



ALL INDIA MANAGEMENT ASSOCIATION

CHANAKYA^{4.0}

THE BUSINESS DECISION GAME

Participant Manual



OPPORTUNITY TO SHOW YOUR TALENTS, YOUR KEY TO SUCCESS !





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THE BUSINESS DECISION GAME

Participant Manual

Developed by Dr. G Balaji and Dr. N Dhillon

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MANAGEMENT GAMES: COMPETING FOR COMPETENCE DEVELOP YOUR COMPETITIVE SKILLS

AIMA's Chanakya ® has specially created scenarios to focus on the development of skills. Conflicting situations will compel you to take decisions, under predetermined rules of behavior. These situations closely resemble business events, and are indistinguishable from real life events. Your objective of playing the Game is to understand complex business situations and solve problems. You will learn to take operative and strategic decisions. At the Game, you and your team will experiment and make mistakes, which would otherwise have been costly in a real life situation. Competition enhances your abilities not merely to survive, but also to emerge on top, for your organization. You will also discover new ways of co-operation and teamwork.

Functional Focus Interpret Reports And Metrics

Procurement, Purchase and Supply Chain

Understanding Finance

Managing Production and Operations

Inventory Turns And Costs

Understanding Customer and Marketing Decisions

Undertaking Investments in Technology

Understanding Pricing Behavior

Working In Teams

Operating Decisions

Planning

Allocating

Controlling

Monitoring

Study Strategic Options

Niche Strategy

Cost Based Strategy

Product Differentiation Strategy

Corporate Objectives

Managing And Imperatives Of Growth

Managing Profitability

Managing Liquidity

Risk Reduction Through Diversification?

Test

Your Business Skills

Your Risk Taking and Gut Feeling

Your Imagination

Your Ability To Think Ahead

Your Team Skills

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Financial Metrics

Market Research Reports

Analyze The Past

Economic Conditions

Balance Sheet

Income Statement

Cash Flow Statement

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Forecast The Future

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Demand Projections

Sales Off-Takes

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Price Movements

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Operating Problems

Administrative Dilemmas

Strategic Issues

Managers' Perspectives

Crisis

Top Management View

External Environment

Changing Conditions

Strategic Decisions

Consensual Action

Leadership

A QUICK GUIDE FOR THE PARTICIPANT

Step into the shoes of the Directors of a firm. Enjoy the pleasure of working with your fellow Directors for agreeable decisions. Team up with your fellow classmates to survive, to surmount and to win. Experiment with the methodologies, tools and techniques you studied in your MBA, PGDM and other professional programmes. Practice your management concepts and business principles. Do battle, and experience the thrill of competition. Drive your firm in a world of simulated situations. And prepare for the hard business world, the easy way!

THE EFFECTIVENESS OF THE MANAGEMENT GAME

Games are recognised to be the fastest and most cost-effective set of techniques to train large numbers of participants. It is a mini-MBA programme conducted across 2 days. AIMA has now conducted it for over 12,000 participants in 250 corporates and 120 Management Schools, across the country during the last nine years. Today's participants are tomorrow's Managers. A chaotic economy needs multi-skilled Managers, not narrow experts. Management Games offers you a unique experience to learn skills and consensual decision making behaviour to cope with tomorrow, within the shortest possible time span.

ALL INDIA MANAGEMENT ASSOCIATION

In 1957, the All India Management Association (AIMA) was created as an apex body with active support of the Government of India. AIMA was intended as a cause group – a body to pool management thought in the country, a forum to develop a national managerial ethos, an organisation to facilitate the furtherance of the profession and its contribution to the society. After five decades of service, AIMA is recognised for its national stature, upheld by a broad base of 60 Local Management Associations including two Cooperating Associations abroad, over 30,000 professionals as Individual Members and over 3,000 corporates as Institutional Members.

AIMA activities include Distance Management Education, Management Development Programmes, National Events, Competitions, Research, Publications & Testing services.

AIMA is represented on a number of policy making committees of the Government of India, the Indian Institutes of Management, All India Council for Technical Education (AICTE) and some other professional bodies. It currently holds the Presidency of Asian Association of Management Organisations (AAMO), which is the Asia-Pacific regional body of the World Management Council. AIMA also maintains close links with a number of overseas professional bodies and institutions like the American Management Association, Chartered Management Institute (UK), all the National Management Organisations in the Asia Pacific Region and St Gallen University of Switzerland etc.

Games Administrator

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I. INTRODUCTION

ABOUT THE GAME

How often have you felt that you are a cog in an organizational wheel? How often have you found your decisions being overridden by your superiors? And how often has it been justified on grounds of “overall organizational interests”? How would working be if you were given all the levers to control the organization and not just a few? How often have you felt the “need to know” what's happening elsewhere, so as to take better decisions and develop a wider perspective of your organization?

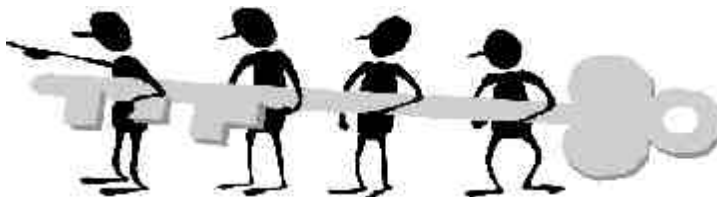
If your answers to the above questions are in the affirmative, you have reached the right place. By participating in this exercise, you will be put into a Boardroom simulator and do all you ever wanted to but were unable to do so. You control the product mix, the price at which you want to sell, buy and disband machinery as you please, manage your inventories, decide on a credit policy, arrange for finance, float equity issues, declare dividends, invest in technology and market research, and several other things that most owners and CEOs of businesses do. But remember, as you sow, so shall you reap. After each round, the stock market and the profits will indicate how effective your decisions have really been. As in real life, don't expect the external world to be fair to you. Your competitors as well as Acts of God can put paid to your ambitious plans; but as Einstein has said *Der Herr Gott is raffiniert aber boshaft ist er nicht* (God is subtle, but he simply is not mean). You will not have complete autonomy in taking these decisions. You are part of a team where you have to convince, cajole, threaten, but eventually negotiate amongst yourselves to evolve a collective plan of action. After all, as in organizational life, it is better to hang together rather than be hanged together.



OBJECTIVES

At the end of the Game, we expect the participants to be sensitized:

- to the process of a coordinated strategy formulation in a competitive environment
- to the nuances of decision-making across functional departments and the business
- to the issues in leadership and cohesive teamwork, they, being the keys to corporate success





GAME PROCESS

The Game involves decision making for a company with focus on a particular performance measure. It is normally played over four to five quarters but can be extended to twelve calendar quarters, where each quarter is defined as a three month period. At the beginning of every quarter, a new business opportunity will dawn. You and your competitors will take decisions, whose combined impact will be communicated, to you through reports at the end of the quarter. After you have received the reports of the quarter for which you have taken decisions, you will be required to take another round of decisions keeping in mind the past performance as well as the new scenario which has emerged. Although all teams will start the Game with the same assets, financial structure, production capacity, product mix and potential for success, the wealth created or lost will depend on the path charted by you as well as by the competition in every quarter.

The Games Administrator precedes the Game with a two-hour long briefing. During the briefing you will form teams, identify a company name and number. The decision making time, Standard and Additional Decision Forms, business situation, constraints and context described in this manual will be explained. Every team is required to read and understand the information before initiating “play of the Game”. Sample Decisions Forms and other relevant material are given in the Sample Section. Although it may appear that there are too many decisions to take, the team will gradually see which decisions need to be taken more frequently than the others.

Specific data in the manual is illustrative and is given only to explain the situation. All the features given in the manual may not necessarily come into play for your game. Separate sheets detailing the Starting Conditions for your Game will be given before the briefing. This set of documents along with any other papers given during the play are to be read in conjunction with the manual. The information contained therein will override any information contained in the manual. Late submission of the decision forms may attract penalty of a specified amount of Currency Units (Cu.), which shall be deducted from the profits of the defaulting team.



TEAM FORMATION

There is much to be done by one person alone. The flow of information, the kind of decisions to be taken within a time limit, will be voluminous for one person alone. The play of the Game is best done when responsibility is shared and again coalesced together at the time of decision making. The company will have to be considered as a whole. The focus will have to be away from individual functions so that there is a shared understanding of the team's performance and the winning criteria.

You have to form teams, each of four persons and communicate its name (not exceeding five letters). The team is required to elect a chairperson or team leader, and also decide on the allocation of functional responsibilities (finance, operations, and marketing or any other role which the team feels will be required). While decision-making is collective, the person looking after a particular function can do the preparatory work. The role of the chairperson is left for the group to decide. The constitution of the team and the delineation of individual responsibilities should be intimated to the Games Administrator before the start of the Game.

The chairperson will sign the Decision Forms every time before handing them to the Games Administrator, and will be responsible for the contents thereof. The decision entries shall be in large print (capitals where applicable), in black or blue pen without any overwriting, and be clearly legible.



WINNING CRITERION

A firm's performance can be gauged using financial as well as non financial criteria. Different performance criteria such as Market Share, Earnings Per share (EPS), Cash EPS, Cumulative Profit After Tax (PAT), Earnings Before Interest Taxes Depreciation and Amortization (EBITDA), Economic Value Added (EVA), Retained Earnings (Reserves and Surplus), Book Value per Share (BVS), Market Price Per Share, Market Capitalization and several others are normally adopted for deciding the winning team. The Games Administrator will announce the winning criteria at the start of the Game play and the choice of the criterion will then dictate the strategy and form the context of decisions. The criterion announced by the Games Administrator shall take precedence over what is mentioned in this document. One such criterion is given below by way of an example.

While there will be a winner, it is important to see the Game as a learning process and as an arena for testing of acquired experience and knowledge with a little fun. It is the best opportunity you can get to the real situation without taking financial and career risks.

EXAMPLE

The winning team could be selected on the basis of accretion to net worth and value created for the shareholders. The winning team would be the one with the largest

- Market Capitalization
(market price of equity share * number of issued equity shares)
and
- Shareholders' Equity or Net Worth
(Equity Capital plus Retained Earnings or Reserves and Surplus)

A simple average can be computed from the above measures to rank the competing firms. This criterion ensures that wealth creation for the shareholders and pursuit of profit remains the dominant concerns of the management team.



2. REPORTS

Results of decisions are communicated through reports printed in real time at the end of each quarter. Each team will receive two reports - a Management Report (MR) and a copy of Sector Update (SU).

The Management Report(MR)

The MR consists of the following:-

- Balance Sheet (BS)
- Income Statement (IS) Or Profit And Loss Statement (P&L)
- Cash Statement (CS)
- Summary Of Outstanding Term Loans And Bonds
- Inventory Data (ID)
- Forecast Of General Economic Environment
- Demand Forecasts And Actual Demand
- Messages

A sample MR is given in the Sample Section.

How To Read The MR

The MR in the top left-hand corner indicates your group code and team number **[A0]**. **The Games Administrator will intimate them to you before the start of the Game.** The team name is in the next box, **[Co. Name Ltd, Plc, Inc, Pte etc]**. The quarter for which the results are being reported is indicated below this box. **[I]** The report then displays the three financial statements - Balance Sheet, Income Statement And The Cash Statement. The results would reflect the decisions taken by you.

The balance sheet reflects the position of the team at the end of the quarter. The income statement documents the performance of the team over the quarter. The cash statement shows where the cash came from and where it went during the quarter. One box for the outstanding term loans taken by the firm and another box of the economic forecasts are given below the financial statements.

INVENTORY DATA (ID)

The ID section is useful for planning and control of operations. It lists the market potential in the form of order enquiries received, sales or service revenue, production, finished goods, raw material consumption, procurement from Contract Manufacturers (CMs), raw material yield, production and labor cost data for each of the products and raw material inventories. Refer to the details in the MR in the Sample Section.

HOW TO READ THE INVENTORY DATA (ID)

A sample of the ID is given in the MR. The products or services, which can be manufactured or delivered, are mentioned in the first row. Order enquiries received indicates the market potential for your product or service at the price quoted and marketing mix adopted by you. Opening finished goods inventory, actual production sale data, procurement from CMs, 3rd party outsourcing deals and closing inventory positions for the products are given. Raw material consumption and yields are mentioned in the next row. The average cost of production, material cost and labor costs etc are mentioned in the row below. Details of the raw material inventory, consumption and purchases are given separately in the box below the main box.

THE GENERAL ECONOMIC ENVIRONMENT

This box covers the Gross Domestic Product (GDP) growth in the economy, the Stock Exchange Index (STOCK IDX), the Consumer Price Index (CPI), the Index of Industrial Production (IIP), the Chanakya Inter-bank offered Rate (CIBOR) and the aggregate demand (DEMAND FORECASTS or ACTUAL DEMAND) for each product in the industry of your firm. The meaning and likely interpretation for each of the terms is given in the Glossary of Economic Terms (Chapter 9).

HOW TO READ THE GENERAL ECONOMIC ENVIRONMENT

If the Management Report is for Quarter 3, then the growth, values, indexes, percentages and product demand for the variables mentioned therein will be the actual for the quarter. The

figures mentioned for the next four quarters i.e. Quarters 4, 5, 6 and 7 will be the forecasts. The forecast is on a rolling basis and the box in the next quarters will reflect the actual for Quarter 4 and forecasts for quarters 5,6,7 and 8 and so on.



MESSAGES

Messages relating to teams, extraordinary gain, loss, strike, go-slow and alliance decisions, incorrect decision entry etc will be communicated through the message box.

SECTOR UPDATE

Sector Update contains the operational and financial performance data of your firm and that of competitors. Data relating to plant and machine capacities, share prices will be available free of cost every quarter, along with your results. You will need to pay for the other data covering your team, those of your competitors and of the industry at prices stated in your Starting Conditions. The choice can be indicated in the specified row in your Standard Decision Form.

In addition to the two principal reports, Gazettes covering news updates, expert opinion and industry news will be supplied as and when published. You will need to respond to other situations that may emerge during the play.

WHAT IS QUARTER 0?

At the beginning of the Game, all the competing firms have been deemed to have operated for one quarter designated as the Quarter Zero (0). The results of this quarter are reported in the MR and Sector Update of the Quarter Zero (0) given to you. These reports along with Sector Analysis, Starting Conditions and Gazettes will form the basis for you to formulate your strategy and game plan for the “Game Play Quarters”. It is like a turnkey company handed over to you with the features summarized in the MR and SU. Samples of the Sector Analysis, Starting Condition and Gazette are given in the Sample Section. The result reported for Quarter 0, is the same for all the competing teams. **You are required to take decisions from quarter 1 onwards.**



3. GAME STRATEGY

Strategy in plain and simple terms is a pre-meditated course of action. A team has a choice of reacting to the context, which emerges with every quarter. The other option is to anticipate and plan for eventualities and develop a course of action - your strategy. Teams which formulate and implement a strategy are able to realize their goals such as shareholder wealth maximization, market share and profitability. There is plenty to digest and reflect upon before you can articulate your strategy. The information, constraints, rules and Game dynamics will initially bewilder you. The formulation and implementation process is iterative. Decisions and perceptions thought correct at the start may require a re-look as there is learning from experience and a new scenario has emerged. The outcome of the decisions will be there for you to see immediately, and will naturally force an adjustment or modification to the initial strategy.

A starting point for the formulation of your strategy could be a careful understanding of the winning criteria. Follow it up with a scanning of the environment in which you operate and compete in. What are the general economic conditions and where are they leading? Where is the industry headed? What are the opportunities it affords? What is the structure of the industry in which you operate? What is the nature of the industry competition? What kind of market you are operating in? How are the competing firms likely to react to the context? Answers to these questions will have to be sought from the data that is provided in Sector Analysis, Starting Conditions and through the quarterly Gazettes. However, as in real life, more data may enable better judgment but need not necessarily give the appropriate answers. Needless to reiterate, that in a dynamic world, the answers keep changing and hence revisiting your fundamental beliefs will be fairly common. A Porter analysis towards understanding the industry structure may be useful. Issues like whether your perception of the industry being fragmented, emerging, declining or maturing is correct will continue to bother you.

The next step would be to understand the position your firm is in. What are your strengths and weaknesses in terms of resources at your disposal? What are the resources you lack? What are the constraints of cash, raw materials, production capacity, pricing, finance etc. which will

impede realization of the goals? Can you successfully second-guess the competition? The finance mix will have to be thought out alongside the operational and marketing decisions. The Starting Conditions and the starting position require reading and understanding. The team also needs to work on identifying critical decisions, which they have control over and those that they do not. However, every decision need not be decided in every quarter. Over time the teams would have learnt to choose decisions that require frequent attention and have wide ramifications. There are some decisions which are critical, cannot be taken up for consideration too frequently because of the high cost of involvement and retraction but are nevertheless important to the well being of the firm. And there are those, which may not be important in your scheme of things.

The next step could be the positioning of the firm in the industry. Would you like to persist with a single product-service line or add more to your portfolio? What is the favored product mix a team would like to adopt to sustain its competitive position in the industry? What is the niche sought to be created? Within each product line, you will have to work on the costs and maybe attempt to differentiate the product line from the rest. If you choose to adopt the Porter framework, then you will have to decide whether it is the cost leadership that will maximize shareholder wealth or product differentiation through research and development, advertising and sales promotion.

After having articulated an overall strategy, the team needs to work upon the functional strategies. Production levels, capacity creation and disbandment, production cost control ought to form components of your overall manufacturing strategy. Price, volume, and credit terms are some decisions critical for the marketing side. The financial strategy will depend on decisions on sources of finance, dividend policy, interest burden, and cash position and project selection to support the production and marketing effort. Lastly, it is the risk-taking element of the team that will encourage or dissuade it from selecting and acting upon a course of action. Please keep records of your teams decisions. It helps later to understand the overall strategic process.



4. PRODUCTION or OPERATIONS

PRODUCTION VOLUME

OWN PRODUCTION

The first decision to be taken is that of the production volume and the level of services to be offered. Teams are required to decide on the volume of production and the broad mix for the products and services available. The product-service description and the names will be given to you at the start of the Game. In the manual the products will be referred to as Product or Service - 1, 2...etc. The firm can manufacture the products on the same plant and machine facilities using the same raw material and work force. In the case of services, the allocation of facilities to various services would be mentioned. The capacities and raw material available are first used for the manufacture of Product - 1 followed by Product - 2, Product - 3 and so on. In other words, precedence is given to the Product - 1 production line. Teams may have opportunities to cater to different markets. A tender offer, an export order or some other contractual sale may come the team's way. In such a case, precedence will be given to meet the contractual requirements or as communicated to you and the balance will be available for the direct sale. Production quantities specified by you must be in units. Production for each quarter ranges from 0 (zero) to the maximum available capacity. The capacity available is the minimum of the machine and the plant capacities. Wastage, normal losses and rejects are covered in the production estimates given, and hence may be disregarded except when the capacities of plant and machine are not fully operational. During a go-slow, production will be at a specified fraction of the value given by you in the Standard Decision Form.

CONTRACT MANUFACTURE (CM) OR OUTSOURCED PRODUCTION OR 3 RD PARTY SOURCING

At times and depending upon market situations contract manufacture or outsourcing of facilities from 3 rd party suppliers may be offered. This will enhance your available production capabilities. The CM will supply the finished products or service at an all inclusive cost and you will not have to bear the production costs. The price and quantity at which these products or services can be outsourced will be negotiated and informed in advance and can vary across quarters.

Purchase of Raw Material

Two key inputs or raw materials, referred in the manual as Raw Material 1 and Raw Material 2, are required to produce the products or ensure service delivery. Teams are required to state in their Standard Decision Form the units of raw material they intend to purchase. All raw materials purchases shall be available in the same quarter. Although the raw material is the same for all the products, it is required in different quantities. No shortage of raw material is expected but because of contractual obligations and limitations of the capacities with the vendors, a sudden upside or downside change in the procurement levels may not be possible. An increase or a decrease may be possible only from the previous quarter's levels. Should you procure beyond this limit, it may be available on the payment of a premium in the spot market. The maximum permissible change in procurement along with the price premium payable will be communicated to you in the Starting Conditions and/or the periodic reports. Details regarding the mix of Raw Material 1 and Raw Material 2 for the manufacture of different products are given in the Starting Conditions. The units of raw material required to produce the products can change depending on the level of Research and Development the firm is undertaking. Further details pertaining to R & D are given in the section on R & D Expenditure.

The raw material cost per unit includes the cost of components, sub assemblies, processing materials etc. This cost can change with general economic conditions and random factors. These variations in prices are largely uncontrollable but price and volume risk hedging options may be available. Major and permanent changes, if any, will be notified in the ID section. Material cost is the number of units of raw material required to produce the finished product multiplied by the respective unit cost of raw material. The details of inventories, consumption and purchases are shown in the ID section. Raw material inventory valuation is done on the weighted average method and the average procurement price will be mentioned in the RM box of the ID section. Raw material purchases will affect the cash flow statement. If the cash outflow is $x\%$ of the aggregate quarterly material cost in the current quarter, this amount will feature on the Cash Statement. The remaining $(100-x\%)$ will be taken as part of accounts payable. There can be small changes in this pay out percentage, depending on economic circumstances. Raw Material inventories will be maintained if the consumption is less than the purchases. The raw material consumed is taken as part of goods sold, and the closing inventory features in the balance sheet along with the closing inventory for finished goods. See example in the following box.

EXAMPLE

Given below is a sample data on consumption and costs of raw materials. Refer Sample Section Starting conditions.

Finished products	Raw Material required to produce one unit of finished product	
	Raw Material 1 e.g. Water	Raw Material 2 e.g. Add
Product 1 e.g. AquaF	9.0	1.0
Product 2 e.g. Diet	8.0 *	2.0
Product 3 e.g. Elixir	6.0	4.0
Product 4 e.g. Energy	6.0	5.0
Cost per unit of raw material (Cu.)	Cu.5.0	Cu.20.0

9 units (kgs, Liters, person months etc) of Raw Material 1 and 1 unit (kgs, Liters, person months etc) of Raw Material 2 can produce 1 unit of Product 1. The estimation of the total costs for the raw material input will be done as follows

For e.g. if 20,000 units of Product 1 and 30,000 units of Product 2 are manufactured, the raw material cost at current prices will be

Raw Material 1: $20,000 * 9 * 5 + 30,000 * 8 * 5 = \text{Cu.}2,100,000$

Raw Material 2: $20,000 * 1 * 20 + 30,000 * 2 * 20 = \text{Cu.} 1,600,000$

In aggregate, the Raw Material cost is Cu.3,700,000. This consumption will be shown in the income statement as Direct Materials and in the raw material box of the ID section.

If the procurement is 100,000 units of Raw Material 1 and 60,000 units of Raw Material 2 the purchase bill will be

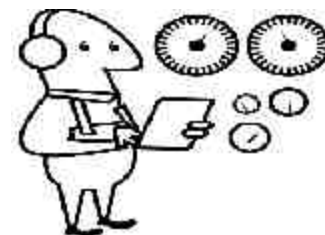
Raw Material 1: $100,000 * 5 = \text{Cu.}500,000$

Raw Material 2: $60,000 * 20 = \text{Cu.} 1,200,000$ and in aggregate Cu.1,700,000.

If the cash pay out percentage in the current quarter is 50%, Cu.850,000 will appear in your cash statement and the remaining Cu.850,000 will appear as accounts payable under the current liabilities in the balance sheet. Both statements are a part of the MR. Research and Development targeted at material cost reduction may impact the above input ratios. If the R&D plan is effective Product 1 and Product 2 may require 8.7 and 1.7 units respectively. Planning for Raw material 1 & 2 will accordingly change. Wastages etc may add increments to the raw material inputs.

Base Direct Labor or Manpower

Base Direct Labor is required for manufacture of the products or delivery of service. The same multi skilled labor can produce all the products and one unit of labor produces one unit of output. However, depending upon products and nature of services, manpower costs may vary across products and services. Labor is normally automatically and abundantly available and no separate decision is required. The Direct labor cost is volume driven and is different for different production levels depending upon learning curve effects, volume driven shortages, economies of scale etc. The data on manpower and labor costs are available in the Starting Conditions.



The Direct Labor costs will be automatically calculated once the decision to produce is taken. Certain capital improvement projects, if available and adopted, labor unrest, strikes and go slow can change per unit cost of labor uniformly across all slabs as a uniform labor compensation policy is applicable across the company. The average labor cost will be communicated in the ID Section. It is estimated by dividing the total labor cost by the number of units produced. The sum of Direct Material Cost and Direct Labor Cost is the Direct Cost. See Example Box below for an estimation of the labor cost.

EXAMPLE

Given below is a sample labor cost table. Refer Starting Conditions.

Direct labor cost for	Direct labor cost per unit (Cu.)
0 - 20,000	10
20,001 - 30,000	10
30,001 - 50,000	10
50,001 - and above	10

If the production of all the products is 35,000 units, the Direct Labor cost will be $20,000 * 10 + 10,000 * 10 + 5,000 * 10 = \text{Cu.}350,000$. The average labor cost will be $\text{Cu.}350,000 / 35,000 = \text{Cu.}10$. If a cash outflow equal to 90% of the direct labor cost occurs in the current quarter then 10% becomes part of accounts payable to be paid in the second quarter. As mentioned in the previous example the cost of Cu.350,000 will feature in the Income statement, Cu.315,000 will feature in the cash statement and Cu.85,000 will feature as accounts payable under the current liabilities section of the balance sheet. These costs are automatically recorded in the Game.

Warehousing/Godown and Inventory Carrying Charges

Warehousing/Godown and Inventory Carrying charges are applicable on the closing raw material and finished goods inventory on a per unit basis. These costs are automatically adjusted once the purchase, consumption, production and sales quantities have been determined. Rentals/charges may be the same for the raw materials and the finished products or may vary across type of raw material and type of finished goods.

The warehousing and godown charges are subject to change and any fluctuation in these rentals will be informed either through the quarterly emails/memos/gazettes or the MR. Details relating to the rentals and payments terms are given in the Starting Conditions. See the Example below for estimation of the warehousing/godown and inventory carrying costs

EXAMPLE

Given below is a sample warehousing/godown cost data based on a uniform carrying cost across all types of raw materials and finished goods.

If aggregate closing inventory of RM and FG is (i.e. Raw Material 1 units + Raw Material 2 units + Finished Goods across all products in units) is	If the uniform cost per unit is
0 - 50,000	Cu. 2
50,001 - 100,000	Cu. 4
100,001 and above	Cu. 6
These rates can vary across raw materials and finished goods. Uniform rates are shown only for illustration purposes.	

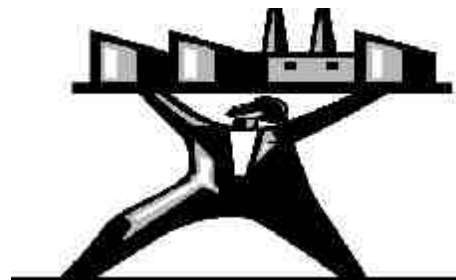
If the closing inventory of finished goods is 15,000 units after production and sale for the quarter and that of

Raw material 1 is 75,000 units after procurement, consumption in production and that of
Raw material 2 is 30,000 units after procurement, consumption in production

the warehousing/godown costs will be $\text{Cu. } 6 * (15,000 + 75,000 + 30,000) = \text{Cu. } 720,000$. It will be shown in the income statement and the cash statement and balance sheet will reflect the payment terms. Note that the slabs for these costs work as “pure” slabs unlike the slabs for Direct Labor costs. The warehousing rates could vary across the raw materials and finished goods. These numbers can also vary quarter on quarter.

Production Overheads

Production overheads include all fixed production expenses like fixed lease and rent commitment, property taxes, minimum fixed utility costs and minimum indirect labor cost for plant maintenance and management costs except depreciation. Overhead costs are a function of the plant or machine capacity whichever is higher. Additional drivers of these costs are the number and type of cost reduction projects instituted and the number of products being manufactured in a particular quarter. If plant and machinery unit capacities are at zero units, other overhead charges are omitted. Additional overheads may need to be incurred at the time of launching a product. These costs could be those related to the setting up of a new manufacturing line, additional managerial manpower etc. Details about the production overheads, the payment terms and changes will be communicated through the Starting conditions, emails/memos/MR or the Gazette.



EXAMPLE

Given below is a sample overhead data. Refer to Sample Section, Starting Conditions.

Plant or machine capacity in units (whichever is higher)	Fixed Overhead costs
0 - 20,000	Cu. 300,000
20,001 - 35,000	Cu. 400,000
35,001 above	Cu. 500,000

The costs are shown in the income statement and are included as a part of the cost of goods sold. The cash outflow pattern will depend upon the percentages specified in the Starting Conditions. The impact of overheads on the statements will be similar to the earlier examples. The slab is a “pure” slab unlike the slab for Direct Labor costs. Expansion decisions may need to be carefully thought through because there could be backdoor costs of production overheads. Disbandments do not normally lead to reduction of these overheads unless explicitly mentioned.

Research & Development Expenditure

There are two kinds of R & D investments possible. The first type is called as R & D 1 and is targeted solely towards new product development. A desired level of investment must normally precede the introduction of a new product. This R&D expenditure is to be incurred only when the opportunity to launch a new product arises, based on information supplied



to you in the emails/memos/Quarterly Gazette. This decision shall be communicated through the Additional Decision Form in quarters, where applicable. It may boost demand because of superior product design etc.

The other type of R & D is R&D 2 targeted mainly for Material Cost Reduction through better product functionality, design ergonomics, lesser wastage etc. and this is a routine expenditure for improvements in the production processes, quality control equipment etc. The raw material input ratios for all products can be affected by this investment. The expenditure for this R & D can be communicated through the Standard Decision Form as and when permissible.

The team will have to gauge the level of investment of R & D required because results are not guaranteed. The benefits, if any, take time in coming and depend on the consistency and amount of such investments. In addition to facilitating new product introduction and reducing costs, the expenditure can affect your market share as well as the overall market size. The level and consistency of R & D investments undertaken by all teams has an impact on the market size and growth. Individual raw material inputs may rise if the R&D effort is not sustained or is not commensurate with the scale of plant and machinery measured in units per quarter.

EXAMPLE

For e.g. if two units of Raw Material 1 and one unit of Raw Material 2 is required to produce one unit of Product 1, a material cost reduction R & D investment of Cu. 100,000 in each quarter may translate into consumption of 1.9 units of Raw Material 1 and 0.9 units of Raw Material 2 in current to subsequent quarters. The efficacy of R&D investments can be seen from the unit material consumption rate in the ID section. The R&D cost will be reflected in the financial statements as outlined in the earlier examples.

New Plant Capacity

Plant comprises of the shed, fixtures and other facilities necessary for the housing of machinery and production. Production cannot take place and machinery cannot be housed without adequate level of investment in plant. The plant has an operational capacity, which is spread over its economic life. It may also have a particular technology and design feature, which could affect its operations. During its economic life the plant is depreciated on a straight-line basis and the financial statements will automatically reflect it. Plant expires irrespective of its usage, and there may be no removal cost. Information on current capacity for the quarter is given in Sector Update. Actual unit production in any quarter cannot exceed the operating plant capacity for that quarter. A number is given to each plant that is bought and teams may be permitted to add or disband plant of capacity equivalent to that bought during the Game play. There may be efficiency and utilization constraints on the overall plant capacity and the same will be communicated to you in the starting conditions or emails/memos/Gazettes.



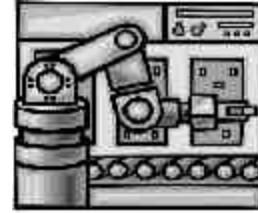
Plant facilities are common for all the products. In the case of services, facilities would be earmarked for service delivery. Each unit of plant can produce one unit of any product in each of the quarters. Additional plant capacity or service facility may be added to replace the plant / service facility on its expiration or the team may add capacity to meet increasing product / service demand. The capacity is automatically adjusted for additions and expirations. Plant / service facility capacity can be added in increments of 1000 units. The plant / service facility has a cost per unit, an ordering cost and a lead-time for its building and installation. General level of economic activity can affect the capacity cost per unit. Details about the plant or facilities are given in the Starting Conditions and may also feature in the emails/memos/Gazettes. Plant can be disbanded depending upon approvals and availability of disbandment rates.

EXAMPLE

A new plant takes two quarters to build and has a useful life of five years or twenty quarters. Payment terms are 100% on order. A decision to purchase the plant in the 3rd quarter, will make it available for production with the 5th quarter decisions. If the cost per unit of capacity is Cu.100, then an order for 1000 units will cost Cu.100,000. The total plant cost is a cash outflow in the quarter it is ordered i.e. 3rd quarter. It will be shown as capital expenditure under capital cash outflows in the cash statement. The straight-line depreciation from the 5th quarter would be Cu.5000. Depreciation is shown in the income statement. The balance sheet will record the plant at its book value less accumulated depreciation i.e. $\text{Cu.100,000} - 5,000 = \text{Cu.95,000}$ in the 5th quarter and $\text{Cu.100,000} - 10,000 = \text{Cu.90,000}$ in the 6th quarter. If disbandment is permitted, plant equivalent to 1000 capacity can be disbanded.

New Machine Capacity

Machine comprises of lathes, tools, kilns and other facilities necessary for the act of production. There may be additional facilities required for certain services. Production or service cannot take place without adequate level of investment in machine or a certain facilities required for that service. You can have a plant but without any machines it is not capable of producing. The machine has an operational capacity, which is spread over its economic life. It may also have a particular technology and design feature, which could affect its operations, utilization and efficiency. During its economic life the machine is depreciated on a straight-line basis and the financial statements will automatically reflect it. Machine expires irrespective of its usage, and there may be no removal cost. Information on current capacity for the quarter is given in Sector Update. Actual unit production in any quarter cannot exceed the operating machine and plant capacity for that quarter. Teams may be permitted to add or disband capacity during the Game play. The disbandment rules will once again be the same as they are for plant disbandment i.e. every machine bought is identified with a number and if a team wants a permitted disbandment they will have to mention that number(s) and that capacity will be disbanded. Disbandment rates etc may be communicated through emails/memos/gazettes depending upon market rates being available for these machines and facilities.



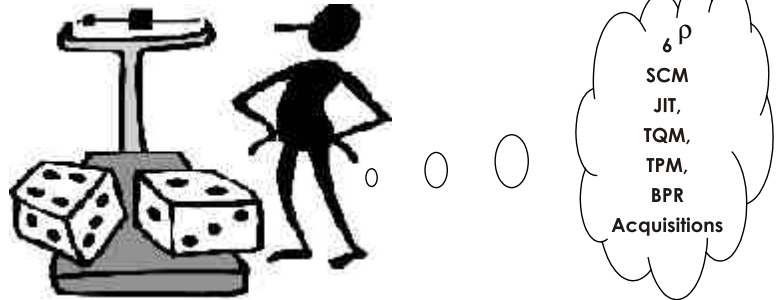
Machine facilities are common for all the products. Each unit of machine can produce one unit of any product in each of the quarters. Additional machine capacity may be added to replace the machine on its expiration or the team may add capacity to meet increasing product demand. The capacity is automatically adjusted for additions and expirations. Machine capacity can be added in increments of 1000 units. The machine has a cost per unit, an ordering cost and a lead-time for its installation. General level of economic activity can affect the capacity cost per unit. Details about the machine are given in the Starting Conditions and may also feature in the emails/memos/gazettes.

EXAMPLE

A new machine takes one quarter to order and install and has a useful life of two years or eight quarters. Payment terms are 100% on order. A decision to purchase the machine in the 3rd quarter, will make it available for production with the 4th quarter decisions. If the cost per unit of capacity is Cu.10, then an order for 2000 units will cost Cu.20,000. The total machine cost is a cash outflow in the quarter it is ordered i.e. 3rd quarter. It will be shown as capital expenditure under capital cash outflows in the cash statement. The straight-line depreciation from the 4th quarter would be Cu.2500. Depreciation is shown in the income statement. The balance sheet will record the machine at its book value less accumulated depreciation i.e. $\text{Cu.20,000} - 2500 = \text{Cu.97,500}$ in the 4th quarter. The company's operating capacity would be limited to the lesser of the plant or machine capacity. Disbandment if permitted would be on the machine size stated in the game communication.

Projects

Various projects may be available for investment as and when indicated in the emails/memos/gazettes or other documents. These projects can be seen as acquisitions of business, production line improvements, vendor



development activities, maintenance issues, software development projects, hiring of key personnel, branding etc which affect various operational, marketing and distribution costs and revenues streams. Machine and plant capacities may also be affected by these projects. Decisions to invest in such projects will be communicated through the Standard or Additional Decision Forms and teams may need to do a cost benefit analysis and develop a business case of such projects.



5. MARKETING, SELLING AND ADMINISTRATION

DEMAND AND SELLING PRICE

The top line in your Income Statement is the Net Sales Revenue. Market volume and price are the determinants of Net Sales Revenue. Market volume for your team would depend on the market size and your relative share in this market. The size of the overall market may at times be given to you and at other times you may need to estimate its size and forecast its trend based on the customer behavior, technology trends, product cannibalization etc. Information about the overall industry, its structure and demand determinants are communicated through the normal channels of emails/memos/gazettes and the sector analysis report. The overall size of the market is affected by economy wide factors such as GDP, Inflation, expectations of the capital markets and industrial productivity. Seasonal and cyclical conditions in the economy, changes in industry growth cause shifts in the aggregate demand curve. A fillip to the overall market size also depends on industry level pricing and investments in technology, credit terms, market promotion efforts, branding exercises etc. A general economic and industry downturn need not necessarily spell disaster. An average price decline could have expanded the market size leading to increased demand. Similarly, the demand may not be adversely responsive to price increases if the general economic conditions are conducive to higher growth.

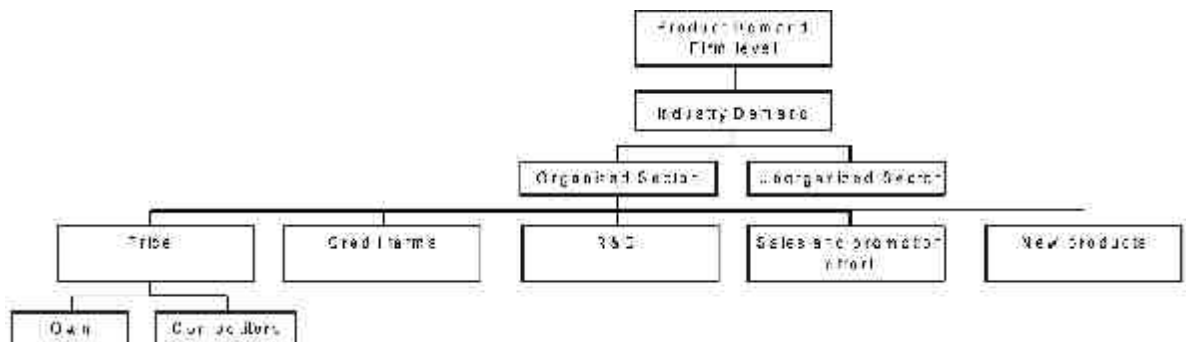
The overall product or service markets in the game could be segmented in various ways. There could be a segmentation based on the organized and unorganized or the grey and cottage market; they could be segmented in terms of various regions; they could be segmented based on products and customer attributes. Whatever is the basis of market segmentation, the sector analysis report and other communications will describe it and mention the potential demand accruing to the playing teams. The teams playing the game will always be defined as the “organized sector”.

The next step would be the crafting of your pricing strategy. Price affects the volume off-take and therefore the sales revenue. Sales revenue has implications for your profits and cash collections. Teams have the autonomy to decide their selling price for each of the products available for play. But the market has its say on the volume off-take for that price. The market

off-take for your products will be a function of not only your price but also that of your competitor(s). The marketing model could be Build to Sell (BTS) or Build to Order (BTO). In BTS you would be manufacturing and then selling at a price and carrying the risk of unsolds. In BTO you could have a definitive sale based on your price and carry no risk of unsolds.

Although the relationship between demand and price level is primarily inverse, it is not necessarily linear. For some products price demand may be inelastic or demand may increase with price. The market may become unresponsive to prices beyond unreasonable ranges. An exceedingly high or low price relative to the competition may not give the intended results. The market off-take would also be adversely affected by sharp changes in pricing by your team. For e.g. if the price quoted by you earlier is Cu.400 for Product I and in the next quarter, you were to reduce it to Cu.100 or increase it to Cu.600, the market may perceive these changes to be unreasonable. Product and market attributes need to be identified before zeroing in on the price point you feel will be to your team's best interest. Pricing is more often on a relative basis and the market share coming your way would depend on the pricing behavior of your competitors.

The ID section and the Demand forecast box in the MR contain information vital to the product off-take. Order-enquiries for your marketing mix are given in the first row of the ID box. The units sold and closing inventory of finished goods for each of the products on sale is given below the figure for order enquiries. The ID Box lists the average industry (market) price. This is the simple average of prices quoted by the different teams playing the game. The market share percentage given in the last row is the share computed based on the unit volumes sold by your team relative to the competing teams or "organized sector" in the industry. The actual and forecasted aggregate industry demand may be given in the demand forecast box under general economic forecast. Market growth rates, share of the various sectors will be given in the Starting Conditions. The sector analysis will also give some clues to industry and product demand. An overall summary of the factors affecting demand and selling price are given below.



Selling and Administrative Costs

There could be a minimum amount of selling and administrative costs that are to be incurred to maintain the supply chain. These costs have a fixed and a variable component. The fixed expenses could be the rent on your depots, sales manager's salaries, advertising expenses etc. These costs are expressed as an absolute Cu. amount. The variable expenses could be the commission on your products, and marketing freebies associated with the purchase of the product and salesmen's incentives etc. and they are expressed as a percentage of the sales revenue. The costs are joint i.e. they are common to all the products. Like the R&D expenditure the teams will have to be watchful in deciding the level of these expenditures.

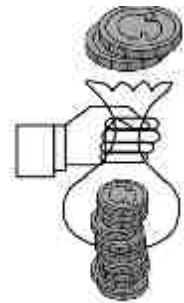


The teams can decide the additional (i.e. over and above the existing level and percentage) fixed and variable costs that they would like to incur in a quarter and at the time of launching new products. The decision to spend more through the fixed and/or variable expense route will be invoked through the emails/memos/gazettes and has to be entered in the Standard or Additional Decision Form. Publications, gazettes as well as special product launch reports available at a price may throw some light on the efficacy of these expenses. More is better may not be true. At times these costs may be tied to the type of branding, promotion and positioning you want for your product. The effectiveness of the Selling and Administrative expenses would depend upon the brand positioning, relative spend and appropriateness of the marketing spend relative to product and marketing attributes.

The existing level of expenditure on fixed costs and the starting percentages for the variable costs are mentioned in the game communication material such as the emails/memos/gazettes or Starting Conditions. The payment terms are also mentioned. The entire expense is deducted from the Gross Margin in the income statement and the relevant cash payment will be indicated in the cash statement as has been done for the previous cost items.

Credit Policy And Collection Efficiency

Teams may be permitted to decide on their credit policies for each product, region or service. For example one option may be labeled as Tight Credit Policy (TCP) and the second one may be labeled as Slack Credit Policy (SCP). Each option is associated with cash collection efficiency and therefore the choice of the credit policy depends on the amount of liquidity the team wishes to have. A tight credit policy (TCP) will adversely affect your sales (say by 20%), but the cash and liquidity position will improve. There will be a lower investment in Accounts Receivable, and to that extent, financing and cash flows for your business will not be tight. On the other hand, if the team opts for a slack credit policy (SCP), the sales will be higher, accounts receivable will be higher, liquidity position will be tight, and working capital to finance the additional amount will have to be sought. Unless otherwise mentioned the credit policy is common to all the products. Game communication may have different policies for different products, regions, services and markets. A certain percentage of the receivables may be acknowledged as bad debt in the quarter of sales. Different products, regions, market and services may have varying levels of bad debts. These numbers could come your way through the Game Communications.



The starting policy and its approximate collection efficiency is available in the Starting Conditions. The team may have the option to take a fresh look at its credit policy only in certain quarters when proposals are put up through the Gazettes to the team for decision. Changes in credit policy shall be communicated through the Additional Decision Form. An example below shows the operation of the credit policy.

EXAMPLE

Given below is a sample credit policy and collection efficiency

Credit Policy	Approximate Collection Efficiency in Current Quarter
If TCP	65% of credit sales in current quarter, balance in next quarter
If SCP	35% of credit sales in current quarter, balance in next quarter

If credit sales are Cu.100,000 during quarter 3 with TCP then Cu.65,000 will be shown as cash collections in quarter 3 in the cash statement and the balance Cu.35,000 will be shown as accounts receivable in the balance sheet under current assets. It will feature as collections from previous period or quarter in quarter 4. With a SCP sales may be Cu.120,000 and cash collections in the quarter of sale would be Cu.42,000 and the balance Cu.78,000 would be accounts receivable in the same quarter. The credit sales have been arrived at after considering cash sales and bad debts.

Cash Discount

Discount is given on cash sales, which is a percentage of the total sales made in the quarter for all the products. As a result of the cash discount, the cash that can be collected in the current quarter goes up, and consequently, the amount carried forward to the next quarter as accounts receivable goes down. Cash discount improves collections but does not affect sales. It is a tool to speed up cash collections.

The percentage of discount to be offered by the team is to be specified in the Standard Decision Form. You may offer no discount, a 1%, 2% or even higher discount on your cash sales. The discount amount is added to the selling and administrative expenses for the quarter. A team must continually assess the payoff from cash discount. While it may speed up cash collections the cost of doing so may be more hurting! The collection percentages tend to improve in conditions of good economic conditions and tend to slack if the overall economy is down.

	Without Cash Discount	With Cash discount @ 2%
Sales after bad debts*	Cu.100	Cu.100
Cash Sales under Cash and Carry	Cu.20	Cu.22
Sales on Credit	Cu.80	Cu.78
Collection in CQ under 60:40	Cu.48	Cu.47
Collection in NQ under 60:40	Cu.32	Cu.31
Total Cash Collections in Current Qtr	Cu.68	Cu.69
Cash Discount	Cu.0	(2% of Cu.22 = Cu.0.44)

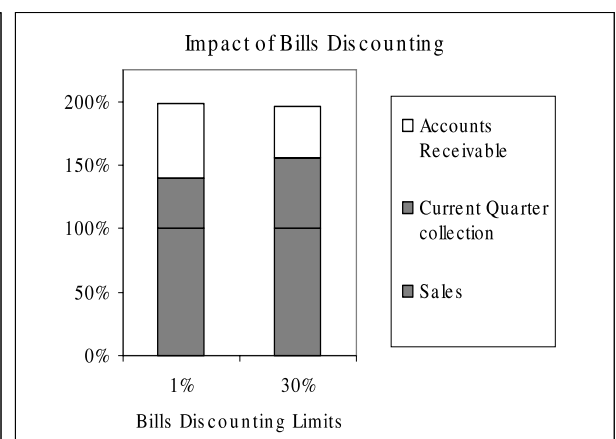
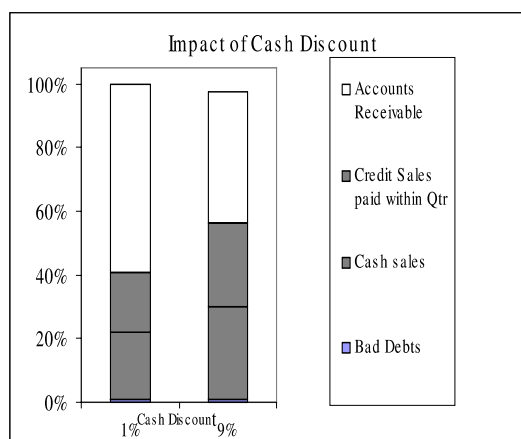
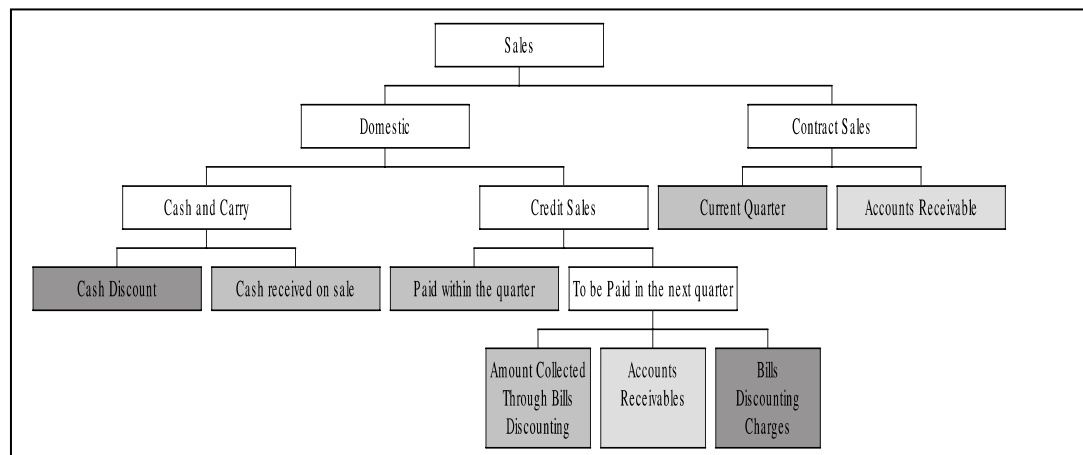
Bad debts unless otherwise informed are common across all products, markets and quarters of play. Normally the bad debts percentages tend to rise with a slowdown and recession, and deflation in the economy and the percentages reduce if the overall economy is performing better each succeeding quarter.

Bills Discounting

The firm may have the option to avail of the facilities for bills discounting offered by a commercial bank. Should this option be exercised, a fixed percentage of your Accounts Receivable (mentioned in the Starting Conditions) of the quarter in which the decision is taken will be automatically discounted. The rate of interest at which the Accounts Receivable will be discounted will be a little higher than the CIBOR Rate. The advantage to the company is that its liquidity position will improve but the discounting will be an additional cost, which will be reflected, in the selling and administrative cost in the income statement.

Some of the bills discounted may be returned unpaid, or dishonored, depending upon market conditions. In this case, you will suffer cash outflow and your Accounts Receivable will be higher by that amount.

Example of the Sales Breakdown and Impact of Cash discount and Bills Discounting



Information Package

Teams can buy market information, if available, from a consultancy firm. The list includes demand forecasts, demand functions, price and volume information, inventory levels and financial and non-financial ratios computed for the competing firms.

Data pertaining to product demand and the underlying economic fundamentals are provided through Market Research A and Market Research B. Market Research A reportedly provides forecasts of very high accuracy. Market Research B forecasts may be less accurate because they rely on secondary data. Teams can indicate their choice of information package by stating the number of the package in the SDF. The information purchased will be printed in the Sector Update.

You have the option of not sourcing information from the consultancy firm. The forecasts made by the corporate planning department are always available and are printed in the Management Report. The forecasting efficiency of all the reports will have to be tested by you.

A list of the various packages available along with their prices and payment terms is given in the Starting Conditions. Their impact on the financial statements is similar to the examples outlined earlier.



6. FINANCIAL COSTS

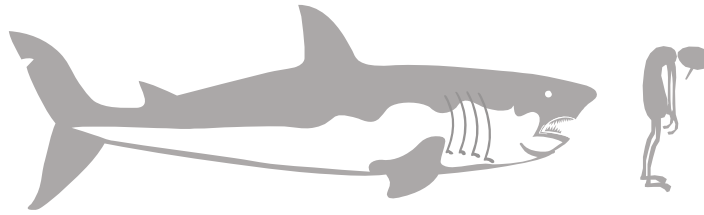
Interest Rates

Interest rates form the basis for the bank overdraft, loan and bond costs. The rate of interest for a firm is based on general economic condition, inflation level, risk of insolvency and a temporary risk premium for inter quarter debt changes. The forecast of CIBOR is available in the MR under Forecast of General Economic Environment.

The CIBOR is the base minimum rate. It is also the rate at which the banks lend and borrow from one another. It is not necessary that this rate should apply to your firm. It is likely to be adjusted upward to account for the quality of your balance sheet, your share price and your credit rating. Every firm is constantly monitored for its performance and its ability to meet contractual debt payments. The debt equity ratio, current ratio, interest coverage ratio, degree of operating and financial risk, the duration and amount of loan are some measures used to form an assessment of a company's balance sheet. These measures are translated into a relative rating, which is used to decide the rate of interest for the team. Indications about the interest rate at which you have actually borrowed are available in the Summary of Outstanding Term Loans and Bonds in the MR. The rate of interest could be based on an upward sloping yield curve and at other times it may follow through from a downward sloping yield curve. Therefore, at times longer dated maturities may have higher rates of interest than shorter dated maturities and at other times we may have the shorter dated maturities with higher rates of interest as compared to longer maturities. Interest on loans of all maturities is to be paid in the quarter of borrowing and likewise will have to be paid in the quarter of partial or full repayment.

Shark Loans

Every company is required to maintain a minimum cash balance to meet its day to day requirements. The minimum cash balance required to be maintained at the end of each quarter is mentioned in the Starting Conditions or in the other documents communicating the game conditions. Should there be a shortfall as a result of your decisions the system will automatically raise a shark loan on your behalf to cover up the deficit. This loan may have to be taken from loan sharks to meet the deficit in cash requirements. The loan is automatically retired with shark loan interest in the next quarter. Normally the shark loan figure adversely reflects on the liquidity and cash flows of the company.



EXAMPLE

Operational inflows from collections: Cu.100
 Operational outflows due to payments both operational and financial: Cu.90
 Capital inflows from loans taken, equity raised etc: Cu.25
 Capital outflows due to expansion and other forms of capital expenditure: Cu.50
 Opening cash balance at the beginning of the quarter: Cu.10
 Cash Deficit at the end of the quarter: Cu.5
 Loan taken from Loan shark $\text{Cu.} + 100 - 90 + 25 - 50 + 10 = \text{Cu.5 mn}$

The winning criteria for the game always reflect a post tax adjustment for the interest on the shark loan in the quarter it is taken. The rate of interest on such loans will be naturally higher than the rate on other loans taken and could be as much as twice or four times the prevailing rate of interest. **You need not apply for the shark loan. It comes!**

Short Term Investments And Disinvestments

Short-term investments in money market instruments can be made for an unspecified duration. This decision to invest is normally taken when the firm has surplus cash on a temporary basis. The investments earn the short-term rate of interest. The short-term rate is normally lower than the CIBOR but on occasions when the money market conditions are tight there may rates of interest higher than the CIBOR. The premium or discount will be informed to you through the documents communicating the game conditions. The quarterly interest received is a cash inflow in the same quarter and is shown under Other Income in the Income and Cash statements. Sale (disinvestment) or purchase (investments) of these instruments is an explicit decision and is recorded as a cash inflow or outflow respectively. The firm cannot disinvest more than what it has invested. The amount of money disinvested is available at the beginning of the quarter and you get interest in the same quarter you have made the investment.



Bank Overdraft

You can apply for short-term funds through a bank overdraft. Bank overdraft (OD) is for four quarters, and results in an immediate cash inflow, equal to the overdraft amount. You are eligible for a percentage of the total current assets at the beginning of the Game, stated in your starting conditions, irrespective of which quarter you apply for the bank funds. The limit will be thereafter automatically be revised at the beginning of the fifth quarter. The interest rate will be the short-term rate of interest that varies in every quarter, and will reflect any worsening or improvement in the financial condition of your firm.



The overdraft is repaid in four equated quarterly Installments (EQI) with the first EQI to be paid at the end of the same quarter. (Computation of the EQI is detailed under the section on Bonds. Each quarter, an EQI is computed for the outstanding OD amount based on a four-quarter repayment schedule. The EQI will be deducted from your cash funds and paid to the bank on your behalf, without a specific decision from you, unless you wish to pay a higher amount.

EXAMPLE

A.	Bank Overdraft Limit as % of Current Assets in Quarter 0	25%
B.	Quarters for which overdraft is available	4
C.	Total Current Assets in Quarter 0	Cu. 100,000
D.	Rate of interest in Quarter 1	12% p.a.
E.	Maximum permissible bank borrowing in Quarter 1 ($A \times C$)	Cu. 25,000
F.	Equated Quarterly Installments (see page 33)	Cu. 6,726
G.	Interest component ($D \times E / B$)	Cu. 750
H.	Principal component ($F - G$)	Cu. 5,976
I.	Amount Outstanding at the end of Quarter 1 ($E - H$)	Cu. 19,024
J.	Net Cash inflow for the Quarter 1 from Bank Overdraft ($E - F$)	Cu. 18,274

Two/Three Year Term Loan

A firm can issue a two year term loan (eight quarters) and / or a three year term loan (12 quarters). The loan(s) result in an immediate cash inflow less the costs incurred to raise the amount. Payment obligations also commence from the same quarter in the form of EQI. Details regarding the flotation cost etc. are in the Starting Conditions and the loan summary can be seen from the MR. An example detailing the estimation of EQI is given in the table on the following page. The interest component of the EQI is deducted from your income statement, and the principal will be adjusted from the amount in the balance sheet. The current liabilities show the principal payment of the next quarter. Prepayment in full or part payment of the loan is possible and will attract a charge of x% of the amount being prepaid. Please refer to the loan table on the following page. For e.g. if you decide to prepay **in full** your entire loan at the end of quarter 2, and if the prepayment charges are at the rate of 1%, then 1% of Cu.79,187 i.e Cu.792 would be shown as Prepayment charges under Miscellaneous expenses and deducted from your P&L. This would be over and above the EQI on the loan for that quarter. In case you decide to prepay partial amount then the position would be as follows.

In case you decide to prepay partial amount then the position would be as follows.

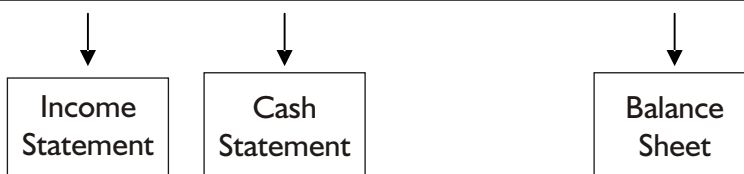
- Quarter of prepayment : end of Quarter 2
- Amount of partial prepayment at the end of quarter 2: Cu.20,000 incl of EQI for the quarter
- Prepayment charges: 1%
- Amount paid in advance or prepaid: $\text{Cu.20,000} - 16104 = \text{Cu.3896}$
- Principal amount outstanding at the end of Quarter 2: $\text{Cu.79187} - 3896 = \text{Cu.75291}$
- Prepayment penalty would be 1% of 3896 = Cu.39 shown under Miscellaneous expenses
- New EQI from Quarter 3 onwards will be computed on Cu.75291.

Loans and Bonds may be taken after suitable collateral of fixed assets such plant and machinery and floating assets such as inventories and receivables. If a fixed asset is held as collateral, liquidation or disbandment may be difficult.

EQI Estimation and Payment Schedule

Size of debt (Cu.)	100,000
Interest per annum	24.00%
Interest per quarter	6.00%
Time period in quarters	8
Equated Quarterly installments (EQI) (Cu.)	16,104

Time Period in quarter	Amount Outstanding at the beginning of the Quarter	Interest for Quarter	EQI	Principal portion	Amount outstanding at the end of the Quarter
1	100,000	6,000	16,104	10,104	89,896
2	89,896	5,394	16,104	10,710	79,187
3	79,187	4,751	16,104	11,352	67,834
4	67,834	4,070	16,104	12,034	55,801
5	55,801	3,348	16,104	12,756	43,045
6	43,045	2,583	16,104	13,521	29,524
7	29,524	1,771	16,104	14,332	15,192
8	15,192	912	16,104	15,192	0



$EQI = A / [\{ 1 - 1/(1+r)^n \} / r]$ or use the PMT financial function in MS Office Excel.

Where

EQI = Equated Quarterly installment

A = Loan amount

r = quarterly rate of interest

n = quarterly time periods

Bonds

Bonds are outstanding for the longest period and are used as a source of permanent funds. They are issued for 10 years or 40 quarters. A bond issued at the beginning of the quarter generates a current quarter cash inflow. The bonds are also repaid in EQI starting at the end of the issuance quarter. Retirement is automatic. There is a fixed flotation cost every time new bonds are issued and this reduces the quarter cash inflow. The value of this flotation cost is mentioned in the Starting Conditions. Bonds can be retired before maturity but with a prepayment penalty similar to the 2/3-year term loans. The cash outflow from bonds includes quarterly interest, principal repayments and pre-payments. The other details are the same as for the two/three year loans. The term loans and bonds are considered in the estimation of the firm's debt-equity ratio, and are not favored sources of capital, if this ratio gets adverse. The preferred debt-equity ratio is given in the Starting Conditions.

Preference Share

Preference shares are a fixed cost security. In the liquidation and interest payment pecking order, they are placed lower than the loans, bonds and debenture holders but higher than the equity shareholders. They are useful for obtaining financial leverage. The face value of the preference share is Cu.20, or as specified in the Starting Conditions and the dividend on the preferred stock is say at a constant of Cu.4 per share or Cu.1 per quarter. Dividends on preference stock are an after-tax distribution. Preference dividends are carried forward to the next quarter, if income before extraordinary items is not sufficient to meet their requirements and if the dividend amount is more than the loan and debt out standings. It is paid automatically every quarter, if the above conditions are satisfied except in the quarter in which preference shares are raised. In this case, dividend for the first quarter will be paid along with the dividend of the second quarter.

Preferred stock for the purpose of this Game is perpetual and cannot be retired or repurchased. They are not considered for the estimation of net worth or market capitalization in the winner's criterion. The price is arrived at by capitalizing the dividend with the required rate of return on the preference stock. For e.g. if the rate of return desired on the company's preference share is 15% then the price of the preference share will be $\text{Cu.4} / 15\% = \text{Cu.27}$.

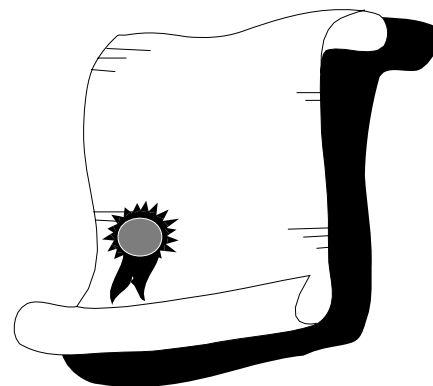
New Preference Share Issue and Share Offer Price

A team can raise necessary finances by offering preference shares. The firm has to specify the number as well as the price at which it wants to tender. The price at which the issue is accepted may be different from that of the tender price. For e.g. if the firm requires Cu.100,000 it can tender at Cu.50 with 2000 preference shares. If the price accepted is Cu.40, then the firm will receive Cu.100,000 but with 2500 shares instead of the 2000 initially sought. Therefore, it is not necessary that the tendering price will be the price at which your preference share will be subscribed. On the other hand, if the price you could have tendered is Cu.75, the issue will sail through at your asking rate of Cu.50! A fixed fee of Cu.200,000 or as specified in your game communication and or starting conditions will be charged for the preference offering. A further x% of the market value of the shares offered is charged as a discount. The receipts per share are inversely related to the size of the offering. The amount is a current quarter cash inflow.

EQUITY SHARES

Valuation of Equity shares

The price of your firm's stock depends upon several factors. One of the most important factors contributing to shareholder value will be the company's accretion to reserves. The accretion to reserves comes through the profits earned in a quarter and ploughed back into the business as retained earnings. Shareholders' would normally "appreciate" the accretion to reserves provided the usage of these funds is done in a profitable manner. A few important measures to which the price can be immediately related is the Book value per share, the Earnings per share (EPS) and the dividend per share (DPS). The accretion to reserves may translate into a higher Book value per share (BVS). The Book value per share is translated into a market price per share using the Market value per share (MVS) to Book value per share ratio. For e.g. if the industry and your firm ratio is 2.1, then your Book value per share of Cu.40 will translate into a market price of Cu.80. The initial MVS/BVS ratio can be inferred from the opening share price and the book value in quarter 0 or if mentioned directly in your Starting Conditions.



The higher the EPS and the faster its growth, the stronger will be the firm's share price. The market capitalizes the EPS using the price earnings multiple (PEM). For e.g. if the PEM is 15 and your EPS for the current quarter is Cu.5, the share price estimated would be Cu.75. The initial PEM for the industry is given in the Starting Conditions. This will change depending upon the performance of your company relative to the other competing teams. If the perception regarding your performance is considered as above average a higher PEM will apply to your company. If you are not faring as well as the others, a lower PEM will push your share price down.

Shareholders expect a minimum desired rate of return from their investments. This is the cost of equity. They expect a return more than that of the rate of interest available on their company's bonds because they are bearing more risk. The premium demanded by them over and above that of the bonds is indicated in your Starting Conditions. For e.g. if the rate of interest on 40 quarter bonds is 18% p.a. and the premium demanded is 4% p.a. the applicable rate of return desired by the equity shareholders' will be 22% p.a. Another method used to gauge expectations of the minimum desired rate of return is the Capital Asset Pricing Model

(CAPM). CAPM uses the following equation to estimate the cost of equity.

$$\text{Cost of Equity} = \text{Desired rate of return on equity} = \\ \text{Risk Free rate} (1 - \text{Beta}) + \text{Beta} * \text{Desired Return on the market portfolio}$$

The risk free rate of interest is the return on government paper, Beta is the sensitivity of the individual stock to changes in the stock market index and the desired return on the market portfolio is the return expected on the stock exchange index. For e.g. if the Risk free rate of interest is 11% p.a., the beta for the stock is 1.2 and the return expected from the stock market is 23% p.a., the return desired from your stock would be 25.4 % p.a.

Shareholders use the cost of equity in their pricing decisions. Your dividends and earnings will be capitalized at the cost of equity. Riskiness is inherent in your operations and financing arrangements. The higher the operating and financial risk, the worse off will be your stock price. The other factor affecting your price will be the minimum desired rate of return by the shareholders. An increase in this rate can depress your share price and the reverse condition also holds true.

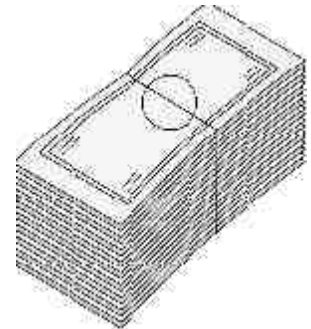
Issue of New Equity Shares

The company can issue new equity shares and can return or retire the shares after they have been issued under a buyback program. Repurchase or buyback of equity shares is possible under an explicitly stated buyback program. The face value of the equity share can be Cu.10 or any other figure stated in the games starting documents and conditions. Companies can issue shares at premium. The decision to raise equity will require you to make two decisions, which are not mutually exclusive the number of shares and the price at which these shares are to be offered. For e.g. if you require Cu.100,000, you can raise 10,000 shares at Cu.10, or 2000 shares at Cu.50. The larger the number of shares, the larger is the equity base and dividend outflows and the floating stock in the market. Therefore, the price at which you can raise equity is critical.

Equity Share Offer Price

The firm wanting to raise equity has to specify the price at which it intends to tender the issue. Some factors that the firm can consider before tendering are:

- Last quarters closing price of the share
- Current quarter or the performance in the issuing quarter
- Fixed cost per Issue, as specified in the game documents
- Flotation costs = $x\%$ of the Issue Size
- Size of the offering



The acceptance price for the equity share will be estimated after considering the above factors. All efforts will be made to ensure that the capital sought by the firm is made available. For e.g. if the firm requires Cu. 100,000 it can tender at Cu.50 with 2000 shares. If the price accepted is Cu.40, then the firm will receive Cu. 100,000 but with 2500 shares instead of the 2000 initially sought. Therefore, it is not necessary that the tendering price will be the price at which your equity will be subscribed. On the other hand if the price you could have tendered is Cu.75 the issue will sail through at your asking rate of Cu.50! The entire amount is a current quarter cash inflow.

Dividend on Equity Shares

Besides earnings, shareholders also consider dividend per share (DPS) as an additional input in their share pricing decision. Dividend is preferred, provided the alternative to the dividend decision - retention - is not considered attractive. A decision in favor of retention can affect your share valuation negatively, if the plough-back is not as paying as the alternative available to the mass of shareholders. Dividend payments send important signals. An increase shows the capability of teams to service more dividends, and a decrease is read as management's lack of faith in future business prospects. Stability and orderly increases in dividend policy are considered a market virtue. If investment opportunities exist, then paying dividends and borrowing afresh can only increase your borrowing costs as well as add to the uncertainty of interest rates and share tendering price.

The dividend policy must ensure that

- no interest on term loans, bonds and preference dividend is outstanding
- the dividend amount must not exceed the total amount outstanding against loans and preference stock
- the dividend amount must not exceed the end quarter retained earnings and equity capital i.e. cause the equity balance to be negative
- the dividend must not exceed the average of the earnings available to the equity share holders over the four previous quarters
- Transfer to reserves

Where the dividend (% p.a.) proposed exceeds	The amount to be transferred to the reserves shall not be less than
10% but not 12.5% of the paid up capital	2.5 % of the quarter's net income
12.5% but not 15% of the paid up capital	5.0 % of the quarter's net income
15.0% but not 20% of the paid up capital	7.5 % of the quarter's net income
20.0% of the paid up capital	10.0 % of the quarter's net income

The company is free to transfer an amount higher than 10% of the net income for the quarter. The above constraints on dividend payment are factored into the program design to determine the maximum dividend payable by a team in that period. If the dividend declared by you in the Decision Form is more than this figure, then the maximum figure is considered. However, if the dividend declared by you is less than the maximum figure, the figure decided by you will be considered. **The quarterly dividend declared by you must be in rupee terms for e.g. Cu.0.50 per share. It is a cash outflow in the quarter of declaration.** Dividends attract a dividend tax, which is given in the game documents and or Starting Conditions. The dividend payout shall include this tax amount and the tax is added on to the corporate tax row of the Income Statement.



7. MISCELLANEOUS

Strike And Go Slow

In case there is a strike or go slow, the union will warn you two quarters prior to its possible occurrence in the message box of the MR.

You may settle the strike notice by offering an indicated wage hike. However, this offer may be accepted or rejected by the workers. If the offer is rejected, in the quarter prior to the actual strike, you may settle with a specified higher wage hike. This offer may also be either accepted or refused. If settlement is accepted, then labor costs rise but production is unhampered. If a strike occurs, there is no production in that quarter. There may be a wage hike that would be decreed by the apex labor court or tribunal. The decision of the court is binding on both the workers and the management. During the period of go-slow, production is lower than its stated level. The efficiency will be indicated through the message box.

During a go-slow, production will be, say, 50% lower than the budgeted production given by you in the Decision Form. The go-slow will last for one quarter, and will be resolved at the end of that quarter. The settlement process for the go-slow is similar to that of the strike. Details regarding settlement, offers etc. will be available in the MR.

Corporate Taxation

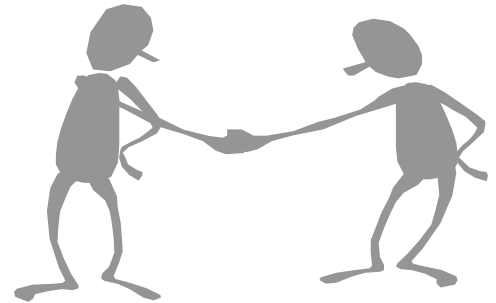
Corporate tax will be levied on your net income before any extraordinary items. Losses incurred in previous quarters will be automatically set off against income before tax of subsequent quarters. The corporate tax liability will be estimated only after losses incurred in previous quarters have been setoff. To start with, corporate taxes will be at the rate communicated in the Starting Conditions. It can change during the course of the Game. There is no surcharge.

The change will be informed through the official communication. Corporate tax results in a cash outflow in the same quarter. **You need not indicate the tax amount in any Decision Form.**



Corporate Alliances

In the course of play, opportunities may emerge where teams may find it necessary to take decisions in collaboration with certain other teams. This opportunity can arise for, say, bidding large volume contracts for supply of products for either the domestic or the international market. Such alliances may involve common strategies for pricing, lending/borrowing of funds or raw materials. The nature of the alliances that may be formed shall be outlined in the quarterly memos/emails/gazette or other documents. These strategic alliances shall not affect the winning criteria. Teams are required to analyze the benefits that may accrue from such alliances and communicate their decisions through the Additional Decision form.



Extra- Ordinary Items

In a quarter, an extra-ordinary gain or loss can take place. The item is unanticipated and affects the income statement in the quarter it occurs. The item will affect all teams at the same time. An extraordinary loss can arise out of fire, theft or other natural calamities. The event will affect the closing finished goods inventory and bring it to zero. If you have bought an insurance policy to cover this event and the loss, the sum will be recoverable from an insurance company. The insurance company will pay

in the quarter after the occurrence of the event depending on the kind of policy you have bought. The amount not recoverable from the insurance company will be treated as an extraordinary loss, and written off in the income statement in the quarter it occurs. Details regarding the insurance policy and coverage will be given in the quarterly Gazette, emails, memos etc. In the game, such gains and losses are not deducted or added to compute your corporate tax liability and are a line item by themselves. But these numbers will be added to or deducted from your overall Profit After Tax.



8. GLOSSARY OF FINANCIAL TERMS

Financial Ratios	Estimation
Accounts payable period (APP) (in days) or Accounts payable Times or Turns	$\frac{\text{Average Accounts Payable} \times 360}{\text{Annual credit purchases}}$ Average Accounts Payable
Average Cost Price (ACP) (per unit of finished goods)	$\frac{\text{Opening Invent of Finished Goods (Cu.)} + \text{TPC (Cu.)}}{\text{Opening Inventory (No.)} + \text{Production (No.)}}$ The closing finished goods inventory is valued at ACP
Average Production Cost (APC) per unit	$\frac{\text{Total Production Costs (Cu.)}}{\text{Units Produced (No.)}} = \text{TPC}$
Beta	Sensitivity measure of a company's share price to changes in the share market index
Book Value per Share (Cu.)	$\frac{\text{Shareholders' net worth}}{\text{Number of equity shares outstanding}}$
Current Ratio (CR)	$\frac{\text{Current Assets}}{\text{Current liabilities}}$
Days Sales outstanding (DSO) or Receivable days Receivable ratio (times or turns)	$\frac{\text{Average Sundry Debtors} \times 360}{\text{Annual credit sales}}$ Average Sundry Debtors
Debt Equity ratio (D/E)	$\frac{\text{Total Long Term and Short Term Debt}}{\text{Equity}}$

Financial Ratios	Estimation
Dividend Pay out ratio (DPOR)	$\frac{\text{Cash Dividend per share (Cu.)}}{\text{Earnings per share (EPS)}}$
Dividend yield	$\frac{\text{Dividend per share}}{\text{Market price of share}}$
Earnings Per Share (EPS)	$\frac{\text{Net income less preference dividend}}{\text{Number of equity shares outstanding}}$
Gross Profit Margin (GPM)	$\frac{\text{Sales} - \text{Cost of goods Manufactured}}{\text{Sales Revenue}}$
Inventory turnover ratio (ITR)	$\frac{\text{Average inventory} * 360}{\text{Cost of goods sold}}$
Inventory turnover ratio(times or turns)	$\frac{\text{Cost of Goods sold}}{\text{Average Inventory}}$
Net Profit Margin (NPM)	$\frac{\text{Net Income}}{\text{Sales Revenue}}$
Price Earnings Multiple (PEM)	$\frac{\text{Market Price of share}}{\text{Earnings per share}}$
Quick Ratio	$\frac{\text{Current Assets} - \text{Inventory of RM \& FG}}{\text{Current liabilities}}$
Return on equity (ROE) Return on Net Worth (RONW)	$\frac{\text{Net income after preference dividend}}{\text{Shareholders' equity (Net worth)}}$

9. GLOSSARY OF ECONOMIC TERMS

Stock Exchange Index (STOCK IDX)

It is a weighted average of the share prices of key stocks traded on the local Stock Exchange. The STOCK IDX movements express the overall market sentiment. The Stock market itself is a mirror of economic activity. Stock price movements are largely based on expectations and therefore news significant to the fortunes of companies gets rapidly discounted through trading. Stock markets anticipate as well as react to economic activity.

Gross Domestic Product (GDP)

The Gross Domestic Product (GDP) is the sum of all the value added productive activity within the geographical boundaries of the country in a year. The GDP consists of value of goods and services produced by agriculture, manufacturing, mining, public utilities, transport, financial services etc. within the country. If the value of indirect taxes such as excise, sales tax are excluded and subsidies added back we get GDP at factor cost. The figures are normally deflated to show the real GDP. GDP figures can be translated into an index for the sake of comparison with a base date. The higher the level and the more rapid the change of expected real GDP, the better would be the expected performance of the economy.

Index of Industrial Production (IIP)

The IIP is representative of the level of manufacturing activity in the economy. Indices of outputs from different industries within the Manufacturing Sector are averaged based on their weights to obtain this index. Individual industry performance need not necessarily go in tandem with the performance of the overall-manufacturing sector.

Chanakya Inter-Bank Offered Rate (CIBOR)

CIBOR is the rate of interest charged by one bank to another for lending of money. It is an average of the rate of interest charged by the major banks to borrow. CIBOR is the benchmark rate of interest and corporates are charged premium above the CIBOR rate of interest. CIBOR itself varies across quarters depending upon market conditions.

Consumer Price Index (CPI)

The Consumer Price Index shows the general direction and rate of composite price movements in the consumer markets for individual and groups of commodities. The prices are usually obtained from retailers, trade agencies and directly from the consumer markets. These indices are a useful benchmark for inflationary pressures in the economy. The CPI is also used in formulation of contracts. Escalation clauses of increases in prices are tied to changes in the CPI. Change in the CPI is used as a measure of inflation. In contrast, the Wholesale Price Index (WPI) is used to gauge the level and change of prices at the primary wholesale level.

FREQUENTLY ASKED QUESTIONS

This section supplements the other contents of the Manual. This list of FAQs is merely illustrative, and is not exhaustive. However, the Games Administrator's instructions, if any, will augment, override or clarify the contents of this Manual, at all times. This section explains the following topics.

Actual production	Credit period	Investment income	Overdraft repayment	Shark loan
Bad debts	Dividend	Loan eligibility	Plant capacity	Strike
Bank overdraft	Equity Issue	Loan repayment	Preference share	Strike resolution
Bill discounting	Extra-ordinary items	Machine capacity	R&D effect	Taxation
Cash discount	Information packages	Market size	R&D for new product	Raw material
Cash sales	Interest on loans	Miscellaneous expenditure	Selling price	

- How does a **strike or go-slow** affect the firms?

A Strike or go-slow if it occurs takes place for all teams at the same time, but the impact could vary across teams depending upon the resolution options adopted by them. The chances of settlement also affect all firms, equally, but in proportion to the constraints other conditions that may be stipulated.

- How could I **resolve a strike**?

To resolve a strike, various options will be given in the game communications and you may indicate your decision by ticking the appropriate cell in the ADF. However, the other party may not accept your offer. The strike issues may remain unresolved, and the strike threat will remain open.

- How do I **estimate Market Size**?

The overall market size is given to you in the Demand Forecast section of the Management Report. The Game communication documents may state the proportion

currently served by the various sectors and the competing teams. At times you may need to infer the market size based on consumption and behavioral patterns. You may need to distinguish between the total market size and the effective market size for the participating teams. The share of various segments may change over time depending upon pricing and other decisions taken by the competing teams, and due to macroeconomic factors.

- **How much cash is generated from sales?**

The cash generated from the sales in each quarter is shown in two parts: (I) current period sale and (ii) previous period sale. The previous period sale amount can be obtained from the amount receivable of the previous quarter's balance sheet. The current period sale is based on your credit terms, the amount of cash discount that you have offered and the collection efficiencies stated in the Starting Conditions. Total sales in any quarter can be viewed in three parts:

Cash sales (the percentage of cash sales as mentioned in the Starting Conditions).

Credit sales realized in the current quarter; and

Credit sales to be realized in subsequent quarters.

Based on your credit period and the corresponding collection efficiencies, the current period cash collections from sale are computed. The logic used to compute current quarter sale is in the manual.

- **How do the raw material constraints operate?**

Raw material constraints prevent you from purchasing quantities beyond certain limits from your vendors. The constraints may affect either or both the raw materials. These constraints are expressed as percentages of your immediately previous quarter purchases, and are stated in the Starting Conditions in the Raw Materials section.

- **When can I go for an Equity issue?**

An Equity issue is possible only when the game documents such as memos/emails/gazettes indicate so. The documents would also describe the size and other conditions of the issue.

- **How much loan can I get?**

The maximum loan is limited by the debt-equity ratio stated in the Starting Conditions. The denominator of the debt equity ratio corresponds to Shareholders Funds in the

Balance Sheet. The numerator is the Loans Funds in the Balance Sheet. The maximum loan that you can ultimately get will be reduced by the actual loan liability already on your Balance Sheet. This excludes the shark loan!

- **How much Bank Overdraft** can I expect?

The maximum overdraft available to you is based on the total current assets shown in the 0th quarter Management Report. This figure will remain constant for the first four quarters. Your Bank reviews your financial position on an annual basis and will modify your overdraft limits one year (four quarters) later. From the 5th quarter onwards, the limit will be based only on your total current assets of the fourth quarter.

- How does the **cash discount** operate?

The cash discount increases the proportion of cash sales for a particular quarter and improves collections during that quarter but in exchange you incur a cost called as the cash discount charge.

- Should I **invest in new product R&D** in all quarters?

New Product R&D is necessary prior to launch of a new product. Where no new products are to be launched, an allocation of funds here may not generate any returns.

- What is the **effect of R&D**?

R&D contains the production of non-standard goods and other rejects, and helps reduce the consumption of raw materials in the manufacturing process. It also improves the image of the product that translates into higher sales. The consolidated R&D performance by an industry may increase the market size. Some of these tendencies may have a lagged effect, i.e. the effect may not be immediately visible in the quarter of expenditure. The quantum and frequency of allocation of funds is left to your discretion and it may not always guarantee the above results. You will need to gauge the efficacy of the R&D effort and accordingly calibrate your R&D investments. These costs are written off in the same quarter.

- Can I quote whatever **Selling Price** I wish or is there any constraint?

Price quotations are usually unconstrained unless otherwise specified in the game documents. You may quote any price. However unrealistic prices or rapid changes in prices can have an adverse effect on your sales volume. You will also require to understand the underlying demand function for that product.

- How is my **actual production** computed?

The production figure decided by you will be checked for capacity adequacy and raw material adequacy. In the event that your production figure exceeds either the capacity or the raw material availability your production figures will be reduced to match the existing capacity. The reduction will proportionately be done on all the products. However, if raw material is a constraint on your production, the raw material shall be first used for product 1, product 2, product 3 and product 4 in that order. Consequently, the production of later products shall be cut.

- What is the **interest rate** at which I can borrow money from a bank?

The interest rate at which term loan can be obtained is at a premium over the CIBOR. The premium is decided based on the quality of your balance sheet and operating performance. It is a function of various ratios used by bankers to assess the risk in your business. Term Loan interest rates are shown in the Management Report. Bank Overdraft Interest Rate is based on a floating interest rate computed each quarter. This figure is not explicitly shown in the Management Report.

- Is **Bank overdraft and loans repayment automatic**?

Bank overdraft and loan repayments are automatic. However, in the case of the bank overdraft, each quarter only 1/4 of your outstanding bank overdraft plus interest will be repaid. The Bank overdraft figure is a rolling figure over the next four quarters. It will therefore not automatically become zero unless you explicitly make a bank overdraft repayment decision. In the case of the loans, only the EQI repayment amount is automatic. If you wish to repay more than the EQI, then the stated amount plus the EQI will be repaid.

- How can I **repay a bank overdraft**?

To repay a bank overdraft enter the amount you wish to repay with a negative sign in the row corresponding to the bank overdraft in the SDF.

- When is a **shark loan** likely?

When your cash balance in any quarter falls below the minimum cash balance outlined in the starting conditions, a shark loan will be taken for you. Its payment is automatic in the next quarter along with the interest. See the cash statement to make an assessment of why the shark loan had to be taken.

- When can I **pay dividend**?

You may pay a dividend in any quarter. Please note the dividend amount to be entered in your SDF is quarterly dividend and not annual dividend. The amount of dividend decided by you may not be acceptable to us if the conditions mentioned in the manual are not met. It is, therefore, possible that your dividend may not appear in a particular quarter.

- Should I declare a **dividend on Preference shares**?

Dividend on preference shares is automatically computed. No decision is required.

- Must I necessarily **opt for Bill Discounting**?

Bill discounting is optional and will be prompted through the Gazette. If you choose to exercise the option of bill discounting the current period accounts receivable can be discounted. A pre-announced percentage on your Accounts Receivables, will be automatically added to your current quarter cash sales in the Cash Statement. The remaining Accounts Receivables will appear in the balance sheet. The Bill Discounting Charges shall be mentioned in the Sales Discount Row of the Income Statement.

- How does **credit period affect my sales**?

The default credit policy (TCP or SCP) is specified in the Starting Conditions. If you deviate from this credit policy there is likely to be an impact on your sale. However, the magnitude of impact depends on the number of competitors who announce a similar credit policy. If your firm follows a "dominant" credit policy, the impact on your sales (favorable or adverse) shall be minimal; if your firm does not follow the "dominant" credit policy, the impact shall be more severe.

- What goes into **Miscellaneous Expenditure**?

The miscellaneous items in the cash statements and the income statements will include the following items:

(i) Insurance premium (ii) Term loan and bond flotation cost (iii) Foreclosing charges on loans (iv) Other Non routine expenses

- Where does **income from investment** show in the MR?

Income from investments is shown in the Other Income row of the Income Statement.

- What are **extra-ordinary items**?

Extra-ordinary items include the following:

(i) Insurance claims (ii) Losses due to fire and other accidents (iii) Profit/loss arising out of sale of assets (iv) Incentives given by the government, contractors etc. These items are not deducted or added in the process of computing your corporate tax liability. But they do get reflected in your companies bottom line.

- Is **tax to be paid for extra-ordinary items**?

Corporate tax is computed before extraordinary items in the income statements of this game.

- How do I **estimate bad debts**?

The percentage of bad debts as mentioned in the starting conditions. Its rises and falls depend on the overall external economic environment and can vary across products.

- “**I increased my plant (or machine) capacity**. The Sector Update does not reflect it”. Why?

The Plant (or Machine Capacity) Shown in the Sector Update is as on the last date of the quarter. So if a new capacity is to start operating from the first day of the next quarter, this information is not shown. Further, the capacity enhancement decisions are disclosed to competing firms only once they become operational (not during the gestation period).

- “**I want to take decisions on** disbanding, equity issue, enhancing raw material constraints etc. There is no cell marked for these decisions on the decision sheet. Where should I enter these decisions”?

You can take only those decisions marked on the decision sheet. Any other decision cannot be taken. A decision in the ADF must be prompted through a game communication document such as memos/emails/gazettes.

- Can I **buy the information packages** at any time?

Request for information packages must be entered on the Decision sheet for that quarter. It will be available only with the results of the quarter in which it has been entered. Transaction will be completed only during the quarterly results. For e.g. if you have asked for information with the decision of the second quarter, the information will be available to you with the results of the second quarter. It cannot be sought during the second quarter.

A0

Sample Ltd.

MANAGEMENT REPORT

Results of Quarter

0

Income Statement

DESCRIPTION	CU
INCOME	
Net Sales Revenue	2,100,000
Other Income	0
Total Income	2,100,000
EXPENSES	
FG Opening Inventory	150,000
Raw Materials Consumed	710,000
Packaging	100,000
Total Direct Costs	810,000
Warehousing Charges	92,000
Depreciation	250,000
Production Overheads	300,000
Cost of Production	1,452,000
Goods Available for Sale	1,602,000
FG Closing Inventory	140,740
Cost of Goods Sold	1,461,260
Gross Profits	638,740
Selling, Dist & Admin Expenses	305,000
Bad Debts	26,250
Cash Discount+Bill Disc Chges	0
Information Package	0
Product Dev & Certification	0
Bank Overdraft Interest	0
Shark Loan Interest	0
2/3 year Term Loan Interest	0
Bond Interest	0
Miscellaneous Exp incl Insurance	0
Total Financial Expenses	0
Corporate Tax	92,247
Extra-ordinary Item	0
Profit After Tax (PAT)	215,243
Appropriations	
Dividend on Preference Shares	0
Dividend on Equity Shares	0
Net Income to Retained Earnings	215,243

Cash Statement

DESCRIPTION	CU
Operation Cash Inflows	1,078,350
Sales Revenue Collection	
Current Quarter	1,078,350
Previous Quarter	0
Operation Cash Outflows	1,289,400
Raw Materials	
Current Quarter	532,400
Previous Quarter	0
Packaging	
Current Quarter	90,000
Previous Quarter	0
Warehousing Charges	92,000
Production Overheads	270,000
Selling and Admin costs	305,000
Information Package	0
Product Dev & Certification	0
Interest Flows	
Interest on Bank OD	0
Interest on Term loans	0
Interest on Bonds	0
Shark Loan Interest	0
Income from Investments (+)	0
Net Interest Paid	0
Corporate Tax	92,247
Extraordinary item (+/-)	0
Net Operational Flows	-303,297
Appropriations	
Preference Dividend	0
Equity Dividend	0
Capital Inflows	
Overdraft and Loans Taken	0
Capital Raised	
Pref Shares Issued	0
Equity Shares Issued	0
Capital Outflows	
Investments	0
Principal Repayments	0
LC Amount Repayed	0
Cap Expenditure	0
Net Capital Flows	0
Miscellaneous Exp	0
Opening Balance Cash	825,000
Shark Loans Raised	0
Closing Balance	521,703

Balance Sheet

DESCRIPTION	CU
Share Holders' Funds	
Equity Share Capital	3,700,000
Retained Earnings	215,243
(Eq share prem: 0.00)	
Preference Share capital	0
(Pr. share prem: 0.00)	
Loan Funds	0
Two Year Term Loan	0
Three Year Term Loan	0
Bonds	0
Total Sources	3,915,243
Fixed Assets	
Plant (incl Plant under installation)	2,000,000
less Accumulated Depreciation	200,000
Machinery (incl Mach under instal)	500,000
less Accumulated Depreciation	50,000
Total Fixed Assets	2,250,000
Investments in Mutual Funds	0
Current Assets	2,272,843
RM+FG Inventories	755,740
Accounts Receivables	995,400
Cash on Hand	521,703
Less Current Liabilities	607,600
Accounts Payables	607,600
Maturing Term Loans	0
Bonds maturing	0
Bank Overdraft	0
Shark Loans	0
Total Net Current Assets	1,665,243
Total Application of Funds	3,915,243

SUMMARY OF OUTSTANDING TERM LOANS & BONDS CIBOR + %

#	AMOUNT	INTRATE	DURATION	ENDS IN	AMOUNT DUE	EQT

Report on the Market submitted by Your Corporate Planning Dept

Forecast of General Economic Environment

Qtr ->	0	1	2	3	4
Index (Base)					
GDP (2007)	100	104	105	106	109
STOCKIDX (2007)	10000	11500	11550	11600	11650
CPI (2007)	100	101	104	105	106
IIP (2007)	100	102	104	106	108
CIBOR (%pa)	9.0	9.0	9.0	9.0	9.0

Actual Demand for the Dom only; Export extra as given in Gz (in Units = cases)

Product	Qtr ->	0	1	2	3	4
AquaF						
Diet						
Elixir						
Energy						

Inventory Data (ID)

Finished Goods	AquaF	Diet
Order Enq Recd Dom(units)	6,000	4,000
Opening Inventory (units)	1,000	
Actual Production (units)	6,000	4,000
Sale Dom + X (units)	6,000	4,000
Closing Inventory (units)	1,000	
Material Consumed / unit		
Water	9.00	8.00
Add	1.00	2.00
Material Consumed (units)		
Water	54,000	32,000
Add	6,000	8,000
Packaging Cost/Unit	10.00	10.00
Your Average Cost Price	140.74	154.20
Average Dom Price CU	190.00	240.00
Your Market Share (%) (units)	10.00	10.00
Raw Material	Numbers	Value
	Water	Add
Opening Inventory	5,000	10,000
Fresh Purchases	100,000	30,000
Consumption	86,000	14,000
Closing Inventory	19,000	26,000
Price/Unit	5.00	20.00

Messages

SAMPLE STARTING CONDITIONS 1

Raw Material Costs		
Consumption of Raw Materials for one unit of Product	Water	Add
AquaF	9	1
Diet	8	2
Elixir	6	4
Energy	6	5
Raw Material Cost Per Unit	5	20
Constraints on Purchase of RM as a % of previous quarter purchases	no limits	+/-60%
Cash Out Flow % on Purchase of Raw Material in Current Quarter approx.		50
Cash Out Flow % on Purchase of Raw Material in Next Quarter approx		50

Ware Housing Costs in Cu per unit of Raw Material and Finished Goods Inventory		
Slab 1 for Ware Housing Cost: (0 - 50,000)		2.00
Slab 2 for Ware Housing Cost: (50,001 - 100,000)		4.00
Slab 3 for Ware Housing Cost: (100,001 - and above)		6.00
Cash Out Flow on account of Warehousing Costs in Current Quarter (% of total)		100

Direct Labor Costs in Cu Per Unit of Production		
Slab 1 for Labour Cost (0 - 20,000)		10.00
Slab 2 for Labour Cost: (20,001 - 30,000)		10.00
Slab 3 for Labour Cost: (30,001 - 50,000)		10.00
Slab 4 for Labour Cost: (50,001 - and above)		10.00
Cash Out Flow % on account of Labour Costs in Current Quarter		90.00
Cash Out Flow % on account of Labour Costs in Next Quarter		10.00

Production Overhead Costs based on Plant or Machine Capacity whichever is higher ^(per Quarter)		
Slab 1 for Overhead Cost: (0 - 20,000)		300,000
Slab 2 for Overhead Cost: (20,001 - 35,000)		400,000
Slab 3 for Overhead Costs (35,001 - and above)		500,000
Cash Out Flow % on account of Overhead Costs in Current Quarter		90.00
Cash Out Flow % on account of Overhead Costs in Next Quarter		10.00

Plant and Machinery Related Data		
Present Plant Capacity	See SU - 20,000/Q	Option to Disband the Plant ^{Av} at present st to rate availability
Cost of New Plant (CU per unit):	100	Plant Technology XYZ Gmbh
Ordering Cost of New Plant (CU):	0	Payment % for Plant on Order 100%
Life of New Plant in Quarters	10	Capacity Utilization of Plant & Machine 100%
Lead Time for New Plant (Qtr)	0	
Present Machine Capacity	See SU - 10,000/Q	Option to Disband the Machine ^{Av} at present st rate availability
Cost of New Machine (CU per unit):	50	Machine Technology XYZ Gmbh
Ordering Cost of New Machine (CU):	0	Payment % for Machine on Order 100%
Life of New Machine in Quarters	10	
Lead Time for New Machine (Qtr)	0	

New Product Development and Certification		
Cash Out Flow % in Current Quarter		100 %
Cash Out Flow % in Next Quarter		0 %

SAMPLE STARTING CONDITIONS 2

Marketing Data

Fixed Branding, Distribution & Marketing Costs Per Quarter in Cu st +/-1% variation	200,000
Trade Discounts and Incentives, Marketing Costs Per Quarter in % of total non contract sales st+/-0.5% variation	5.00
Cash Out Flow % for Marketing Costs in Current Quarter	100.00
Expected Range of Bad Debts as % of Total non contract Sales in Quarter for all products	0.75%-1.25%
Share of Organized Sector as a % of Total Market in the Product	
AquaF	100.00
Diet	100.00
Elixir	100.00
Energy	100.00
Present Collection % in Current Quarter of Sales approximately	36%

Information Package Costs

#	Description	Cost in CU
6	Key Performance Data	50,000
7	Efficiency and Activity Ratios	40,000
8	Market Share Data	125,000
9	Inventory Wide Inventory Levels	25,000
10	Comparative Financial Statements	125,000
	Cash Out Flow % for Information Packages in Current Quarter	100.00
	Cash Out Flow % for Information Packages in Next Quarter	0.00

Financial Costs and Data

Maximum Permissible Debt to Equity Ratio	1.00
Minimum Cash Balance to be Maintained at End of Quarter in CU	500,000
Shark Loan Interest (annual): Number of times PLR	4
2 Year Term Loan at approx @ CIBOR + 2% to 3% p.a. has a Loan Processing Charges in CU	10000
Two Year Term Loan: Foreclosing Charges (% on Initial Loan Amount)	1.00
3 Year Term Loan at approx @ CIBOR + 3% to 4% p.a. has a Loan Processing Charges in CU	15000
Three Year Term Loan: Foreclosing Charges (% on Initial Loan Amount)	1.00
Maximum Over Draft @ CIBOR + 2%; Limit (% of Total Current Assets at Q 0)	25%
Rate of interest on short term investments is CIBOR - 2%	
Face Value of Equity Share (in CU)	10
Dividend Tax Rate %	10
Corporate Income Tax Rate %	30

SAMPLE The Punch Sector

The Health and Wellness Sector (H&S)

A variety of illnesses are affecting sections of the affluent urban population (AUP) today. High levels of stress at the workplace, sudden change in lifestyles due to evolution of nuclear families and working couples, have resulted in increased intake of outside food. Added to this is the growing popularity of junk food eaten slouched in front of the television. All these factors have contributed to increased obesity levels among affluent urban Chanakyans, making them highly susceptible to disorders such as diabetes and hypertension. Worrying is the fact that these maladies are acquired in the backdrop of physical inactivity in the prime of one's youth. Doctor's prescription for such patients is to avoid foods with a high sugar, salt, calorie and cholesterol content and to increase intake of foods rich in fibre, water and minerals. Given higher levels of awareness, large sections of the AUP also resort to ingesting health and wellness products on their own. Punch is a generic name for a set of beverages mainly targeted at the AUP within the health and wellness sector and classified under the Food and Beverages industry.

The Products

AquaFort (AquaF): Regulatory authorities, standard certification bodies and the industry associations define AquaFort as natural and flavored water fortified with minerals, vitamins and other H&W products and packaged for human consumption in containers of all sizes. The product definition for AquaF specifies essential composition and quality factors, forms of treatment, and handling and health related limits for certain substances. The product shall be packed in sealed retail containers suitable for preventing the possible adulteration or contamination of water and shall be in accordance with the applicable sections of the Code of Hygienic Practice for Packaged Drinking water.

The fortified water is differentiated based on the source of the water and the additive contents. Water taken for drinking from mineral wells, artesian wells, springs, glaciers etc are typically categorized as AquaFort because of their high natural mineral content and their health and wellness properties. Misbranding, inability to comply with any microbiological criteria established in accordance with the law can lead to heavy penalties and product recall. In Chanakya the market for packaged water is estimated to be growing at the rate of nearly 40% per annum. However the AquaFort which is a niche premium product within this category is expected to grow by a lower rate.

Diet: is a light carbonated soft drink directed at the weight loss and on-the-go lifestyle consumer. It is low in carbohydrates and calories and caters to a health conscious audience. These products serve their primary purpose of quenching thirst and do so without adding to the calorie level of the consumer. Individuals within the AUP affected by threat of diabetes and obesity are also the main end consumers. Diet sales are helped by the media focus on health, affordability and availability. However, a closer examination of the Diet beverage reveals that consumer interest in high-protein/low-carbohydrate diets, particularly in more developed markets is at times a fad. For example, in the U.S., where the phenomenon began, there is evidence that interest in beverages with low-carb claims is losing steam. Product innovation can drive excitement and trial, but only those enhancements that meet more sustainable consumer needs of health and convenience will enjoy long-term success. Also intriguing is that the popularity of these Diet plans can end up benefiting more the other H&W product categories. What has yet to be seen is whether the low-carb phenomenon will take root in Chanakya or be just another passing fad. This segment is registering a strong growth.

Elixir beverages have fruit juice as its base and pulp concentrate of various fruits are added to get Elixir. The target consumer is a health conscious family unit looking for a refurbishment of one's health. These beverages are low in sugar, calories, cholesterol, diabetic impact etc. They must also leave a refreshing feeling and therefore visual impact as well as packaging must address these requirements. The visual must communicate the very aesthetics of a fruit because fruit juices are seen as elixirs of good health. The consumers in this segment are more health savvy than they are taste conscious. They are more serious about health issues and therefore are less impulsive, more price conscious in their purchases unlike those in the AquaF and Diet segments.

Energy is a heavily fortified drink with several natural herbs and ingredients supposed to have energy giving powers. While AquaF quenches thirst with a small add on for the H&W, Energy is supposed to give a major boost to the H&W. Energy beverage companies are formulating products using an array of energy boosting additives and ingredients such as green tea, yerba mate and ginkgo biloba, and revitalising ingredients such as vitamin C, schizandra, acai ginger and cranberry extracts. The base could be plain juice, water, milk etc. Energy drinkers mainly use it get a higher level and feeling of activity. The concept of caffeine based body and mind stimulating energy drinks originates from Japan and Thailand. Although Asia Pacific remained the leading region, its

SAMPLE The Punch Sector

market share is expected to gradually decline as other markets evolve. The North American region is the second largest and has seen impressive volume gains. The United States is expected to become the largest country market by 2009. Chanakya is also expected to garner a size lower to that of the North America region.

Energy drinks are a niche segment within the broader punch beverage category. It is one of the most dynamic drink segments and its sustained growth rates are testament to the staying power of energy drinks. A hitherto undisputed brand leader has seen its market share get eroded because of the broadening and proliferation of brands. Energy beverage formulations are also encroaching on the other H&W beverage segments, such as AquaFort, Diet and Elixir. The global energy drinks market saw double-digit growth in 2005. Growth was driven by new energising concepts, strong marketing and product positioning, and an aggressive push into emergent markets.

Raw Materials and Packaging

All the four products are a combination of two basic ingredients. Water or milk or fruit juices provide the base in which the additives, ingredients, preservatives and color etc are dissolved to “pack the punch” for these beverages. Packaging is another major input whose appearance, feel, safety and hygienic condition can make or break the product. All the beverages are packed in various sizes to suit different customer needs. However, for the purpose of this exercise all the pack sizes are converted into one overall equivalent pack size units called as cases. As the volume of sale expands the overall cost of packaging escalates. The required raw material and packaging input costs are mentioned in the starting conditions. Additives are naturally subject to the vagaries of nature. There are no expected shortages and uncertainties in the case of the base. Packaging costs are susceptible to price and volume variations.

Government initiatives for the Punch Sector

Government has accorded high priority to the punch sector with a view to encourage commercialization and value addition of the food processing industry. There are excise exemptions on all additives which are mainly fruits, vegetables and dairy products. Further there is zero import duty on capital goods. There are also moves afoot to start Agro Food Parks. Earnings from export of Punch may in some cases attract exemption from corporate tax or a special incentive. Since scalability in this sector is very easy, prices of plant and machinery for this sector are susceptible to strong fluctuations and often move in tandem with demand for the end product. While demand does play a role, foreign exchange fluctuations too play a role in the determination of the capital expenditure cost as most of the equipment is imported. Certification and approval of the government authorities are required before adding to overall capacity. Under a recent carte blanche given by the government no formal approvals are required for capacity expansion. Certifications and proclaimed ingredients need to be certified at government approved laboratories. Government spends on health and education can have long term ripples affects on overall well being of the population and hence demand. A booming economy is good for the overall Punch demand.

SAMPLE GAZETTE

READING BETWEEN THE LINES OF AquaF LABELS

Branding Proposition

Your company has to decide the branding proposition for AquaF. A market research agency hired by you has just submitted its report. The report identifies an archetypal customer in Chanakya and the various factors considered in her purchase decision for AquaF.

Anita is a corporate executive and mother of two. She supplements her normal water purchase with regularly buys of AquaF from the retail chain close to her home. Her household consumption is normally equivalent of 1.2 cases of AquaF per week. These are normally consumed at the time of one common family meal and usually takes place over dinner. She is constantly bombarded with dozens of fortified water labels and often wonders whether she and her family are benefited from the additives contained in AquaF. The new regulations are requiring companies to clearly outline their branding proposal and labels on the AquaF. A customer has to feel confident that AquaF sold in the country by you is safe and conforms to strict health and food packaging regulations. She needs to scrutinize the label and understand the nuances of the words on the labels. If AquaF claims that it is from a spring and is fortified with minerals and vitamins etc, is it actually from the source? Are the labels and additives in actual proportion to those claimed?

Other beverage products do not attract the same kind of concern that AquaF attracts. AquaF is one of the most regulated beverages. The biggest confusion for the lay consumer is his inability to sometimes distinguish fortified water from the packaged water which has been processed through reverse osmosis, deionization and other forms of treatment. But the bigger problem is sometimes in the imagery of the words. Even for an educated consumer like Anita images on labels may be misleading. One label has design work, which alludes to mountains and snow. The imagery may cause a consumer to subconsciously conclude that the brand is from a natural mountain spring. Another label uses processed municipal water with added minerals. The regulations require these labels to be standardized across the nation. If a bottler calls his water "glacial" aqua it does have to come from a glacier. "Artesian" water has to flow above the water table and "naturally sparkling" has to come from a natural carbonated spring. Most consumers would like to know where the water actually comes from. Consumers should be given the information about each spring and its location. After all, springs are an important point of difference between the brands. Source disclosure and location should be a requirement on all AquaF products.

AquaF labeling has come a long way in the country, but there still is more work to be done. For example, when it comes to AquaF, the Nutrition Facts panel has a lot of zeros for fat, carbohydrates, and proteins. Wouldn't the panel space be of more use to the consumer with an analysis of what is in (not what's not in) a bottle of AquaF? European brands carry a general mineral analysis and with this data consumers can see how different brands have different values for calcium, magnesium, potassium and other fortified nutrients.

Some of the factors to be considered in the design of a brand identity for your product AquaF are given below.

- ◆ Distinguishing name and / or symbol (such as a logo, trademark, or package design)
- ◆ Attributes: pure, hygienic and fortified
- ◆ Benefits: Healthy aqua which supplements the nutrients in food and is ready to drink on a regular meals
- ◆ Values: The values of health that it conveys best
- ◆ Culture: The product must represent culture of the place and desire for overall health.
- ◆ Personality: Project a personality on the go who requires nutrient supplements taken through water drinking
- ◆ User: Who is the user - a stressed young working family

Brand recognition: After considering the above and the results of the survey six viable positioning options have emerged. You have to choose for AquaF only, one of these brand positioning statements. The product label, the advertising and promotional events will thereafter carry the same message.

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SAMPLE Standard Decision form

Product Related Decisions	AquaF	Diet
1-4 . Total Production in Number of Units incl Contract		
5-8 Price per Unit Cu		
9-12 Branding Proposition indicate ONE choice A..H		not available

21 Water purchases in units		26 Short Term Investments Cu	
22 Add purchases in units		27 Short Term Dis-investments Cu	
		28 Bank Overdraft (- for repayment) Cu	
24 Build New Plant Cap. (units)		29 Two Year Term Loan Cu	
25 Build New Machine Cap. (units)		30 Three Year Term Loan Cu	

Pre-payment of Loan. Amount to be mentioned only if pre-paid Partially

Loan No: <input type="text"/>	Loan No: <input type="text"/>	Loan No: <input type="text"/>
Partial	Partial	Partial
Full	Full	Full

31 Equity Dividend/share/quarter

Information Package No						6	7	8	9	10
------------------------	--	--	--	--	--	---	---	---	---	----

Additional Decision Form

18	Enter M/C # if Yes to Disband	
24	Enter Plant # if Yes to Disband	

Chairperson's Signature_____

NOTES

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

NOTES

[illegible]



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