cost and benefit stream separately and then to divide the present worth of the benefit stream by the present worth of the cost stream to obtain the benefit-cost ratio. Because the benefit and cost streams are discounted, the benefit -cost ratio is a discounted measure of project worth. But because the benefit and cost streams are discounted separately rather than subtracted from one another year-by-year, the benefit cost ratio is not a discounted cash flow.

6.3 Discounted pay back period[6]

Discounted payback method of capital budgeting is a financial measure which is used to measure the profitability of a project based upon the inflows and outflows of cash for that project. Under this method, all cash flows related to the project are discounted to their present values using a certain discount rate set by the management.

The discounted payback method takes into account the time value of money. Companies use this method to assess the potential benefit of undertaking a particular business project.

The discounted payback method tells companies about the time period in which the initially invested funds to start a project would be recovered by the discounted value of total cash inflow. Additionally, it indicates towards the potential profitability of a certain business venture. For example, if a project indicates that the funds or initial investment will never be recovered by the discounted value of related cash inflow, it means the project would not be profitable and the company should refrain from investing in.

Example:

The first project (A) is Rs 2000 investment on aerator and the second (B) is to invest in a feed shed of equal cost. The discount factor is 12%. The table given below the expected net cash flows are as follows:

Project A					Project B				
Year	Investment	Net cash Flow	**Discount Factor (12%)**	**Present value of Net Cash Flow**	**Year**	**Investment**	**Net cash Flow**	**Discount Factor (12%)**	**Present value of Net Cash Flow**
0	2000	-	1.000	-	0	2000	-	1.000	
1		700	0.893	625.1	1		300	0.893	267. 90

[6] https://www.accountingformanagement.org/discounted-payback-method

2		600	0.797	428.7	2		400	0.797	318. 80
3		500	0.712	365.0	3		500	0.712	356. 00
4		400	0.636	254.4	4		600	0.636	381.60
5		300	0.567	1701	5		700	0.567	396. 90
6		200	0.507	101.4	6		800	0.507	405. 60
7		100	0.452	45.2	7		900	0.452	406. 80

The payback period for Project A is 3.5 years and that for Project B is approximately 4.3 years. If decision- maker wants to cover the cost of investment in the shortest period of time, project (A) will be preferred over (B). But this decision completely unwise because the discounted payback periods for project (A) & (B) are nearly 6.8 years and 5.8 years respectively. So the project (B) is to be preferred over the other one and this will be actually wise decision.

6.4 Net present value (NPV)

It is a discounted cash flow technique (DCF). It is the present value discounted at
Required rate of return on the stream of net cash flows from the project minus the project net investment. NPV can be calculated both for uniform net cash flows and non-uniform net cash flows. To obtain NPV the following formulae can be used

$$\text{NPV} = \frac{P1}{(1+r)^1} + \frac{P2}{(1+r)^2} + \frac{P3}{(1+r)^3} + \cdots \ldots\ldots + \frac{Pn}{(1+r)^n} - INV$$

Where,
P1............... Pn are net cash flows.
r= the interest rate or marginal cost of capital.
n = the project expected life.
INV = the initial investment.

The model indicates that the net cash flows of the project are discounted and then added to yield the NPV. The initial investment is negative since it represents a cash flow. An investment project would be accepted if the NPV > 0 and rejected if NPV < 0.
This is because the money being invested is greater than the present value of the net cash flow.

Example 1: Even Cash Inflows7: Calculate the net present value of a project which requires an initial investment of Rs 243,000 and it is expected to generate a cash inflow of Rs 50,000 each month for 12 months. Assume that the salvage value of the project is zero. The target rate of return is 12% per annum.

[7] https://accountingexplained.com/managerial/capital-budgeting/npv

Solution

We have, Initial Investment = 243,000

Net Cash Inflow per Period = 50,000

Number of Periods = 12

Discount Rate per Period = 12% ÷ 12 = 1%

Net Present Value

= 50000 X (1-(1+1%) ^ 12÷1% -243000

=50000 X (1-1.01^12) ÷0.01 -243000

=50000 X (1-0.887449) ÷ 0.01 – 243000

=50000 X (0.112551) ÷ 0.01 – 243000

=50000 X 11.2551 – 243000

=562754 -243000

=319754

Example 2: Uneven Cash Inflows: An initial investment of 8,320 thousand on plant and machinery is expected to generate cash inflows of 3,411 thousand, 4,070 thousand, 5,824 thousand and 2,065 thousand at the end of first, second, third and fourth year respectively. At the end of the fourth year, the machinery will be sold for $900 thousand. Calculate the net present value of the investment if the discount rate is 18%. Round your answer to nearest thousand dollars.

Solution

PV Factors:

Year 1=1 ÷ (1+18%) ^ 1=0.8475

Year 2=1 ÷ (1+18%) ^ 2=0.7182

Year 3=1 ÷ (1+18%) ^ 3=0.6086

Year 4=1 ÷ (1+ 18%) ^ 4=0.5158

Rest of the Calculation are given in table below:

Year	1	2	3	4
Net Cash Inflow	3,411	4,070	5,824	2,065
Salvage Value				900
Total Cash Inflow	3,411	4,070	5,824	2,965
× Present Value Factor	0.8475	0.7182	0.6086	0.5158
Present Value of Cash Flows	2,890.68	2,923.01	3,544.67	1,529.31
Total PV of Cash Inflows	10,888			
− Initial Investment	− 8,320			
Net Present Value	2,568	thousand		

6.5 Internal Rate of Return (IRR) :

It is the interest rate that will equate the sum of net cash flows to the initial investment. The interest rate that satisfies the equation is called internal Rate of Return (IRR). There is no way of finding the IRR. One is forced to use a systematic procedure of trial & error to find out the discount rate that will equate the net cash flows to the initial investment. When the NPV = 0, then

$$0 = \sum_{t=1}^{n} \frac{Pt}{(1+r)^t}$$

Acceptability of project depends upon comparing the IRR with the investor's required rate of return (RRR) sometimes called minimum acceptable rate of return (MARR). If IRR is greater than RRR (MARR), accept the project, if IRR is less than that, reject the project, if IRR=RRR, be indifferent. If NPV is greater than (or less than) zero (0), and only if the IRR is greater than (or less than) RRR, the NPV & the IRR method result in identical decisions to either accept or reject an independent project.

Example

Find the IRR of an investment having initial cash outflow of 213,000. The cash inflows during the first, second, third and fourth years are expected to be 65,200, 96,000, 73,100 and 55,400 respectively.

Solution

Assume that r is 10%.

NPV at 10% discount rate = 18,372

Since NPV is greater than zero we have to increase discount rate, thus

NPV at 13% discount rate = 4,521

But it is still greater than zero we have to further increase the discount rate, thus

NPV at 14% discount rate = 204

NPV at 15% discount rate = (3,975)

Since NPV is fairly close to zero at 14% value of r, therefore

IRR = 14%

.

6.6 Benefit cost ratio (BCR)

It is also called as profitability Index (PI). It is the ratio of present value of future net cash flows over the life of the project to the net-investment. It is also called as profitability Index (PI). It is the ratio of present value of future net cash flows over the life of the project to the net-investment.

$$BCR = \frac{\sum_{t=1}^{n} Pt \div (1+r)^t}{INV}$$

Or

$$BCR = \frac{\sum_{t=1}^{n} Bt}{(1+r)^t} \div \frac{\sum_{t=1}^{n} Ct}{(1+r)^t}$$

If a project has a BCR value greater than or equal to1 it should be accepted and should be rejected if the BCR value is less than 1.

Cost Benefit Analysis (Rs)						
Year	0	1	2	3	4	5
Benefits	0	200,00	250,000	312,500	390,625	488,281
Costs						
Total Costs	75,200	29,000	29,000	29,000	29,000	29,000
Net Cash Flow	75,200	171,000	221,000	283,500	361,625	459,281
Discount Rate	11%					
Discount Factor	100%	89%	78%	67%	56%	45%
Discounted Net Cash Flow	75,200	152,190	172,380	189,945	202,510	206,677
NPV	848,502					
IRR	213%					

www.myaccountingscourse.com[8]

[8] [8] Madhurimalall and shikha sahai "Entrepreneurship" Excel Books, 2008

Module 6

Format for Writing Detailed Project Report for Bank Loan[9]

A Project report helps to

- Understand the opportunities, problems and weaknesses of the business
- It helps to monitor whether the business is growing as was projected in business planIt helps in documenting the cost estimates of the business
- It is useful to get funds from banks and other financial institutions

Guidelines to write a Project Report:

1. While writing a sequence should be followed
2. Project report should be exhaustive covering all details discussed in the above modules
3. It should not be very lengthy and subjective
4. There should be logical explanation of projections shown in the report
5. It should exhibit to funding agencies that the person submitting the report has entrepreneur acumen and sound experience
6. The project report should include financial needs and financial projections
7. Project report should justify the market prospects and demands

Project Report should contain:

1. Cover sheet: It is a cover page of the report. In the cover page mention the name of the project, address and name and address of the promoters
2. Table of contents: In table of contents total sections with section number and title of the section along with the page numbers. If needed, sub sections under each section can also be given. For example in Section 1 – sub section 1.1; 1.2 and so on
3. Executive Summary: It is very important to gain the impression of the funding agency. It should be brief but explain the marketability of the business that you are going to carry out. It should briefly describe the company; mention some financial figures and some salient features of the project.
4. About the Business: write about your business idea and show SWOT Analysis and how you got into this

[9] Madhurimalall and shikha sahai "Entrepreneurship" Excel Books, 2008

5. **Funding Requirement:** You need to document the total fund that is required to conduct your business idea with calculations. Debt equity ratio should be documented which would indicate the total amount of finance required for your Project.
6. Present your Plan in the following sequence:

- **Marketing Plan** – based on the market research market mix strategies should be given.

➢ Market demography like profiles of customers and end users; preferences and needs of the customers;

➢ SWOT analysis of the market. You need to explain how the market can provide gains to the enterprise.

➢ What marketing strategies you are going to adopt vis a vis your competitors to become successful.

➢ Budget for your marketing plan

- **Operational plan would give information about :**

➢ Enterprise location – reasons for choosing that location (advantages of choosing that location).

➢ Plan for material requirements, inventory management and quality control

➢ Budget for operational plan

- **Organisational Plan**

➢ How you are distributing the roles and responsibilities in your enterprise

➢ Provide details about board of directors,

➢ Man power requirements / availability

➢ Budget for organizational Plan

- **Financial Plan**

➢ Financial Plans are to be prepared for 2 to 5 years for an existingcompany where as for a new company the projections should be shown with respect to:

✓ Sales
✓ Income and expenditure
✓ Breakeven point
✓ Profit and loss

- ✓ Balance sheet
- ✓ Cash flows
- ✓ Funds flow
- ✓ Projected ratios

7. **Critical Risks:** You have to document the probable risks that are involved in your business as the investors are interested in knowing the probable risks to evaluate the viability of your project.
8. **Exit Strategy:** You have to indicate in your Report how you are going to deal with the share of each stakeholder in the event of closing of your business.

9. **Appendix :** In the appendix provide curriculum vitae of owners, ownership agreement, certificate from pollution board, Memorandum of Understanding, Articles of Association and all other support documents

Components of a Project Report

PART-I

1. Background of company (Company Profile) and promoters Background
2. Area of expertise in the business that you have chosen
3. Aim of the project
4. Future Plans
5. Profiles of key personnel in the organization
6. Strengths and achievements of the company like potential market for project developed by the company and in-house expertise in the area of specialization
7. Financial arrangements and feasibility of the proposed setup
8. Marketing strategy, Marketing Arrangements, Marketing tie-up, if any
9. Last year's Balance Sheet (Only in case of the existing company, Not applicable to new unit)
10. Space Requirement / Built up Land
11. Manpower: Type of people working
12. Wage Bill
13. Conclusion

PART II

All Figures should be filled in Indian Rupees

PROJECT COST AND MEANS OF FINANCE **RS. IN LAKHS**

PROJECT COST:

PREMISES	:
OFFICE EQUIPMENT	:
HARDWARE	:
SOFTWARE	:
WORKING CAPITAL REQUIREMENTS	:
TOTAL	**:**

MEANS OF FINANCING	***RS. IN LAKHS***
EQUITY	:
- PROMOTERS	:
- INDIAN PUBLIC	:
WORKING CAPITAL LOAN	:
TERM LOAN FROM BANK	:
TOTAL	**:**

All Figures should be filled in Indian Rupees

BALANCE SHEET
RS. IN LAKHS

	1ST YEAR	2ND YEAR	3RD YEAR	4TH YEAR	5TH YEAR
A. SOURCES OF FUNDS					
EQUITY SHARE CAPITAL					
RESERVES & SURPLUS					
- PROFIT & LOSS					
TOTAL SHAREHOLDERS FUNDS					
OTHERS (SPECIFY ITEM WISE)					
TOTAL					
B. USE OF FUNDS:					
GROSS FIXED ASSETS					
ADDITIONS					
LESS: DEPRECIATION					
NET FIXED ASSETS					
OTHERS (SPECIFY ITEM WISE)					
CASH & BANK BALANCES					
NET CURRENT ASSETS					
TOTAL					

PROFIT AND LOSS STATEMENT
RS. IN LAKHS

	1ST YEAR	2ND YEAR	3RD YEAR	4TH YEAR	5TH YEAR	TOTAL
REVENUE:						
EXPORTS						
- ONSITE SERVICES						
- OFFSHORE						
TOTAL						
OPERATIONAL EXPENDITURE (SPECIFY ITEMWISE)						
OP. PROFIT						
DEPRECIATION						
PROFIT						
DIVIDEND						
TRANSFER TO RESERVES						

All Figures should be filled in Indian Rupees

CASH FLOW STATEMENT

RS. IN LAKHS

	1ST YEAR	2ND YEAR	3RD YEAR	4TH YEAR	5TH YEAR	TOTAL
INFLOW						
EQUITY						
LOANS						
OTHERS (SPECIFY ITEMWISE)						
PROFIT						
DEPRECIATION						
TOTAL INFOW						
OUTFLOW						
FIXED ASSETS (SPECIFY DETAILS)						
OTHERS (SPECIFY ITEMWISE)						
DIVIDEND						
TOTAL OUTFLOW						
CASH & BANK BALANCES						
OPENING BALANCE						
NET INFLOW						
CLOSING BALANCE						

All Figures should be filled in Indian Rupees

IMPORTANT RATIOS
RS. IN LAKHS

	1ST YEAR	2ND YEAR	3RD YEAR	4TH YEAR	5TH YEAR	TOTAL
DEBT/EQUITY						
OP. PROFIT/INCOME						
PAT/INCOME						
RETURN ON TOTAL ASSETS						
RONW						
DIVIDEND PAYOUT RATIO						
DEBT SERVICE CONVERAGE						
(PAT BEFORE INTEREST/ INTEREST)						
EPS (RS.)						
COMPOUNDED ANNUAL GROWTH RATE						

BREAK EVEN POINT CALCULATIONS ***RS. IN LAKHS***

	1^{ST} YEAR	2^{ND} YEAR	3^{RD} YEAR	4^{TH} YEAR	5^{TH} YEAR	TOTAL
GROSS REVENUE VARIABLE EXPENSES (SPECIFY ITEMWISE) CONTRIBUTIONS FIXED EXPENSES (SPECIFY ITEMWISE) PAT BREAK-EVEN POINT CASH BREAK-EVEN POINT						

Module 7

A Model Detailed Project Report (DPR)

In this Module you will understand how a project report can be written. Two Model DPRs are given for your understanding

Model DPR 1: Dairy Farming[10]

Dairy farm provides an excellent opportunity for self-employment to the unemployed youth in India. It is also important source of income generation to small and marginal farmers. Since agriculture is seasonal in nature, there is a possibility of finding employment throughout the year for many persons through dairy farming, the while revolution of 1970s had made spectacular land marks in Indian milk production scenario. India is the largest producer of milk in the world, the increasing cost of feed ingredients and tits seasonal variability can be reduced by undertaking fodder cultivation. Buffalo farming is a profitable business & has good potential for employment generation. India has 57% of world buffalo population. Buffalo milk contributes 57% of total milk production. Buffaloes have several advantages over crossbred cows as farm animal.

1 They are well adopted to agro-climatic condition of our country

2 They are more disease resistant in comparison to crossbred cows. (Less incidence of milk fever & mastitis in buffaloes)

3 They can thrive well on crop residue

5 Buffalo milk contains more butter fat for which the price of buffalo milk is more

This project report is based on following assumptions:

- Freshly calved murrah female buffaloes in 1st or 2nd lactation will be purchased in two batches of twenty five animals each/batch at an interval of 5 to 6 months.
- Availability of 10 acres of land for fodder cultivation is prerequisite for the project,
- Dung produced will be utilized as Manure for fodder cultivation.
- Cost of rearing calves not considered as it will be repealed by their sale
- In case of death of adult animal new buffalo will be purchased from insurance claim money.

[10] http://www.agrifarming.in/tag/detailed-project-report-on-dairy-farming/

- Heifers will be used as replacement stocks
- The scheme will be successful on the above guidelines if run by the dairy farmer on scientific lines

The project should include the following information on technical, financial and managerial aspects in details based on type of unit and capacity.

Technical:

a) Land and land development (Location, area, suitability, proximity to road, site map etc.)

b) Proposed capacity / No. of milch animals

c) Civil structures (Sheds, store room, milk room, office quarters, staff room etc.)

d) Equipment and Plant and Machinery (Chaff cutter, Silo pit, Milking machine, Feed grinder and mixer, Milking pails/milk cans, biogas plant, Bulk coolers, Equipment for manufacture of products, Truck/van)

e) Housing type of housing (Area requirement – Adults, Heifers (1-3 year), Calves (less than 1 year)

f) Animals (Proposed species, proposed breed, Source of purchase, Place of purchase, Distance, Cost of animals)

g) Production parameters (Order of lactation, Milk yield (ltrs. Per day), Lactation days, Dry days, Conception rate, Mortality(%) – Adults, Young stock)

h) Feeding (Source of fodder and feed – Green fodder, Dry fodder, Concentrates. Fodder crop rotations – Kharif, Rabi, Summer. Fodder cultivation expenses, Requirements and costs)

i) Breeding Facilities (Source, Location-Distance (km.), Availability of semen, Availability of staff, Expenditure per animal/year)

j) Veterinary Aid Source (Location-Distance (km.), Availability of labour and other staff, Types of facilities available, if own arrangements are made- Employed a veterinary doctor/stockman/consultant, Periodicity of visit, Amount paid/visit (Rs.), Expenditure per animal per year)

k) Electricity (Source, Approval from SEB, Connected load, Problems of power failure, Arrangements for generator)

l) Water (Source, Quality of water, Availability of sufficient quantity for drinking, cleaning and fodder production, If investment has to be made, type of structure, design and cost)

m) Marketing of milk (Source of sales, Place of disposal, Distance (km.), Price realized – (Rs. Per liter of milk), Basis of payment, Periodicity of payment

n) Marketing of other products (Animal – age, place of sale, price expected, Manure Qty./animal, Price/unit (Rs.), Empty gunny bags-Number, Cost/bag (Rs.)

Financial:

a) Financial viability (Internal Rate of Return, Bene4fit Cost Ratio, Net Present Worth)

b) Financial position of the borrowers (Profitability Ratios, Debt Equity Ratio, Whether Income Tax & other tax obligations are paid upto date, Whether audit is up to date)

c) Lending Terms (Rate of Interest, Grace Period, Repayment Period, Nature of Security)

Managerial:

Borrower's profile

a) Individual/Partnership/Company/Corporation/Co-operative Society/Others

b) Capability in managing the proposed business

c) Experience in proposed activity or others

d) Financial soundness

e) Technical and other special qualifications

f) Technical/Managerial staff and adequacy there of

Others:

Name of the financing bank

Training facilities

Assistance available from State/Central Government

Regulatory clearances, if any etc.

Appraisal of the Project

The Project so formulated should be submitted to the nearest branch of the bank. The bank's officer can assist in preparation of the Project or filling in the prescribed application form. The bank will then examine the Project for its technical feasibility and economic viability.

Economics of Dairy Farming

A model project with 10 buffaloes is given below. This is indicative and the applicable input and output costs as also the parameters observed at the field level may be incorporated.

A. Capital Cost

Cost of animals	5,00,000
Transportation cost	10,000
Construction of animal shed	60,000
Construction of calf shed	24,000
Cost of Chaff cutter and Equipment	60,000
Total	**6,54,000**

B. Techno Economic Parameters

Type of Animal	**Graded Murrah Buffalo**
Number of Animals	10
Number of animals/batch	5
Cost of Animal (Rs./animal)	50000
Cost of culled animal	5000
Transportation Cost / Animal	1000
Average Milk Yield (litre/day)	10
Floor space (sqft) per adult animal	50
Floor space (sqft) per	20
Cost of construction per sqft (Rs.)	120
Cost of chaff cutter (power operated) (Rs.)	50000
Cost of Equipment per animal (Rs.)	1000
Insurance premium (%per annum)	5
Veterinary aid/animal/year (Rs.)	1000
Quantity of Concentrate feed in one bag (kgs.)	50
Cost of concentrate feed (Rs./kg)	12
Cost of dry fodder (Rs./kg)	2
Cost of green fodder (Rs./kg)	1
No. of labourers	1
Salary of labourer per month (Rs.)	4500
Cost of electricity and water/animal/year (Rs.)	150

Margin (%)	25
Rate of interest (%)	12
Repayment period (year)	5
Selling price of milk/litre (Rs./liter)	26
Sale price of gunny bags (Rs.per bag)	10
Lactation days	270
Dry days	150

C. i) Feeding Schedule

Type of feed	Lactation			Dry	
	Price (Rs.)	Qty. (kg	Cost Per Day (Rs.)	Qty. (kg)	Cost Per Day (Rs.)
Concentrate Feed	12	5	60	2	24
Green Fodder	1	25	25	20	20
Dry Fodder	2	4	8	5	10
Total			93		54

ii) Total Concentrate Feed Consumed (Kgs.)

Year	Lactation	Dry	Total	No. of Gunny Bags
Year 1	8250	300	8550	171
Year 2	11250	2700	13950	279
Year 3	11250	2700	13950	279
Year 4	12000	2400	14400	288
Year 5	12000	2400	14400	288

iii) Lactation Chart Per animal

Year	I Batch		II Batch	
	Lactation days	Dry days	Lactation days	Dry days
I	240	30	90	0
II	240	120	210	150
III	210	150	240	120

IV	210	150	270	90
V	210	150	270	90

C. Economics

Particulars	Years				
	1	2	3	4	5
Sale of Milk	429000	585000	585000	585000	624000
Sale of Gunny bags	1710	2790	2790	2880	2880
Total	**430710**	**587790**	**587790**	**587880**	**626880**
Cost of feeding during lactation	153450	209250	209250	223200	223200
Cost of feeding during dry period	8100	72900	72900	64800	64800
Veterinary aid and breeding charges	10000	10000	10000	10000	10000
Labour charges	54000	54000	54000	54000	54000
Electricity and misc. charges	1500	1500	1500	1500	1500
Insurance charges	25000	25000	25000	25000	25000
Total	**252050**	**372650**	**372650**	**378500**	**378500**
Surplus	**178660**	**215140**	**215140**	**209380**	**248380**

E. Benefit Cost Ratio (BCR) & Internal Rate of Return (IRR)

	1	2	3	4	5
Capital Costs	654000				
Recurring Costs	252050	372650	372650	378500	378500
Total Costs	906050	372650	372650	378500	378500
Benefit	430710	587790	587790	587880	626880
Net Benefit	475340	215140	215140	209380	248380

PW Costs @15%	1719259.92
PW Benefits @ 15%	1853258.04
NPW	133998.11
B.C. Ratio	1.08
I.R.R. (%)	30%

F. Loan Repayment Schedule[11]

Year	Loan Outstanding	Gross Surplus	Interest	Principal	Total Repayment	Surplus
1	490500	178660	58860	98100	156960	21700
2	392400	215140	47088	98100	145188	69952
3	294300	215140	35316	98100	133416	21724
4	196200	209380	23544	98100	121644	209380
5	98100	248380	11772	98100	109872	138508

[11] Madhurimalall and shikha sahai "Entrepreneurship" Excel Books, 2008

Model DPR 2: COMPOSITE FISH CULTURE[12]

Introduction

Fish is the cheapest and most easily digestible animal protein and was obtained from natural source from time immemorial for consumption by human beings. However, due to over exploitation and pollution, the availability of fish in natural waters have declined considerably forcing scientists to adopt various methods to increase its production. Fish farming in controlled or under artificial fish culture in village ponds, tanks or any new water body and can improve their financial position substantially. It also creates gainful employment for skilled and unskilled youths. The technology developed for fish culture in which more than one type of compatible fishes are cultured simultaneous is the most advanced and popular in the country. This technology is know as composite fish culture. This technology enables to get maximum fish production from a pond or a tank though utilization of available fish food organisms in all the natural niches, supplemented by artificial feeding. Any perennial fresh water pond/tank retaining water depth of 2 metres can be used for fish culture purpose. However, the minimum level should not fall below one metre. Even seasonal ponds can also be utilised for short duration fish culture.

1.1 fish species involved in composite fish culture

Depending on the compatibility and type of feeding habits of the fishes, the following types of fishes of Indian as well as Exotic varieties have been identified and recommended for culture in the composite fish culture technology: Species feeding habit- Feeding Zone

Indian Major Carp

Catla	Zoo plankton feeder	Surface feeder
Rohu	Omnivorous	Column feeder
Mrigal	Detritivorous	Bottom feeder

Carp

Silver Carp	Phytoplankton feeder	Surface feeder
Grass Crap	Herbivorous	Surface, column and marginal areas
Common Carp	Detritivores/Omnivorous	Bottom feeder

[12] http://www.agrifarming.in/composite-fish-culture/

2. Potential: The area under tanks and ponds available for warm fresh water aquaculture is estimated to be 2.85 million ha. In addition 0.78 million ha of swamps, beels, etc. and low lying water logged are not good for agriculture as also any agriculture land can be converted for fish farming. Out of the total inland fish production around 60% is contributed by the culture sector. The average productivity form ponds at present is to the tune of 2160 kg/ha/year. This shows the tremendous scope for fish culture in the country. The area of 4.56 lakh ha brought under scientific fish culture by 1997-98 is only 16% of the potential area of tanks and ponds available for development showing immense possibilities for horizontal expansion of composite fish culture.

3. Technical Parameters: Technical parameters of composite fish culture has been enclosed as annexure –I which includes site selection, items of development, pre and post stocking operations, stocking density, fertilisation, feeding etc.

4. Margin: The margin money may be considered @ 5, 10 & 15% for small, medium and large farmer respectively and 25% for companies and partnership firms.

5. Subsidy: Subsidy is available for various items like Pond Development, construction of New Ponds, first year inputs etc. Under a centrally sponsored subsidy scheme implemented by majority of the State Governments through FFDA's for different categories of farmers, details of which may be obtained from concerned Fisheries Departments.

6. Eligible Borrowers:

The following category of borrowers are eligible to avail credit.

a) An Individual
b) A Company
c) A Partnership firm
d) A Co-operative Society
e) A group of fish farmers

Training in fish farming is being provided by the FFDA's to the eligible borrowers and it is essential that the borrower has prior knowledge of fish farming before availing the f bank loan.

7. Financial Outlay:

The details of Capital Cost and Recurring Cost have been indicated in annexure – II. As per annexure the capital cost for excavation of 1 ha pond works out to be Rs. 175,000/- and the recurring cost as Rs.26,000/-. However, the cost is indicative and actual assessment of the cost parameters have to be done while submitting the project to the bank.

8. Repayment

Repayment of bank loan is possible in 6-8 years in equated annual instalment with moratorium on repayment of principal for the first year.

9. Financial Analysis:

As per financial analysis shown in annexure the scheme is financially viable. The financial parameters are as follows

i) NPW @ 15% Rs:101106

ii) BCR @ 15% 1.151: 1

iii) IRR 25%

10. Rate of Refinance

NABARD provides refinance assistance for fish culture to commercial banks, cooperative banks and Regional Rural Banks. The rate of refinance is fixed by NABARD from time to time.

11. Rate of interest

Interest rate to be charged to the ultimate borrowers would be as indicated by bank/RBI/NABARD form time to time depending on quantum of loan amount and the agency providing the loan.

12. Security

Security form the ultimate beneficiaries may be obtained as per the guidelines of RBI issued form time to time.

Annexure – I

Technical Parameters

Technical parameters that needs to be considered for Composite Fish Culture project are as follows:

1. Selection of Pond:

The main criteria to be kept in mind while selecting the pond is that the soil should be water retentive, adequate supply of water is assured and that the pond is not in a flood prone area. Derelict, semiderelict or swampy ponds can be renovated for fish culture by dewatering, desilting, repair of the embankments and provision of inlet and outlet. The pond may be owned by the individual or taken on lease in which case the lease period should be more or coterminous with the repayment period. The eligible items of pond development are as follows:

i.	Desilting of existing ponds
ii.	Deepening of shallow ponds
iii.	Excavation of new ponds
iv.	Impoundment of marginal areas of water bodies
v.	Construction/repairs of Embankments
vi.	Construction of Inlets / Outlets
vii.	Any other item like civil structures, watchmen huts, water supply arrangements / electricity supply arrangements etc. depending on requirements of the project based on its size etc.

2. Pond Management:

Pond Management plays a very important role in fish farming before and after the stocking of fish seed. Various measures that are required to be undertaken in pre and post stocking practices are tabulated below:

A) Pre stocking:

In case of new ponds, pre stocking operations starts with liming and filling of the pond with water. However, the first step for existing pond requiring development deals with clearing the pond of unwanted weeds and fishes either by manual, mechanical or chemical means. Different methods are employed for this.

i. Removal of weeds by Manual/Mechanical or through Chemical means.

ii. Removal of unwanted and predatory fishes and other animals by repeated netting or using mahua oil cake @ 2500 kg/ha metre or by sun drying the pond bed.

iii. Liming – The tanks which are acidic in nature are less productive than alkaline ponds. Lime is used to bring the pH to the desired level. In addition lime also has the following effects –

a) Increases the pH.
b) Acts as buffer and avoids fluctuations of pH.
c) It increases the resistance of soil to parasites.
d) Its toxic effect kills the parasites; and
e) It hastens organic decomposition.

The normal doses of the lime desired ranges from 200 to 520 Kg/ha. However, the actual dose has to be calculated based on pH of the soil and water as follows:

Soil pH	Lime (kg/ha)
4.5-5.0	2,000
5.1-6.5	1,000
6.6-7.5	500
7.6-8.5	200
8.6-9.5	Nil

The pond is required to be filled with rain water or water from other sources after liming in case it is a new pond.

iv) Fertilisation:

Fertilisation of the pond is an important means of intensifying fish culture by increasing the natural productivity of the pond. The fertilisation schedule has to be prepared after studying the quality of the pond soil. A combination of both Organic and Inorganic fertilisers may be used for best results. The fertiliser programme has to be suitably modified depending on the growth of the fish, available food reserve in the pond, physic chemical conditions of the pond and climatic conditions.

a)	Organic :	Organic manure to be applied after a gap of 3 days from the date of liming.
b)	Inorganic :	Cowdung @ 5000 kg/ha or any other organic manure in equivalent manorial value
		Inorganic fertilisation to be undertaken after 15 days of organic manuring. Requirement of nitrogenous and phosphate fertilisers would vary as per the nature of the soil fertility indicated below.
		However any one of the nitrogen and phosphate fertilisers could be used as per given rate.

Inorganic Fertiliser Application (kg/ha/month)

Soil fertility status	**Ammonium sulphate**	**Urea**
1. Nitrogen (mg/100g soil)	70	30
i. High (51-75)	90	40
ii. Medium (26-50)	140	60
iii. Low (upto 25)		
2. Phosphorus (mg/100gm soil)	**Single super phosphate**	**Triple super phosphate**
i. High (7-12)	40	15
ii. Medium (4-6)	50	20
iii. Low (upto 3)	70	30

B) STOCKING:

The pond will be ready for stocking after 15 days of application of fertilisers. Fish fingerlings of 10 cm size (approx) should be used for stocking @ 5000 nos. per hectare. However if fingerlings of smaller size are used, suitable allowance may be made accounting for mortality. Depending on availability of seed and market condition, stocking can be of 3, 4 or 6 species combination in the following ratio.

Species combination (ratio)

Species	**3-species**	**4-species**	**6-species**
Catla	4.0	3.0	1.5
Rohu	3.0	3.0	2.0

Mrigal	3.0	2.0	1.5
Silver Carp	-	-	1.5
Grass Carp	-	-	1.5
Common Carp	-	2.0	2.0

C) POST STOCKING:

a) Supplementary feeding:

Fishes need much more food than what is available naturally in the pond. Fishes can be fed with a mixture of bran and oilcake in equal quantities daily. The feed should be placed on a bamboo tray and lowered to the pond bottom or it can be sprayed at the corners. After some time the fishes will get used to this type of feeding and aggregate at the same place at particular time. The recommended feeding rate is as under:

Culture period	Quantity per day in kgs.
i. Quarter	1.5 to 3
ii. Quarter	3 to 6
iii. Quarter	6 to 9
iv. Quarter	9 to 12
Total (for the year)	1,655 to 2,700

b) Manuring:

i) Organic manuring may be done in monthly instalments @ 1000 kg/ha

ii) Inorganic fertilisation my be done at monthly intervals alternating with organic manuring. However, the monthly rate of fertilisation will depend on pond productivity and the growth of the fishes. It should be ensured that excess fertilisation does not take place which may result in eutrophication.

D) Harvesting:

Harvesting is generally done at the end of 1^{st} year, when the fishes attain average weight of 750 gms to 1.25 kg. A production of 4 to 5 tons/ha can be obtained in a year. However, for the purpose of working out economics' a production level of 3 tons/ha/year may be considered. Harvesting is done by partial dewatering and repeated netting. In some cases complete dewatering of ponds is resorted to.

3) Vertical expansion of fish culture:

A number of measures are now being employed by the entrepreneurs to increase the per hectare production of fish. Important measures adopted are stocking of Yearlings by stunning the growth of fish seed during first year, heavy stocking and multiple harvesting after the fishes attain a size of 500 gms., multiple stocking and multiple harvesting, use of aerators, integrated fish farming with animal husbandry activities like dairy, poultry, piggery or duckery to get daily organic manuring to the pond thus increasing its fertility. It is possible to increase the per hectare production of fish to 7 to 10 tonnes per ha per year by employing different methods as indicated above.

Annexure – II

Indicative Unit Cost and Income for 1 ha pond requiring 1 meter excavation

Item	**New ponds Excavation upto 1 metre depth**
A. Capital Cost:	
1. Excavation 10,000 m3@Rs.15/m3	150000
2. Construction of inlet/outlet (L.S.)	20000
3. Equipments & Gears (L.S.)	5000
4. Total	175000
B. Recurring Cost:	
Lim 500 KG @ Rs. 5/kg	2500
Fingerlings 5000 Nos. @ Rs. 400/1000 Nos.	2000
Organic manure(cowdung) 15 tonnes @ Rs. 300/ton	4500
Urea 330 kg @ Rs. 5/kg	1650
Triple Super Phosphate 165 kg @ Rs. 5 per kg	825
Mustard oil cake 1350 kg @ Rs. 6/kg	8100
Rice Bran: 1350 kg @ Rs. 3k/g	4050
Insurance cost @ 4% of Seed an Fertilizers	960
Miscellaneous including Harvesting, Marketing expenses and watch and Ward etc.	2415
	27000
C. Income:	
1. Production (From second year onwards)	3000 kg

2.	Sale Price (per kg)	Rs. 30/-
3.	Total Income	Rs. 90,000/-

ANNEXURE – III

Statement showing Financial Analysis for Composite Fish culture in New Ponds (Indicative)

(Amt in Rs)

A. Cost	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Fixed Costs	175,000							
Recurring Costs	27,000	27	000	27	000	27	000	27
Total	202,000	27	000	27	000	27	000	27
B. Benefits								
Income from sale of fish	-	90,000	90,000	90,000	90,000	90,000	90,000	90,000
Net Income	-202,000	63,000	63,000	63,000	63,000	63,000	63,000	63,000
NPV Costs	273,332							
NPV Benefits	374,438							
NPV	101,106							
BCR	1.51:1							
IRR	25%							

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