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THE ROLE OF ACCOUNTING IN PLANNING AND CONTROL

- WITH SPECIAL REFERENCE TO

THE EGYPTIAN IRON AND STEEL COMPANY "HADISOLB"

A Thesis submitted to the Management Centre

for the Degree of Doctor of Philosophy

By

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S Y N O P S I S

This thesis investigates the role of accounting in planning and control in the Egyptian Iron and Steel Company "Hadisolv".

The hypothesis is that there should be planning and control at appropriate levels, with a significant accounting involvement, in an organisation such as the Egyptian Iron and Steel Company "Hadisolv".

Part One of the thesis explains the role of accounting in planning and control, with special emphasis on its role in long-range corporate planning and control.

Parts Two and Three review the history of the Egyptian Iron and Steel Company "Hadisolv", its organisation and structure, also the role of accounting in its planning and control arrangements, together with comments and criticisms concerning this.

Part Four is mainly recommendations for alterations or improvements in planning and control in Hadisolv. This includes a suggested planning and organisation structure, physical and cost control reporting structures.

Key Words: Accounting, Planning, Control, Egypt, Hadisolv.

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Planning and Control

What are the roles of management accounting?

How can we study and evaluate the

effectiveness of planning and control in

an organisation?

What are the

principles of

management accounting?

What are the

Part One

Long Range Planning and Control

- The Role of Management Accounting

- A Theoretical Survey.

Chapter One

An Introduction to Planning and Control - The Levels.

Much has been written about the role of management accounting in planning and control. In seeking to study and evaluate the management accounting techniques used in planning and control in the Egyptian Iron and Steel Company "Hadisob"; and for the completeness of this research, I find it necessary to present within it a theoretical survey which contains references to writings in management literature in general, and in accounting and management accounting literature in particular, concerning the role of management accounting in planning and control.

To start, I find that there are three important questions which need answers in the business situations:-

- first - to whom is the management of an organisation responsible?
 - to the firm's shareholders?
 - to its employees?
 - to its creditors?
 - or to society as a whole?

Different people expect different things from an organisation:

- a politician may well stress the responsibilities of an organisation to society;
- a supplier may view customers firm's as existing only to provide a continuing market for his products or services;
- for an employee, the firm employing him represents perhaps no more than a paycheck, perhaps a paycheck and security; or a paycheck, security and a way of life.

- an owner of a firm, who puts in the money and takes the investment risk of business operations, feels entitled to something more; that is profit. How much profit? Probably as much as the firm can earn.

The second question is - how do we evaluate firm performance?

Gray and Johnston(1) point out that whether management operates with the sole aim of satisfying the owners, or whether it is devoted to balancing the many claims made upon the firm as a whole, we still measure the success of an enterprise by its profits. Despite the multiple demands made upon the managers, it is profit which attract capital. And it is capital which is necessary to obtain manpower, materials, and machines which produce profit.

The third question is - is profit the only objective of a firm?

Profit is the primary measure of business success. Profit-making determines who will have the resources. "If a firm cannot make profit, it cannot obtain or hold capital for very long. If it cannot obtain capital, it cannot secure or retain other resources; such as manpower, materials and machines. In other words, the more profitable enterprises are, the more attractive they are to holders of the available capital; they have the money to buy other resources.

Argenti (2) in his book "Corporate Planning a Practical Guide" has done a test from several objectives a company may adopt.

The result of his test is that the only objective of a company is to make profit. There is no other objective whatever, in spite of the fact that most companies apparently think there are. Companies do not have several objectives, they have one, and only one, that is to make profit. There would be no circumstances under which a company would not try to make profit; a company has to make profit in order to survive, and if a company failed to make profit it would fail as a company and cease to exist.

Having reached the conclusion that the only objective of a firm is to make profit, no one can dispute that the key to success is sound management and effective planning and control at the various levels.

1. What is planning?

Ackoff (3) points out that planning is the process of making and evaluating each of a set of interrelated decisions before action is required in a situation; it is believed that unless action is taken a desired future state is not likely to occur, and that if appropriate action is taken the likelihood of a favourable outcome can be achieved.

Batty (4) defines planning as the formulation of policy in a broad sense; selecting from a number of alternatives the most appropriate course of action; and then obtaining the necessary resources. Decisions have to be made at various stages, and these have to be implemented. The products to be made, prices to charge, and scale of operations are all vital matters.

Shillinglaw (5) states that planning takes place within the context of company policies, and consists of predetermining, in broad terms, the desired relationships between the resources at the firm's disposal and their use to meet the objectives of the firm during a specified planning period.

In a very short but meaningful definition; Anthony (6) defines planning as the process of deciding what action should be taken in the future.

Having pointed out these various definitions of planning, we can say that planning is an essential procedure for any organisation wishing to achieve its objectives, and without planning, business becomes random in nature.

Levels of Planning

According to the length of period which planning covers we can differentiate between three levels of planning.

1.1. Corporate or Long-range Planning

Hargreaves (7) points out that corporate planning is one of a number of phrases used to denote planning within a longer time span than has hitherto been usual in business affairs. He continues by saying that corporate planning is that form of long-range planning which is applied to a company to maximise the use of its whole resources and can be defined as "The Planning of the total resources of a company for the achievement of quantified objectives within a specified period of time."

Corporate planning is concerned with strategic decisions which are characterised by a great deal of uncertainty and are future-oriented. These decisions establish long-range plans which affect the entire organisation.

Anthony (6) defines corporate or strategic planning, as he calls it, as the process of deciding on the objectives of the organisation, on changes in these objectives, on the resources used to attain these objectives, and on the policies that are to govern the acquisition, use, and disposition of these resources.

Argenti (2) points out that corporate planning seems to have sprung from four basic premises:

1. Before drawing up a plan which is designed to do something, one should decide what it is one wants it to do.
2. In these days of rapid change it is necessary to look ahead as far as possible to anticipate these changes.
3. Instead of treating a company as a collection of departments, it should be treated as a corporate whole.
4. One should take full account of the company's environment before drawing up any plans.

Argenti (2) then defines corporate planning as it is to determine the long-term goals of a company as a whole and then to generate plans designed to achieve these goals bearing in mind probable changes in its environment.

Hargreaves (7) points out that corporate planning is systematic, analytical, and procedural. It is not a technique as such, but rather a collection of techniques geared to a five stage and repeating cycle

which he calls the corporate planning cycle, as follows:

Stage 1: Setting the Objectives - which means to answer the question "What am I trying to do?"

Hargreaves points out that it is necessary to establish a set of objectives for the company which expresses clearly and numerically what it is trying to achieve. He indicates that it is important at this stage to be clear about the differences between what may be called a company's philosophy and its objectives. To have any meaning in corporate planning terms, an objective must have:

an attribute:	return on capital
a unit of measure:	percentage
a quantity:	a quantified percentage
a time limit:	a limited number of years to achieve the objective at the end.

Stage 2: Establishing The Present Position Through the Position (or Performance) Audit and the Environment Audit

This stage is to answer the question "Where exactly am I today?"

a. The Position or Performance Audit

This is a process of looking into the company to assess its present strengths and weaknesses, to form a view essentially of what it is good at doing.

b. The Environmental Audit

This part reverses the procedure and looks outward from a position within the company to form a view of the environment in which the company hopes to survive and prosper. This process has been called 'assessing

the threats and opportunities'.

Stage 3: Developing a Strategy

This stage is to answer the question "How can I bridge the gap between Stage 1 and Stage 2?"

Developing a strategy, or finding the best way of getting from a present position to an objective, as Hargreaves points out, is both a creative and analytical process. The top management of the company must be closely involved with the corporate plan from this moment onwards. Starting from the base of the present position the company must, by formalized creative thinking, consider every possible means of reaching its objectives.

Stage 4: Preparing and Implementing the Plan. Translating the Chosen Strategy into Action.

The results of the preceding stage will be a comprehensive strategy for the whole company. It will take the form of a policy document, showing the various decisions to be taken and the time span for the changes, and the supporting evidence necessary.

Stage 5: Continuous Updating of the Plan

This stage is important as to make sure that the plan is brought into line with changing circumstances. Corporate planning is a continuous operation just like any other activity in a business and thus the planning system must contain adequate measuring, feedback and updating mechanisms.

Having pointed out the various stages in corporate planning, or the corporate planning cycle as Hargreaves calls it, I now turn to ask - what benefits can be obtained from corporate planning?

Hargreaves (7) points out that: type of planning which is called

In general terms, the real benefits from adopting a tough corporate plan are: a more vigorous thrusting enterprise, higher profitability in both the short and long-term, and greater security and awareness.

In more precise terms, the company will obtain:

- (a) A clear three to ten-year plan with quantified objectives, clear allocation of responsibilities and from it will flow improved uses of resources.
- (b) A quicker evaluation of the effects of external change.
- (c) A clearer and more scientifically based diversification and expansion strategy.
- (d) Improved morale and communications since everyone in the company knows what the objectives are, how they are planned to be realized, and for which parts of the plan they are responsible.
- (e) An improved management team because corporate planning forces executives to think about broad corporate policy and raises their sights above short-term departmental issues.
- (f) A new attitude to change and movement within the company.
- (g) Improved profits, if the position audit has been carried out, it will almost always lead to the highlighting of areas in the present operation, which could be improved immediately. Thus higher short-term profits should result as well as longer-term profit improvement.

I have now defined in brief corporate planning from the different views of different writers, the various stages in the corporate planning cycle, and the benefits which a company may achieve from corporate planning. I now turn to the second type of planning which is called tactical planning.

1.2. Tactical Planning

Tactical planning is concerned with tactical decision making appertains to short-term activities and the allocation of resources for the attainment of the objectives. This kind of planning relates to such areas as the formulation of budgets, funds, flow analysis, deciding on plant lay-out, personnel planning, product improvement, and research and development. For a full explanation of tactical planning, it has to be said that tactical decision making requires a fairly equal mix of planning and controlling activities.

Ansoff (8) points out that tactical planning, or administrative decisions as he calls it, is concerned with structuring the firm's resources in a way which creates a maximum performance potential.

On the other hand Anthony (6) states that tactical planning is associated with the ongoing administration of the enterprise. He points out that this type of planning is so closely associated with control activities that setting it up as a separate main category would be artificial, and for that reason he uses a concept that combines both planning and control, that is, "Management Control", and he defines it as "The process by which managers assure that resources are combined

and used effectively and efficiently in the accomplishment of the organisation's objectives."

1.3. Technical Planning

Is concerned with technical decision making, and at this level of planning standards are fixed. Technical decision making is a process of ensuring that specific tasks are implemented in an effective and efficient manner. This kind of decision making requires specific commands to be given which control specific operations. The primary management function involved in this class of decision making is that of control, with planning performed on a rather limited scale. Examples of this kind of decision making involves acceptance or rejection of credit, process control, scheduling, receiving, shipping, inventory control, and allocating of workers.

Ansoff (8) states that technical decisions or operation decisions as he calls them,

"Usually absorb the bulk of the firm's energy and attention. The object is to maximize the efficiency of the firm's resource, conversion process, or, in more conventional language, to maximize profitability of current operations. The major decision areas are resource allocation (budgeting) among functional areas and product lines, scheduling of operations, supervision of performance, and applying control action".

Anthony (6) defines technical planning or operational control, as he calls it, as follows:

"Operational control is the process of assuming that specific tasks are carried out effectively and efficiently."

The philosophy behind Anthony's definition relies upon the fact that this sort of planning is mainly concerned with control, with planning performed on a rather limited scale. Anthony continues his definition by distinguishing between tactical and technical planning in the following key ways:

1. Operational control is concerned with tasks (e.g. manufacturing job no., ordering - units of item -), whereas management control is concerned with individuals, that is, managers.
2. The tasks to which operational control relates are specific, so that little or no judgement is required as to what is to be done; the activities to which management control relates are not specific, and management decides what is to be done within the general constraints of the strategic plan.
3. In operational control, the focus is on execution; in management control it is on both planning and execution.

2. What is Control

It will be of no avail if planning is not supplemented by a control system to gauge the actual performance against the plans. The function of the control activity is to measure deviations from plans; whether they are positive or negative deviations; an investigation will be carried out to identify the causes of such deviations and to take corrective action.

Drucker (9) points out that "Control is an ambiguous word. It means the ability to direct oneself and one's work. It can also mean domination of one person by another.

Anthony (6) defines control as follows:

"Control is the process by which management assures itself, in so far as feasible, that actions taken by members of an organisation conform to management's plan and policies".

At the same time Welsch (10) points out that "The control function has assurance of conformance with predetermined objectives and plans of the enterprise and each of its subdivisions, it is designed to check on the effectiveness with which those plans are being accomplished.

Whereas Horngren (11) defines control as follows:

"Controlling means implementation of plans and the use of feedback so that objectives are optimally obtained".

In every direct meaningful definition, Batty (12) defines control as follows:

"Controlling is the systematic appraisal of results to ensure that actual performance and planned operations coincide, or, if there are any deviations, the carrying out of corrective actions".

Gray and Johnston (1) point out that control is the action of management to assure conformity to plans. They also point out that the activity of control makes achievement of objectives more likely. Whenever results deviate from the plan, management's action to return to the plan is the act of control.

Sizer (13) suggests that:

"One definition of control is the guidance of the internal operations of the business to produce the most satisfying profit at the lowest cost".

3. Accounting and Management Accounting

Management relies on the accountant to keep it informed. The more complex the business enterprise, the more the management must rely on accounting reports. It is difficult for a person, no matter how skilled he is, to judge how well a large enterprise is doing unless he examines the reports of the accountant. These reports are based on the summary of the financial transactions recorded according to generally accepted accounting principles or adjusted as necessary for managerial purposes.

Accounting may be classified under two main types:

3.1. External, Financial or Stewardship Accounting.

As Anthony (14) points out, this type of accounting has the primary objective of producing information to parties outside the business, that is to shareholders, bankers and other creditors, government agencies and the general public.

Sizer (13) states that financial accounting is concerned with stewardship. The task of the accountant is to produce profit and loss accounts and balance sheets that are fair to the shareholders and meet the requirements of the law. Their job in industry and commerce is to classify, record and interpret, into monetary terms, transactions and events of a financial character.

3.2. External or Management Accounting

Under this type of accounting lie decision accounting, control

accounting, cost accounting, responsibility accounting, which can all be classified as constituent parts of management accounting.

Management accounting is my concern in this research, as it is the tool of management for planning and controlling the operations of the business. Having said that, there should be some ready distinction between financial accounting and management accounting which I found more precisely in Jacobsen's (15) distinction in the following words:

"The two branches, management accounting and financial accounting, are in contrast because they have different purposes, and different points of view are appropriate for each. Briefly stated, management accounting deals with measurement within the firm and financial accounting deals with measurement of the firm for use by various groups in society. A measurement for society may justifiably be influenced by social attitudes and a social-philosophic point of view. A measurement for individuals within a business entity need not be based on social notions but rather may lean more heavily on scientific and methodological consideration".

What is Management Accounting?

Anthony (14) points out that:

"Management accounting is concerned with accounting information that is useful to management".

In the terminology issued by the Institute of Cost and Management Accountants, management accounting is defined as follows:

"The application of professional knowledge and skill in the preparation and presentation of accounting information in such a way as to assist management in the formulation of policies and in the planning and control of operations of the undertaking". (16)

Sizer defines management accounting as the application of accounting techniques to the provision of information designed to assist all levels of management in planning and controlling the activities of the firm.

Management accounting has been defined by H.M. Treasury in its Glossary of Management Techniques, as:

"The application of accounting knowledge to the purpose of producing and of interpreting accounting and statistical information designed to assist management in its functions of promoting maximum efficiency and in formulating and co-ordinating future plans and subsequently in measuring their execution". (17)

J P Wilson, (18) when President of the Institute of Cost and Works Accountants, defined management accounting as follows:

"The use of accounts of an undertaking, extended by cost accounts, to provide information for management action".

In the American pamphlet published by the National Association of Accountants in 1963, management accounting is defined as follows:

"A broad new field of accounting has evolved since the beginning of the 20th century. While it had its origins in historical financial accounting and cost accounting, it is designed to provide financial data to guide management actions oriented towards the present and future. It serves management at all levels. The term management accounting describes this field with accuracy and seems to be gaining rapid and wide spread acceptance". (19)

In 1954 the Certified and Corporate Accountants defined management accounting as follows:

"The application of accounting and statistical techniques to the specific purpose of producing and interpreting information designed to assist management in its function of promoting maximum efficiency and in envisaging, formulating and co-ordinating future plans and subsequently in measuring their execution". (20)

As Tricker (21) points out, when the five British accountancy bodies proposed the joint diploma in management accounting services, they defined management accounting services as follows:

"The application of accounting knowledge for the purpose of organising, selecting, compiling and presenting accounting, quantitative and statistical information derived from all the relevant records of a business to assist those responsible for management in controlling the business and in the making of day-to-day decisions and in the formulation of policy".

From the previous definition Tricker took the first part and developed - as he says - a definition which I have found both are the same. But he also states that such a definition introduces four specific points:

- a) Management accounting is concerned with the provision of management information.
- b) This information is not limited to that contained in the traditional accountancy records, but covers all quantified data, in whatever units it is expressed, and from whatever source it is derived.
- c) This information is for the use of management.
- d) Management means all levels from the managers with small managerial decision-making responsibilities, to the long-term strategist.

Meanwhile, Tricker states that management accounting may be defined in one simple statement, as follows:

"Management accounting is concerned with the provision of information for managers to manage".

From the previous definitions of management accounting we may sum-up the following:

- a) Management accounting is a tool to assist management at all levels to achieve the maximum possible efficiency.
- b) It is a way or an act of using information previously prepared from financial accounting and cost accounting records.
- c) It assists management in the first place, and may be useful to outside users in the second place.

Having defined planning, control and management accounting, what is needed now is to answer the question - what role may management accounting perform in both planning and control?

4. The Role of Management Accounting in Planning and Control

Management accounting is playing an increasingly important part in the planning function, whether it is long-range corporate planning which covers a period of up to ten or fifteen years, short term tactical planning, or technical planning. In each type of planning the management accountant assists by general involvement in the planning process.

- a) Helping to co-ordinate the overall planning process.
- b) Providing information on past operations as a basis from which plans can be developed.
- c) Identifying strengths and weaknesses within the company, threats and opportunities in the environment within which the company operates.

d) Advising on the effect of alternative plans.

e) Evaluating the plans in financial terms.

Besides this general involvement, the management accountant has a specific part to play in certain aspects, for example:

a) The appraisal and planning of capital expenditure projects.

b) The establishment of financial objectives.

c) Determination of pricing policy.

d) Forecasting cash flows.

The management accountant also plays a leading role in the control function. Management accounting techniques such as cost accounting, budgetary control and standard costing provide management with the means of controlling their operations. The process of analysing performance and cost and comparing them with a plan enables results to be reported to management in a meaningful way.

Sizer (13) points out that the management accountant's role has been defined by the National Association of Accountants of the United States in the following terms:

1. Providing background information which serves as a prelude to planning. The accountant can make a valuable contribution in this area of planning by preparing studies covering past performance, product mix, physical facilities, and capital expenditure, and by analysing cost-volume-profit relationships, profit margin by product line, cash-flow etc.,
2. Assisting management in the evaluation of alternatives and assessing

the financial feasibility of proposed courses of action.

Relevant data must be analysed and expressed in financial terms, and must constitute a reliable basis for guiding management decision.

3. Assembling, integrating and co-ordinating detail plans into a company-wide master plan.
4. Translating plans into overall schedules of cost, profit, and financial condition. These schedules subsequently become the basis for preparing the operating budgets.
5. Forecasting anticipated results of plans for future operations in financial terms.
6. Assisting management in the review, critical appraisal, and revision of plans to ensure that they constitute a realistic basis for directing and controlling future operations.
7. Establishing and administering operational controls to help in attained planned objectives. This vital phase of the planning process requires the integration of long and short-range profit plans and involves the monitoring of performance against the long-range plans, and the preparation of reports to management.

It is evident, therefore, that the accountant has the opportunity to be a key participant and to play an extensive role in the planning process, for he assists in planning the financial future of the company and is instrumental through the plan itself in operational areas which are outside his own direct responsibilities. He thus becomes indirectly concerned with such areas as marketing, production, and

engineering, to an even greater extent than was the case in short-range profit planning and the annual budgeting process. (22) is important to

I have now indicated the levels of planning, then the function of control, and the role of management accounting in both of these. I now turn to explain in some detail the role and techniques of management accounting in planning and control in a systematic way.

Chapter Two

The Corporate Appraisal

Having determined the company's objectives; it is important to know when the company stands at the present time. This implies corporate appraisal, vital to enable the company to plan. The appraisal assists in the computation of the gap to be fulfilled by the planning process. The object of this stage in corporate planning; is to ask, what we have got? where have we got it? and, where are we going?

The corporate appraisal includes four separate steps:

1. The performance audit.
2. The environment audit.
3. A statement of corporate appraisal.
4. Action plan.

(1) The performance audit

The performance audit is a process of looking inside the company to assess strengths and weaknesses, to form a view of what the company is good at doing. This involves an analysis of each and every part of the company, covering inter-alia: management, labour, products, markets, distribution, finance, physical assets, systems, plans, research and development.

Hargreaves (7) points out that the performance audit or the position audit as he calls it, must answer a list of questions which would include:

- What is the market for the present products?
- What is the company's position within this market?
- How is the market share changes?
- How is the market itself changes?
- What is the probable life cycle of present products?
- Is product development adequate to the needs of the situation?
- How good is the present management?
- How well developed are management development and succession plans?
- Does the organisation structure facilitate decision-making and real profit responsibility?
- Are individual product profitabilities known?
- Are the volume, price, investment and cost relationships understood and acted upon?
- How efficient is the production process including the whole sales forecasting/production control routine?
- How good are the cost control and financial budgeting system?
- In what shape are the physical assets?
- How good is management and shop floor morale?

Hargreaves continues by saying that answers to these questions and others are essential in order to establish:

1. What development potential this company has got from its present products and people.
2. By how much present profits may be increased from present resources.
3. What serious weaknesses are apparent.

Argenti (23) calls the performance audit stated above the internal appraisal, and points out that the internal appraisal concentrates upon the situation inside the company, to assess its present strengths and weaknesses. To carry out the internal appraisal, Argenti indicates, the following list should be examined - financial, productive, marketing and distribution, buying, research, employees, management, position in industry.

Sizer (13) points out that in doing the performance audit it is essential to develop a firm's capability profile which he defines as a statement in quantitative and qualitative terms of a firm's resources, factors to be considered include physical facilities, organisation, managerial and technical competence, human resources, financial resources, company reputation, and access to markets.

At the same time Chambers (24) summarises the performance audit into five key areas in which most company's strengths and weaknesses can be assessed:

1. Use of financial resources:
 - a. External comparison.
 - b. Financial stability.
 - c. Financial facilities.

2. Profitability:
 - a. Analysis of sales and profits.
 - b. Return on total assets employed.
 - c. Analysis of operating costs and internal efficiency.

3. Functional strengths and weaknesses:

- a. Marketing.
- b. Manufacturing.
- c. Materials management.
- d. Research and development.
- e. Management services.

4. Product range.

5. Human resources and organisation:

- a. Management performance.
- b. Management potential.
- c. Manpower resources.
- d. Organisation.

The key areas mentioned by Chambers, to assess a company's strengths and weaknesses are now discussed as under:

1.1. Financial Appraisal:

Historical accounting information derived from the financial accounting records and summarised in profit and loss accounts and balance sheets are used to do the financial appraisal which can be categorised as follows:

1.1.1 An External Appraisal:

At this stage a company compares its results with similar organisations by using the following ratios:

1.1.1.1. The Profit Growth

In this respect the rate of profit or return on total capital employed has to be calculated as the net profit is meaningless in itself.

The rate of return on total capital employed is to be calculated as follows:

$$\text{Return on total capital employed} = \frac{\text{Net Profit before tax and interest}}{\text{Total capital employed}}$$

What profit growth means then, is to examine the rates of return on total capital employed in any given company within the past few years; whether it was growing or declining and to compare it with similar organisations.

1.1.1.2. Return on Investment

Whether it is:

a. Return on total capital employed

This rate forms the view of management which insists that it includes ordinary shares, long-term loans and overdrafts, and retained profits.

b. Return on shareholders' equity

This rate forms the view of shareholders who insist that it should include ordinary shares and retained profits.

It is preferable to compute two different rates for different purposes:

a. from management's point of view the rate of return on investment is calculated by taking into account two factors:

i. Net Profit:

Management's view as to this point is that net profit should be considered before tax and interest, as by this way it reflects management's performance.

ii. Total Capital Employed:

Management's view is that total capital employed includes ordinary shares, long-term loans and overdrafts, and retained profits.

By doing so it becomes obvious that this rate of return is the rate of return on total capital employed.

Return on total capital employed:

$$= \frac{\text{Net profit before tax and interest}}{\text{Total capital employed}}$$

b. From shareholders' point of view

The rate of return on investment is calculated by taking into account two factors:

i. Net profit:

The shareholders' point of view is likely to be that net profit should be after deducting tax and interest.

ii. Shareholders' Equity

This includes ordinary shares and retained profits only by doing so it becomes the rate of

$$\text{return on shareholders' equity} = \frac{\text{Net Profit after tax and interest}}{\text{Shareholders' equity}}$$

1.1.1.3 Earnings per share

This financial yardstick is calculated by dividing net income applicable to ordinary shares by the number of ordinary shares

1.1.1.4 Price/Earnings ratio:

Anthony points out that this ratio is based on the average market price of the stock.

$$\text{Price/earnings ratio} = \frac{\text{Market price per share}}{\text{Earnings per share}}$$

Turning this ratio upside down then gives the capitalization rate, the rate at which the stock market is apparently capitalizing the value of current earnings.

$$\text{Capitalization rate} = \frac{\text{Earnings per share}}{\text{Market price per share}}$$

The price/earnings ratio is influenced heavily by how rapidly the company is growing and by its policy with respect to retained profits.

When assessing a company's past performance we can rely on the previous ratios which gauge the external financial appraisal with respect to similar organisations.

The second stage in the financial appraisal is to test the financial stability of a company.

1.2. Financial Stability

Chambers indicates that financial stability is best achieved by the use of appropriate financial ratios, as under.

a. The Acid Test Ratio or Quick Ratio

$$\text{current liabilities} = \frac{\text{liquid assets} = \text{cash} + \text{receivables} + \text{short-term investments}}{\text{current liabilities}}$$

This ratio measures the ability of a company to meet its current liabilities without liquidating its inventories.

Horngren (11) points out that a company is below standard if its quick ratio is not at least 1 to 1.

b. The Current Ratio

$$= \frac{\text{Current Assets}}{\text{Current liabilities}}$$

This ratio measures the ability of a company to meet its current liabilities.

Horngren also points out that a company is below standard if its current ratio is not at least 2 : 1. At the same time, Harper (25) points out that too high a current ratio suggests an inefficient use of capital, while too low a ratio suggests lack of liquidity.

c. Capital Employed to Working Capital

This ratio measures how much of the working capital is supplied by a company's capital employed.

d. Capital Employed to Fixed Assets

This ratio measures how much of a company's fixed assets are supplied by its capital employed.

e. Equity to Equity and Long-term Liabilities

This ratio indicates how much of a company's permanent capital has been supplied by the ordinary shareholders.

f. The Debt Liquidity Ratio (Capital Gearing or Leverage)

The term capital gearing refers to the relationship which exists between equity capital (ordinary shares plus retained profits and other reserves) and long-term debt.

A highly geared capital structure is one which has a small proportion of equity capital, so that further loans or preference share capital may then be out of the question. On the other hand, if the larger proportion of total capital is made up of equity capital, the company is said to be "low-gearred", and this may mean that the ordinary shareholders cannot be paid an adequate return.

Chambers (24) points out that when using financial ratios it is important to bear in mind that they only measure past performance, and reflect results and symptoms rather than causes, but they may well indicate areas where scope for improvement exists.

At the same time, Anthony (14) criticises the comparison with other organisations, points out that this task of "gauging a company's past performance" is more difficult when comparing a company with similar organisations, even if they are of the same size, and it becomes exceedingly difficult if they are of substantially different sizes.

1.3. Financial Facilities

Chambers (24) points out that it is necessary to determine the liquid resources that a company possesses, whether they are fully

utilized and the effect that large capital projects, seasonal fluctuations and external factors are likely to have on the cash flow. An examination of the facilities available to the company to raise additional capital, and its costs, should also be made.

1.4. Profitability

The second stage in the performance audit is to examine profitability and the internal effectiveness of the company. The profitability appraisal is concerned with:

1.4.1. Analysis of Sales and Profits

Chambers (24) points out that it is important to establish at the outset the activities from which the business derives the bulk of its profits and cash. Accordingly, sales and profits should be analysed to show trends of profitability of each division, company, unit, and product. It is also useful to determine the relative profitability of customers and markets, i.e. home and export, sales areas, size and type of order, by channel of distribution, and by types of industry.

A review of the main sales aspects follows, being particularly:

- i) Sales mix: where the attempt should be to sell the most profitable products in the most profitable markets.

Dr Hassan Kamal (26) points out that in this respect, it is difficult to use the traditional break-even chart as it shows total sales, costs, and profits only. On the other hand, sales mix creates another problem concerned with choosing a suitable measure for the

quantity of production on the horizontal axis. This problem appears because of the difference in the quantity produced of each product. Kamal proposes the use of other units to measure production of the different products.

- Physical units = kilogram, ton, pound, gallon, etc.,
- Units of capacity = hours of direct labour, hours of machine operating
- Unit value = sales value of each product.

ii) Selling prices: which need to be in line with what the market will bear, with full cover for all relevant overheads, and small special orders, and recognition of the effect of price on volume, and therefore on unit costs and margins.

iii) Discounts: which require constant attention to ensure the best trade terms are obtained.

1.4.2. Return on total assets employed

Chambers points out that the return on total assets employed, by main activities and main products, should also be assessed. It is essential that the constituent parts are also investigated with a view to determining where inadequate control in the past has resulted in an excessive amount of capital being employed.

1.4.3. Analysis of operating costs and internal efficiency

Chambers, (24) points out that the profitability appraisal is concerned with an assessment of operating costs, which should be analysed by the main elements of costs. Another rewarding area for

investigation is often the distribution function, and a most valuable aspect to focus on is the analysis of distribution costs, should

1.5. Marketing and Distribution

A review of marketing effectiveness is one of the key requisites of business appraisal, as fundamental areas of strategy and judgement in this area may result in misdirection of effort in other areas of the business.

Argenti (23) breaks these areas into marketing, products, distribution, and transport.

In the marketing area, a company should consider:

- whether it has too many customers or too few.
- whether customer loyalty is an important factor.
- whether its advertising and promotion is excellent or merely adequate.
- whether its sales force is effective or superior.
- what image the company has with its customers.
- how valuable the after-sales service system is.
- how prompt is delivery.

In the product area, a company should consider:

- whether its range is too wide or narrow.
- how their products compare with those of competitors.
- prices and contributions of products.
- product life cycles in each market.
- packaging.

In the area of distribution, which includes the system of distribution and the physical methods employed, a company should consider:

- is the system of distribution dependent upon merchants, if so, what are their strengths and weaknesses?
- if the company owns its own distribution network, where are the weak links?
- are the weaknesses geographical or do they lie in the margins and price structures obtained through the network?
- on the physical side, where are the warehouses? How many are there? Are they automated, what is the distance between them.

At the same time, Chambers (24) states that although successful marketing undoubtedly calls for a high level of creative thinking, this is best complemented by defined and quantified objectives for such things as:

- profitability and return on investment.
- product sales, profit contribution and cash generation.
- market share.
- territories, including exports.
- customer service.
- selling costs.

Chambers points out that lack of precise information on any of the above is in itself a source of weakness.

1.6. Manufacturing

Chambers points out that a balanced loading of works facilities

and sales volume and mix is essential, if manufacturing costs and stocks and work in progress are to be kept to the minimum, and realistic delivery dates quoted and met. He indicates that the manufacturing appraisal may be carried out as follows:

- a) A review of the effectiveness of the works organisation, its staffing and level of competence, and the general condition of plant, buildings and equipment.
- b) Comparing productivity with similar companies in the same industry, utilizing the added value trends per direct and indirect employee, and performance indices.
- c) Payment schemes, wage arrangements, earnings, overtime control, work standards, amount of idle time, shop floor discipline and labour turnover, all require to be reviewed.
- d) The company's records of industrial disputes should be considered and the extent to which restrictive trade practices are applied.
- e) The adequacy of welfare and fringe benefits should be appraised, together with the pay and status of supervisory staff.

Chambers concludes the manufacturing appraisal pointing out that the review of manufacturing facilities may reveal departments which are under or over utilized, or out of balance with the normal productive cycle.

1.7. Materials Management

Argenti (23) states that except in the case of primary industries most companies purchase well over half the value of their turnover.

therefore, factors to be considered are:

- a) The number and size distribution of suppliers for each material, component, fuel and service, and the extent to which any supplier has the power to hold the company to ransom.
- b) The extent to which a high risk buying requires higher stocks, or justifies a lower purchase price.
- c) The reputation of each major supplier together with his relevant strengths and weaknesses.
- d) The means by which materials are delivered from supplier to customer.
- e) It is essential that material supplies are kept in line with current factory requirements, and this requires efficient calculation of re-order levels and quantities, if large stocks are not to be built up.
- f) Sufficient attention to make or buy studies which can result in marked increases in overall output and profits.

1.8. Research and Development

Argenti (23) points out that one of the key questions in any corporate planning study is the problem of how much research any given company should do itself and how much to leave to others. To answer this question some evaluation of the company's strengths and weaknesses in this field should be made.

The following may be listed as strengths:

- a. The existence of highly specialised research equipment.
- b. A history of successful innovation. unsatisfactory, can
- c. A high reputation in the industry. provides growth potential

The following may be listed as weaknesses:

- a. Product failure.
- b. Poor facilities.
- c. An inefficient team.

Meanwhile, Chambers (24) points out that the ultimate test of research and development is: does it provide what the market wants, at the time it wants it, at an economically viable cost which simultaneously provides a satisfactory profit and cash flow to the manufacturing company?

1.9. Management Services

The key questions as Chambers points out are:

- a) Does the management have an adequate range of management techniques and services?
- b) Does the management make effective use of the management techniques which it does have?

1.10. Product Range

Chambers points out that it is still exceptional for a company to make a systematic and regular appraisal of its entire product range, posing the basic questions:

- What profit contribution and cash generation is made by each product?

- What resources are absorbed by each product?
- If the profit and cash contribution is unsatisfactory, can a case be made for its retention on grounds of growth potential?
- What is the trend of each product's share of its total market?
- What stage has each product reached in its life-cycle?
- What effect will planned new products have on the existing range?

1.11. Human Resources and Organisation

The main areas to be tested are:

a) Management Performance

Chambers states that the only relevant grounds on which the potential contribution of a manager or functional specialist can be assessed are the results and standards of performance he has achieved.

b) Management Potential

If the company is to achieve its long-range objectives, the management system must be capable of being stretched beyond its existing capacity. There must be an adequate supply of individual managers capable of assuming greater responsibility and a wide-spread ability to learn new roles and adjust to change.

Chambers points out that the key questions to ask about management potential are:

- What is the company's traditional attitude to change and risk?
- What potential for further development is possessed by existing members of the management structure?

- What management potential exists elsewhere in the company?
- How adequate are existing methods for developing management potential?

c) Manpower Resources

Chambers points out that frequently, achievement of company long-term objectives will involve movement into new technologies with accompanying changes in working methods, and skills requirements. The work force will require to be flexible in the face of change. Different companies will have different strengths and weaknesses and among the key questions to include in appraising one's own company are:

- Is management adequately skilled in planning and implementing change?
- Are relations with unions and shop floor good enough to form a sound basis for a programme to change?
- Are training arrangements adequate to enable existing members of the work force to acquire new skills to the standards required and within the available time?
- Are there adequate policies for handling possible redundancy without causing unnecessary hardship and disruption?
- Are people committed to the objectives of the company?

d) Organisation

Appraisal of the effectiveness of the existing organisation structure is sometimes the most difficult task of all. As Chambers states, there is no blueprint for successful organisations which will

fit a company at all stages of its development. It will be necessary to keep the structure under constant review, making adjustments as necessary to meet the changing situation or even changing objectives.

The following indicate that there are weaknesses in the existing structure:

- Lack of accountability and clearly defined profit responsibility.
- Complaints by executives that they are uncertain as to their roles and priorities.
- Breakdowns in communication.
- Delays in decision-making.
- Preoccupation with minor activities at the expense of the effort.
- Overmanning in some areas: staff shortages and backlogs of work in others.
- Difficulties in gaining acceptance to change.
- Too many unproductive committees and meetings.

Summing up, we can say that the purpose of the performance appraisal is to identify where the company should concentrate its future activities, whilst at the same time reducing vulnerability and improving present profitability and liquidity.

2. The Environmental Audit

This part of the corporate appraisal of a company reverses the procedure, and looks outward from a position within the company to form a quantified view of the environment in which the company must survive and prosper, with the objective of assessing the threats and opportunities within the environment.

Hargreaves (7) points out that the environment audit sets out to ascertain the threats and opportunities which exist for the company by identifying and quantifying changes in the social, political, economic, technological, legislative, and industrial environment in which the company has to live and survive.

Argenti (23) calls the environmental audit the external appraisal which is directed towards identifying threats and opportunities within the environment of a company. He defines that as "trends or events in the environment of the company that tend to reduce profits" while opportunities are "trends or events in the environment that might be turned to the company's advantage".

Five areas of search have to be considered to carry out the external or environmental appraisal. Competitors, Political, Social, Technological. Each of these may have to be considered at the local, national and international levels.

2.1. Competitors

In appraising a company's competitors, it is necessary to examine

what actions the competitors might take over the relevant future that will affect the company at the local, national, or international levels. The competitors' actions may affect the company's market, employees, research, suppliers and its position in the industry.

2.2. Political

As Argenti points out in the political appraisal, one tries to determine whether any political changes at the local, national or international level will affect its business. A political change is a change inspired by local, national or international governments or government controlled agencies.

Some of the political changes are: anti-trust legislation, taxation, pollution and safety regulations, trade-union law, tariff and quota agreements, rising nationalism in developing nations, economic federation of nations, government sponsored research, nationalisation, and so on. At the local level changes include parking regulations, opening hours for shops, construction of roads and buildings, etc.,

2.3. Economic

Argenti points out that the economic changes at the local level affect remuneration rates, availability of labour, purchasing patterns and prices and so on.

He states also that the broad economic changes are well known: for example, primary and secondary industries are now growing rapidly

in the developed nations. It is well known that the size of companies in some industries is increasing, while in other industries there may well be a revival of the small business.

2.4. Social

In appraising the social factor, changes in education, wealth, life styles, attitudes to work, changes in the composition of a society and its attitudes to race, colour, and religion, are some areas that most companies need to be considered.

2.5. Technological

Technological changes need to be forecast to identify how the changing needs of consumers might be met in the future. Technological changes can threaten a company in two main ways:

- a. A substitute product may appear.
- b. New methods of manufacture or distribution of the existing product may be discovered.

3. Statement of Corporate Appraisal

Having carried out the corporate internal and external appraisal, a statement including strengths and weaknesses within the company itself and threats and opportunities within the environment has to be prepared to sum up the findings within the appraisal process.

To provide such a statement, I found it much better to include the following statement, adapted from a Corporate Planning Guide prepared by The Chloride Co., in Britain.

Table 1. Statement of the Corporate Appraisal

1. Strengths:

1.1 Dominant position of product A in Fantasia and Ruritania
with high reputation for quality.

-
-
-

1.6 Enthusiastic middle management of high calibre and potential.

2. Weaknesses:

2.1 Assembly costs too high due to inadequate facilities;
likely potential savings £20/30 p.a.

-
-
-

2.6 Management central information too detailed and too late.

3. Threats:

3.1 Market for product B nearing peak and likely to decline
from next year.

-
-
-

3.6 Too much profitable business in the hand of one customer
(the Fantasian Government).

4. Opportunities:

4.1 To undertake manufacture of component X, and use the surplus
plant capacity on sub-contract work from other industries.

-
-
-

Adapted from "Corporate Planning Guide" Chloride.

4. Action Plan

When the business has methodically defined its principal Strengths, Weaknesses, Opportunities and Threats it has learned something about itself. However, this knowledge can only be put to good use if the analysis is completed with an Action Plan, designed to:

- Maintain or enhance strengths;
- Correct weaknesses;
- Counter or minimise threats;
- Evaluate or implement opportunities;

An Action Plan, as its name implies, must lead to action. It is important, therefore, to ensure that it is a precise and committed document which:

- a) Defines the course of action to be taken.
- b) Allocates managerial responsibility for this action.
- c) Establishes final and intermediate goals.
- d) Provides a timetable for completion.

The following is a figure to illustrate the Action Plan adapted from "Corporate Planning Guide", prepared by Chloride.

Table 2.

Action Plan

ITEM	TOPIC	RESPONSIBILITY	ACTION	LATEST DATE
1.1	Product A market status	Marketing Manager	Selective prestige advertising.	Continuous
1.6	Middle-Management Potential	Personnel Manager	Draft training & development plan. Implement this plan.	July 1982 Sept-Dec 1972
2.1	Assembly Costs	Manufacturing Manager	Arrange comprehen- sive survey of facilities by group specialists.	June 1972
			Prepare and present proposals.	Oct 1972
2.6	Management Controls	Finance Manager	Review whole infor- mation system and recommend corrective action. Complete any necessary recruitment and implement new system.	May 1972 Aug 1972
3.1	Future of Product B	General Mgr./ Marketing Mgs.	Review attendance markets. Review alternative products.	June 1972 June 1972
3.6	Dependence on Government	Marketing Manager	Increase exports to Ruritania. Discuss further export opportunities with Group.	May 1972
4.1	Manufacture of Product X	Manufacture Mgrs. Marketing Mng. Exec- Committee	Present detailed project costings. Report on sale opportunities. Final decision.	Oct 1972 Oct 1972 Dec 1972
4.5	Acquisition of Manufacturer of Y	General Mgr. Exec-Committee	Draw up short-list of potential acquisition. Evaluate and reach decision to negotiate.	Sept 1972 Jan 1973

Chapter Three

Marketing Planning.

Having carried out the corporate appraisal with its two components, moving from the internal appraisal which assesses strengths and weaknesses within the company itself, to the external appraisal to assess opportunities and threats within the environment in which the company exists, then a statement summarising strengths and weaknesses, opportunities and threats, is prepared upon which an action plan has to be prepared, I now turn to explore the future of a company which depends in the first place upon its capacity to sell, upon which the whole corporate plan has to depend. This chapter will concentrate upon marketing planning as it is a vital ingredient in the whole planning process and will deal in particular with the following:

1. Forecasting and planning.
2. Selecting the basic marketing strategy.
3. Preparing the company's sales forecast.
4. The product life-cycle and the marketing strategies during each stage.
5. The pricing aspects.
 - a) Profit margin pricing
 - b) Contribution margin pricing.

1. Forecasting and Planning

Simmons (28) points out that it is important to keep in mind the difference between a plan and a forecast. He defines a forecast as a prediction of some future event or situation, such as an estimate of total industry sales for the next calendar year. Whereas, he defines a plan as a programme of intended action and desired result. He concludes by

pointing out that forecasting is treated as one phase of the complete planning process, because planning takes over where forecasting stops. A forecast is of value to the extent that it is reliable as a basis upon which a plan may be constructed.

At the same time Sord and Welsch (29) point out that a forecast represents an attempt to predict what probably will happen under certain assumptions concerning the future.

Simmons points out the importance of accurate economic forecasting in the following:

- a) Accurate economic forecasting is a vital ingredient of successful long-range profit planning; because it enables management to make rational and timely decisions and plans for the future of the business.
- b) Long-range economic forecasts enable management to identify and locate problems and opportunities with sufficient lead-time to be able to minimize potential losses, or to open up new avenues to profit.
- c) It is the level of company sales that constitutes the prime link through which company activities are adjusted to changes in the economic environment.
- d) The company long-range sales forecast is more than just the anticipated results of planned marketing action within a framework of assumptions. It is also the basic foundation upon which most plans for future activities will be constructed.

2. Selecting the Basic Marketing Strategy

In planning marketing strategy, management can choose from four basic alternative product market strategies:

- a) Increase market penetration with existing product lines, either by selling more to current customers or by finding new customers.
- b) Market development, by adopting existing products to new markets or to additional commercial applications.
- c) Product development, through programmes of product innovation, to serve traditional markets with new or different products.
- d) Diversification, to broaden the present market structure by entering new markets with new products.

The decision of management to choose one route or another, or more than one route will depend on factors such as comparative costs, the urgency of timing, and the relative chances of success via that particular route. Having said that, I intend to discuss much more about marketing strategies when discussing the product life-cycle.

3. Preparing the Company's Sales Forecast.

Simmons points out that, however, while a few companies use a forecast period of ten years, it is not general practice to regularly prepare forecasts of company sales for more than five years ahead.

Most of the representatives of the companies included in Simmons field study research, indicate that forecasts for more extended periods are of dubious validity, and that a reliable five-year forecast is of

more practical value than a questionable ten-year one. A representative of one company only prepares sales forecasts for the first, second, and fifth years of its five-year plan, he reported that since estimates for more distant years have only very low reliability, this does not justify the expenditure of time and effort to prepare additional data.

Kotler (30) points out that in the vast majority of markets, market demand and especially company demand are not stable from one year to the next, and good forecasting becomes a central factor in company success.

Methods of forecasting

Kotler discussed six major methods of forecasting built upon three information bases, i.e. what people say, what people do, or what people have done.

a) Surveys of buyers' intentions

A list of all potential buyers would be drawn up; each buyer would be approached, preferably on a face-to-face basis, and asked how much he plans to buy of the stated product in the defined future time period under stated conditions. He would also be asked to state what proportion of his total requirements he intends to buy from the particular firm, or at least what factors would influence his choice among suppliers. With this information, the firm would have an ideal basis for forecasting its sales.

b) Composite of sales-force opinion

As Kotler states, where it is impractical to make direct buyer

inquiries, the company may decide to ask its salesmen for estimates. A number of benefits can be gained by involving the sales force in forecasting:

- Being closest to the customers, salesmen may have more knowledge or better insight into developing trends than any other single group, especially where the product is fairly technical and subject to changing technology.
- Because salesmen participate in the forecasting process, they may have greater confidence in the derived sales quotas, and this may increase their incentive to achieve them.

c) Expert Opinion

Another method of forecasting involves tapping the opinion of well-informed persons other than buyers or company salesmen, such as distributors or outside experts. The use of expert opinion has the following advantages:

- forecasts can be made relatively quickly and inexpensively.
- different points of view are brought out and balanced in the process.

d) Market Test Method

In cases where buyers do not plan their purchases carefully, or are very erratic in carrying out their intentions, or where experts are not very good guessers, a more direct market test of likely behaviour is desirable especially in forecasting the sale of a new product or the likely sales of an established product in a new channel of distribution or territory.

e) Time Series Analysis

Some firms prepare their forecasts on the basis of a statistical analysis of past data. The underlying logic is that past data are an expression of enduring casual relations that can be uncovered through quantitative analysis. They can be used to predict future sales.

f) Statistical Demand Analysis

Time series analysis treats past and future sales as a function of time, rather than of any real demand factors. Its main use is in markets where the underlying demand factors remain stable over time. Where this is not the case, it is much more desirable to try to discover the direct relationship between sales and real demand factors. The factors most commonly analysed are prices, income, population, and promotion.

I think it is very important to point out how extensively historical sales data are used as a basis for sales forecasting. In a study done by Sord and Welsch, the procedures used in developing sales forecasts, as reported by the 500 companies participating in this study, are shown in the following figure:

No. Used Method	Methods of Forecasting Company Sales	Percentage
389	Companies Reporting	100%
317	Utilize Sales Department Estimates	81%
312	Utilize Past Sales Trends of Company	80%
234	Utilize New Product Plans	60%
233	Utilize Correlation of Company Sales With General Economic Indicators	60%
210	Utilize Market Surveys	54%
195	Utilize Industry Forecast and Company's Share of the Potential	50%
183	Utilize Production Capacity	47%
175	Utilize Survey of Company Executives' Opinions	45%
163	Utilize Promotion Plans	42%
159	Utilize Salesmen's Estimates	40%
127	Utilize Correlation of Company Sales with Industry Economic Indicators	33%
86	Utilize Financial Capacity	22%
85	Utilize Competitors' Activities	22%
41	Utilize Outside Consultants	11%

Figure 1: Procedures for Developing Sales Forecasts.

4. The Product Life-Cycle and Market Strategies

Kotler (30) points out that the product life cycle begins where the new product development process leaves off. New products are launched by companies in the hope that they will enjoy a long sweet life of growing sales and profits. Some do, but along the way many more meet all kinds of problems that threaten to end the product's career prematurely. The various stages in a product's life cycle call for constant programming of strategies and resources. By identifying the stage that a product is in, or may be headed towards, better marketing plans can be formulated.

Stages in the Product Life-Cycle

As Levitt (31) points out, the life story of most successful products is a history of their passing through certain recognisable stages. These are shown in the following figure and occur in the following order.

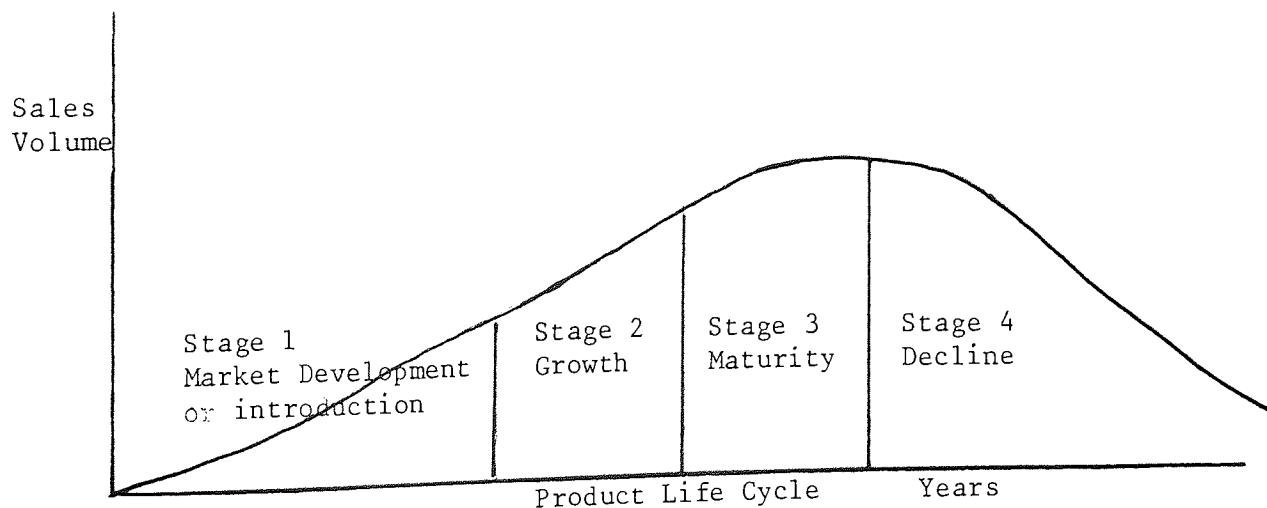


Figure 2: Product Life Cycle

4.1. Market Development or Introduction Stage

Kotler points out that this stage is a period of slow growth as the product is introduced in the market, profit is almost non-existent because of the heavy expenses of product introduction. During this stage prices tend to be on the high side because:

- a) costs are high due to relatively low output rates,
- b) technological problems in production may have not yet been fully mastered, and,
- c) high margins are required to support the heavy promotional expenditures which are necessary to achieve growth.

Marketing strategies in the introduction stage:

4.1.1. A High Profile Strategy

This strategy consists of launching the new product with a high price and a high promotion level. The firm charges a high price in order to recover as much gross profit per unit as possible. At the same time, it spends a lot on promotion to convince the market of the product's merits at the high price level.

4.1.2. A Selective Penetration Strategy

This strategy consists of launching the new product with a high price and low promotion. This strategy makes sense under the assumption that there is little threat of potential competition.

4.1.3. A Pre-emptive Penetration Strategy

This strategy consists of launching the new product with a low price and heavy promotion. This strategy promises to bring about the

fastest rate of market penetration and the largest market share for the company under the assumption that most buyers are price-sensitive and there is a strong potential competition.

4.1.4 A Low Profile Strategy

This strategy consists of launching the new product with a low price and low level of promotion. The low price will encourage the market's rapid acceptance of the product; at the same time, the company keeps its promotion costs down in order to realize more net profit under the assumption that the market is price sensitive and there is some potential competition.

4.2. Growth Stage

Levitt (31) indicates that at this stage demand begins to accelerate and the size of the total market expands rapidly. He points out that this stage might be called the take-off stage.

At the same time Kotler summarizes the features of this stage in the following:

- a) New competitors enter the market.
- b) The firm begins to add new product features and refinements to move into new parts of the market.
- c) As demand is managing to increase quite rapidly, prices tend to remain where they are or fall only slightly.
- d) Companies maintain their promotion expenditures at the same or a slightly raised level to meet competition.
- e) Sales rise much faster, causing a decline in the promotion-sales ratio and this is one of the important contributions to

the high profits during this stage.

Marketing Strategies in the Growth Stage

As Kotler points out, during this stage, the firm tries to sustain rapid market growth as long as possible. This is accomplished through such actions as:

- a) The firm undertakes to improve product quality and add new product features and models.
- b) It searches out new market segments to enter.
- c) It keeps its eyes open to new distribution channels to gain additional product exposure.
- d) It decides when the time is right to lower prices to attract the next layer of price-sensitive buyers into the market.

4.3. Maturity Stage

Kotler (30) points out that at some point in the history of every product, its rate of sales growth will slow down and the product will enter a stage of relative maturity. This stage lasts much longer than the previous stages.

Results of slow down in the rate of sales growth

- a) Producing some over-capacity in the industry, which leads to intensified competition.
- b) Competitors engage more frequently in markdowns and off-list pricing.
- c) Some firms increase their promotional budgets, in the form of trade

and consumer deals.

- d) Other firms increase their research and development budgets to find better versions of the product.
- e) There will be some profit erosion.
- f) Weaker competitors start dropping out.

Marketing strategies in this stage:

Three basic strategies are available at this stage:

a. Market modification

This strategy is concerned by looking for opportunities to find new buyers for the product.

b. Product modification

Initiating calculated changes in the product's characteristics that will attract new users and/or more usage from current users.

The trade term for this strategy is product relaunch.

c. Marketing-mix modification

Stimulating sales through altering one or more elements of the marketing mix.

4.4. Decline Stage

As Levitt (31) points out the product begins to lose consumer appeal and sales drift downwards.

Marketing strategies in the decline stage

Kotler points out that a company faces a number of tasks and decisions to ensure the effective handling of its ageing products.

- a) Identifying the weak products.
- b) Determining the strategies:
- A continuation strategy: in which the firm continues its past marketing strategy until the product is dropped from the range.
 - A concentration strategy: in which the firm concentrates its resources only in the strongest markets and channels while phasing out its efforts elsewhere.
 - A milking strategy: in which the firm sharply reduces its marketing expenses to increase its current profits, knowing that this will accelerate the rate of sales decline.
- c) The drop decision: the product may be dropped quickly or discontinued gradually with a timetable to allow resources to transfer out in an orderly way and to allow customers to make other arrangements.

5. The Pricing Aspects

Having forecasted a company's sales within the planned period, which determine in the first place the predicted sales volume, I now turn to discuss the pricing aspects in the planning process, bearing in mind that we need to determine the selling price of the product which leads to the achievement of the target profit.

Two important methods are used for pricing products of a company:

a) Profit Margin Pricing

Anthony (14) points out that the usual practice to determine the selling price is to compute the full cost of the product and add to this a profit margin. The profit margin is figured either as a percentage

of cost, or preferably, as a percentage return on the investment involved in making the product.

The important thing here is that the relevant costs are full costs which are the direct costs plus a fair share of apportioned costs.

$$\text{Selling Price} = \frac{\text{Direct Costs} + \text{Apportioned Costs} + \text{Profit Margin}}{\text{Quantity Produced}}$$

The profit margin for a product is that which with other product's margins will formulate the target profit whatever it is: a return on the capital employed, a return on shareholders' capital, or earnings per share.

Meanwhile, Schattke, Jensen, and Bean (32) point out that the full cost method can be used where there is considerable stability in the company's market. It has pitfalls in many cases, because the fixed cost per unit changes as the volume changes. Furthermore, full cost pricing involves many arbitrary apportionments of fixed costs and common costs to specific products. They conclude by saying that full cost pricing is used because it tends to provide a "safe" margin.

In fact, Sizer (13) presents two ways of pricing under what he calls absorption pricing and rate of return pricing. Summing up his ideas, I found no difference between them, as in the first, we add to the full cost the most satisfactory profit margin, and in the second we add to the full cost a mark up which is, as Sizer says, the rate of return on capital employed.

At the same time Kotler (30) calls the profit margin pricing "Target pricing" which he describes as the most common cost-oriented approach used by manufacturers, in which the firm tries to determine the price that would give a specified target rate of return on its total costs at an estimated standard volume. He concludes by saying that this pricing approach is closely associated with pricing policies of public utilities, which have a large investment and are constrained by regulatory commissions in view of their monopoly position to seek a fair rate of return on their costs.

Using cost benefit analysis to determine the selling price:

To illustrate, consider the following figures are before management to determine the selling price of a product:

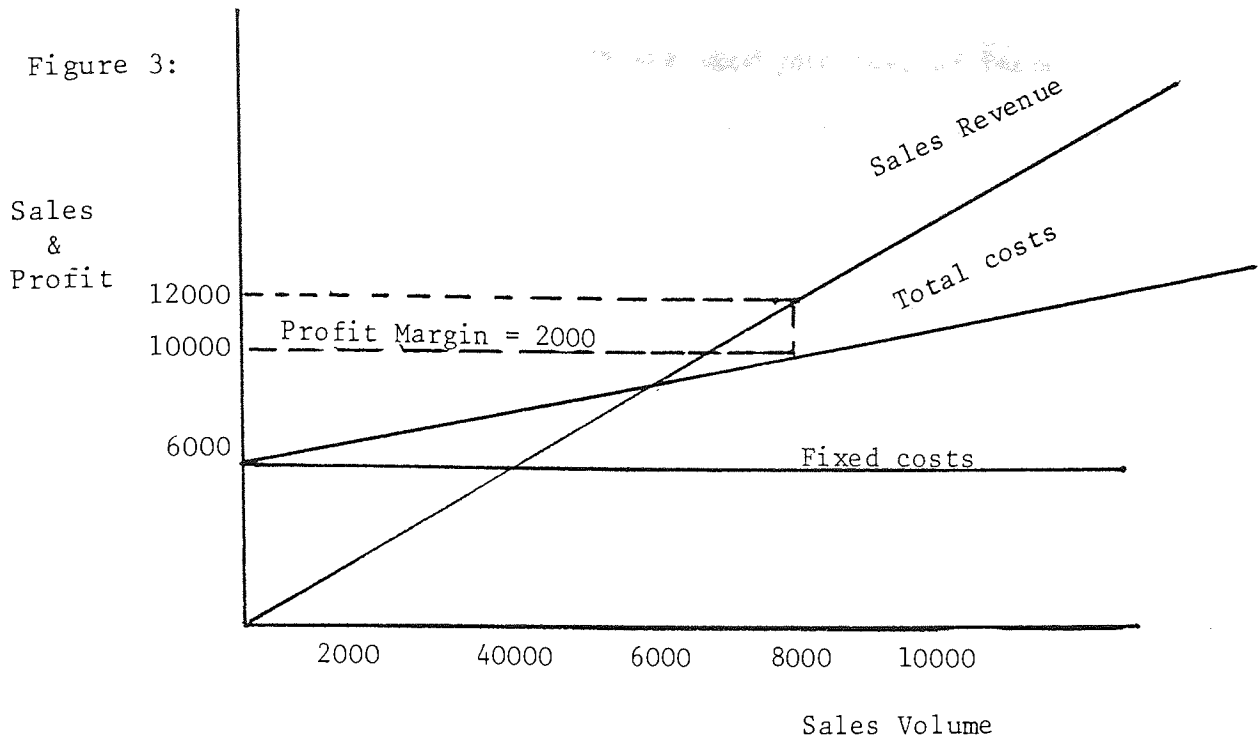
Total capital employed	£20,000
Rate of return "target profit"	10%
Sales volume	8,000 units
Fixed costs	£6,000
Variable costs per unit	£0.50

$$\begin{aligned}
 \text{Full costs} &= \text{Fixed costs} + \text{variable costs} \\
 &= 6,000 + 0.50 \times 8,000 \\
 &= \text{£}10,000
 \end{aligned}$$

$$\begin{aligned}
 \text{Target profit} &= \text{Total capital employed} + \text{rate of return} \\
 &= 20,000 \times 10\% = \text{£}2,000
 \end{aligned}$$

$$\begin{aligned}
 \text{Selling price} &= \frac{\text{Total costs} + \text{profit margin}}{\text{Quantity Produced}} \\
 &= \frac{10,000 + 2,000}{8,000} = \text{£}1.50
 \end{aligned}$$

Figure 3:



Using the Breakeven chart we notice that: to achieve the profit margin at sales volume 8000 units, sales should be £12,000, therefore, selling price = $\frac{12000}{8000} = \text{£}1.50$

Kotler (30) criticises this approach for pricing saying that it has a major flaw that a company uses an estimate of sales volume to derive the price, but price is a factor that influences sales volume.

Sizer (13) also criticises the full cost method saying that the total costs do not represent any incremental cost which may result from the change in volume. He also points out that full costs include fixed costs which are historical sunk costs in relation to any change in volume.

5.2. Contribution Margin Pricing

Sizer (13) points out that contribution may be defined as the difference between the selling price of a unit and its marginal cost.

Marginal cost may be defined as the aggregate cost of increasing or decreasing the volume of output of a component, product, or service by one unit at a given level of output.

Marginal, variable, or differential costing, distinguishes between two sorts of costs, fixed costs and variable costs.

a. fixed costs

Shillinglaw (5) points out that the classification of business costs as fixed implies that the total amount of these costs does not change in response to changes in the volume of activity.

Whereas Gray and Johnston (1) define fixed costs as those expenses which are, in total independent of the volume of output, on a per-unit basis, they vary as output varies.

Meanwhile, Welsch (10) defines fixed costs as those that remain constant in the short run, irrespective of changes in output.

Sizer (13) defines fixed costs as those costs of time in that they accumulate with the passage of time irrespective of the volume of output.

As we see, almost all writers have the same definition of fixed costs. One can say that fixed costs are period costs, which must be paid whether or not production takes place. Fixed costs may be changed according to alteration in the level of output in case a company needs more capacity for that level of output. In general we can say that fixed costs are concerned with time, and are fixed in total, but that they are

variable per unit of output.

b. Variable costs

Welsch (10) defines variable costs as those that vary directly in proportion with changes in output.

Gray and Johnston (1) define variable costs as those expenses which are constant per unit of output. This implies that they vary, in total, in direct proportion to the volume of output.

Dearden (33) defines variable costs as those costs which vary directly and proportionately with volume.

So, variable or marginal costs are those elements of costs which vary according to the level of output and is fixed in relation with the unit share of them.

What do we mean by contribution?

A contribution margin is that part of selling price after deducting the unit share of variable costs, contributes to fixed costs and profits.

Total costs = Fixed costs + variable costs

Contribution = Sales - variable costs

= Fixed costs + profit or loss

Contribution margin = Selling price - variable costs per unit.

Contribution margin can be used for pricing a product during its

life-cycle under the marketing strategies discussed earlier in this chapter.

A contribution margin for each product is determined during the different stages in its life-cycle, which with other product's contribution margins lead to the achievement of the target profit.

Contribution margin pricing might be used in crisis situations or when a company is considering a selling order below its pre-determined prices. In this case a company may well be producing below its full capacity and its fixed costs are covered by the existing sales volume. Therefore, any increase in costs incurred when producing the new order will be incremental costs, which will mainly be incremental variable costs.

Refer to the previous example:

Suppose that the company is offered a new order of 2000 units at £1.05 selling price and the company does not need any increase in its production capacity as there is idle capacity already. The fixed costs are already covered by the existing sales volume.

Offered price = £1.05

Variable costs per unit = £0.50

Contribution margin = 1.05 - 0.50 = £.55

i.e. an increase in the existing production using the idle capacity will contribute to net profit directly by £0.55 as fixed costs are covered by the existing sales. Therefore, the company is better off accepting the order which will lead to an increase in its profits.

Linking the previous two cases together, we will have the following results.

Table 3:

	Existing Sales Volume	Add new Order	Changes
Sales			
8000 @ £1.50	12,000	14,100	+ 2,100
2000 @ £1.05			
Variable costs £0.50 per unit	4,000	5,000	+ 1,000
Contribution Margin	8,000	9,100	+ 1,100
Fixed costs	6,000	6,000	-
Net Profit	2,000	3,100	+ 1,100

Horngren points out that a major criticism levelled at the contribution approach is that it will result in underpricing and ultimate company disaster, but that full cost pricing is a safer guide, because it does not ignore fixed costs and will therefore lead to better long-run pricing decisions.

Horngren argues that full cost pricing has also deficiencies:

- a) Decisions are often guided by unit gross profit rather than by unit net profit, as this method also ignores some substantial fixed costs, such as selling and administrative costs.

- b) There is no single unit cost that may be used as a guide so long as volume is variable.
- c) Cost accountants' and businessmen's actions show that customers' demand and competitors' behaviour over-shadow costs as price-influencing factors.

At the same time Sizer (13) asks, is the marginal cost and contribution towards fixed costs approach a satisfactory alternative? As Sizer is in favour of the contribution margin approach for pricing decisions, he answers this question stating:

- a) Marginal techniques can provide better data for pricing decisions that help to achieve normal capacity levels, and optimize profits after normal capacity is reached.
- b) With the marginal approach the question is not "Shall we raise or lower our selling prices?" but, "What will happen to our total profits if we raise or lower the selling prices of particular products?"
- c) In a highly competitive industry when demand is elastic, and the rate of fixed to variable costs is high, it is possible to make a wide range of prices which are all economically possible determined on the basis of marginal costs.

Meanwhile, Anthony (14) points out that it is difficult to generalize on the circumstances that determine whether full costs or differential costs are appropriate. He says, "Even in normal times, an opportunity may be accepted to make some contribution to profit by using temporarily idle facilities". Conversely, he continues, "in times of crisis the contribution may be rejected on the grounds

that the low price may spoil the market".

Chapter Four

Financial Planning.

At this stage, the management of a business will, hopefully, have a number of alternative strategies from which to choose that one or those which will lead to the achievement of the objectives.

Since plans for products, markets, facilities, etc. will all require funds, there must in addition be planning to determine where the necessary funds are to come from. Finally, an important purpose of long-range corporate planning is to provide a means for establishing control over performance in order to achieve desired objectives.

So that, this chapter will deal with financial planning, to include the following segments:

1. Evaluating Alternative Strategies:
 - a. The Process of Elimination.
 - b. Evaluating the Short List.
 - c. Capital Investment Appraisal.

2. Finance Planning:
 - a. Capital Structure and Capital Requirements.
 - b. Long-range Capital Budgeting.
 - c. Long-range Cash Planning.

3. Accounting Projections.

4. The Control Aspects.

1. The Process of Evaluating Alternative Strategies

What can be a most severe problem in long-range corporate planning is the number of alternatives that a company may adopt. It may not be possible to evaluate more than a very few of these alternatives.

Argenti (23) proposes six criteria by which to test any proposed strategy which he describes:

"They form the cloth of a sieve through which any proposed strategy may be passed; the greater the number of well-defined strands there are in the cloth, the fewer will be the number of alternatives that pass through".

These six criteria are:

1. Can it be shown that this strategy gives the company a performance-risk curve similar to the one selected by its shareholders (and managers, employees, etc)? (The performance risk curve represents the target which satisfies any group of beneficiaries).
2. Has the company the necessary competence to carry it out?
3. Does it eliminate or reduce the company's outstanding weaknesses?
4. Does it allow the company to exploit any opportunities that may occur in the future?
5. Does it sufficiently reduce any of the severe threats that may face the company?
6. Does it call for any action that is or may become objectionable on moral or social grounds?

According to Argenti's six criteria one can say that the process of evaluating alternative strategies can be split into two processes: the process of elimination and the selection of a short list; then the process of evaluating the short list.

Since much of this section concerns itself with financial criteria and financial evaluation of alternative strategies, it would be sensible to point out that there are non-financial criteria also to be considered, such as:

- a) The competitive reaction to the strategy or strategies selected; what courses of action are open to existing or potential competitors, and what is the most likely response to the chosen strategy.
- b) The effect of each alternative strategy on social aspects in the broadest sense - employee relations, community.
- c) The reaction of government and government agencies to each of the alternative strategies.
- d) The effect of each of the alternative strategies on the company's prestige and reputation.

1.1. The Process of Elimination

The process of elimination and evaluating the short list is one of the key steps in long-range corporate planning, and is the main purpose of the internal and external appraisal.

The six criteria stated above form the process of elimination

through which we can select a short list of alternatives.

1.2. Evaluating the short list

After the process of elimination which is a means to reduce the multiple alternatives to a manageable number, the management will need to determine whether any of the remainder are likely to lead to the achievement of its target.

The process of evaluating the short list includes the following steps:

a) Weighing and measuring the quantitative factors:

Anthony (14) points out that a number of advantages and disadvantages are associated with each alternative. The task is to evaluate each of the relevant factors and to decide, on balance, which alternative has the largest net advantage. The advantages and disadvantages should be quantified, the net effect of all the factors can easily be estimated by simple arithmetic operations of addition and subtraction.

b) Weighing and evaluating the unmeasured factors

Anthony (14) points out that for most problems there are important factors that are not measurable; the final decision must take into account all differences between the alternatives being considered, both those that are measured and those which are not measured. The process of weighing the relative importance of these unmeasured factors, both as compared with one another and as compared with the net advantage

or disadvantage of the measured factors, Anthony indicates, is solely a judgement process.

As I have stated before, the target profit may be expressed in terms of a satisfactory return on total capital employed, a satisfactory return on shareholders' capital, or a satisfactory earnings per share. The dominant one is to earn a satisfactory return on investment.

Return on investment may be expressed as the ratio:

$$= \frac{\text{Revenue} - \text{Costs}}{\text{Investment}}$$

From this ratio one can say that these elements should be analysed before a decision can be taken among the remainder of alternatives included in the short list: revenue, costs and investment.

Anthony (14) points out that although the general approach to all alternative choice problems is similar, it is useful to discuss three types separately:

i) Problems which involve only the cost element

Since revenue and investment are unaffected, then the best alternative is the one with the lowest cost.

ii) Problems which involve both revenue and costs

Since investment is not involved, the best alternative will be the one which yields the highest net profit.

iii) Problems which involve costs, revenue and investment

Of several types of alternative choice problems, those involving

proposed investments in new assets, i.e. capital budgeting problems, are the most important and the most difficult. Those problems are important not only because they involve large sums of money, but also because the decision may influence the whole conduct of the business for years to come; in the following I will concentrate upon the appraisal of capital investments.

1.3. Capital investment appraisal

Any investment involves the commitment of funds now, with the expectation of earning a satisfactory return on these funds over a period of time in the future. The commitment of funds to land, buildings, equipment, inventory and other types of assets is made with the expectation of earning a satisfactory return on the investment in the future.

Anthony (14) illustrates capital budgeting problems in the following:

- a) Expansion : shall we build or otherwise acquire new plant?
(The expected earnings on this investment are the profits from the products produced in the new plant).
- b) Replacement : shall we replace existing equipment with more efficient equipment? (The expected earnings on this investment are the savings resulting from lower operating costs, or the profits from additional volume produced by the new equipment or both).
- c) Cost reduction : shall we buy equipment to perform an

operation now done manually, i.e. shall we spend money in order to save money? (The expected earnings on this investment are the savings resulting from lower operating costs).

- d) Choice of equipment : which of several proposed items of equipment shall we purchase for a given purpose? (The choice often turns on which item is expected to give the largest return on the investment made in it).
- e) Buy or lease : having decided to acquire a building or a piece of equipment, should we lease it or should we buy it? (The choice turns on whether or not the investment required to purchase the asset will earn an adequate return as compared with leasing). (It could be argued, however, that the funding decision is separate from the investment decision).

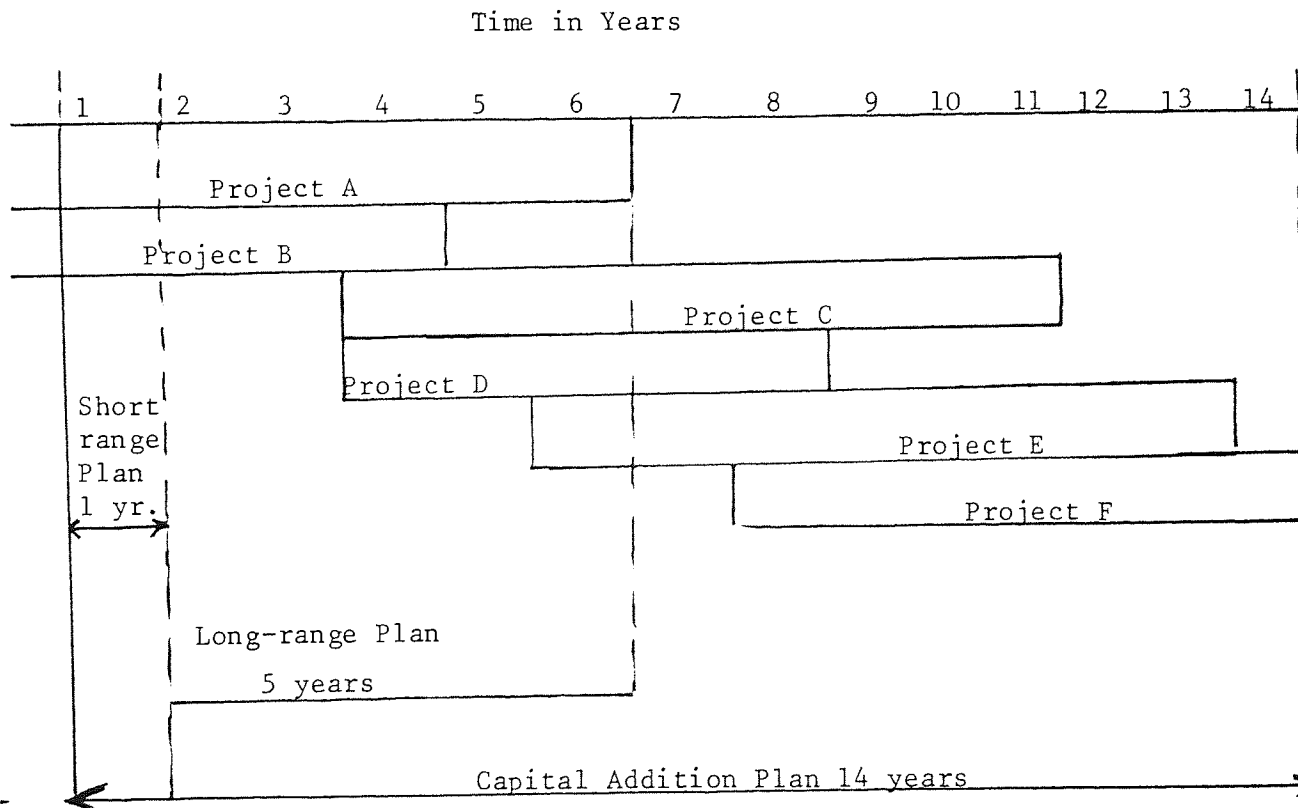
Welsch (10) points out that because capital expenditures generally involve the more or less permanent commitment of large sums of money, decisions concerning them have a significant, long-term effect on the economic health of the concern. This fact suggests the need for careful analysis and planning on the part of top management. An ill-advised decision concerning capital additions frequently cannot be reversed before it seriously affects the financial health of the concern. Inadequate managerial attention to capital additions may result in over-investment or under-investment, and a consequent deterioration of the concern's competitive position in industry.

Welsch also points out that the basic approach to planning capital

additions should be on a project basis; those projects tentatively approved by the management should then be reflected in the long-range plan, and the next annual phase of each project should be reflected in the annual plan. Therefore, the overall capital expenditure budget may be viewed as comprising three time dimensions: (a) a time dimension required by the particular project that extends the farthest into the future; (b) a time dimension in accord with the long-range plan; and (c) a time dimension in accord with the short-range plan.

These dimensions in relation to projects are shown graphically in the following illustration:

Figure 4:



Time Dimension in Capital Expenditures Budget

"Adapted from Welsch, p. 360"

Welsch (10) concludes by pointing out that the capital expenditure budget has considerable significance from the managerial planning and control viewpoints. Top management is constantly faced with the problem of determining the amount of funds that should be invested in fixed plant. The basic problems revolve around the necessity for maintaining appropriate facilities for growth and for meeting customer demand and competition. On the other hand, considerable planning and control are necessary to prevent: (a) idle capacity, (b) over-investment, and (c) investment in assets that will produce a low return on the funds committed.

The quantitative approach to the selection from amongst alternatives generally compares predicted cash flows with the required investment. Thus, all alternatives which yield a rate of return which reaches or exceeds the satisfactory rate of return on investment (target predetermined profit) will be desirable, and vice versa; therefore, the decision will be on the best alternative which will yield a rate of return reaching the given target.

Having pointed out the importance of capital investment as it involves large sum of money committed, I now turn to discuss the techniques used for the appraisal of capital investments.

Capital Investment Appraisal Techniques

There are several different techniques of approaching the capital investment appraisal:

a) Discounted Cash Flow

Sizer (13) points out that to obtain a true picture of the investment, all cash outlays and inflows must be taken into account. Furthermore, the value of a cash payment or receipt must be related to the time when the transfer takes place.

Meanwhile, Horngren (11) points out that because the discounted cash flow method explicitly and automatically weighs the time value of money, it is the best method to use for long-range decisions.

There are two main variations of the discounted cash flow method:

- i) Net present value, and
- ii) Time adjusted rate of return.

i) The Net Present Value

This method assumes some minimum desired rate of return. All expected cash flows are discounted to the present; using this minimum desired rate. If the result is positive, the project is desirable, and vice versa.

ii) The Time Adjusted Method

With the net present value method, the required earnings rate must be selected in advance. There exists an alternative method, which finds the earnings rate at which the present value of the earnings equals the amount of the investment. This rate is the time adjusted rate of return, or the internal rate of return.

Shillinglaw (5) points out that full examination of the relative merits of those two competing approaches to capital expenditure analysis must be left to more specialised volumes. For some purposes one method will be found superior to the other, but in general either method is acceptable. Calculation of the discounted rate of return requires more clerical effort than discounting by a given interest rate, but rate of return has the advantage of familiarity, which present value lacks. He concludes that in most circumstances the use of the rate of return instead of present value at a given interest rate will not usually seriously alter the making of projects, and the choice between these two methods can be made largely on the basis of clerical convenience and ease of presentation.

b) Payback Period Ranking

Shillinglaw (5) points out that one approach is to compute from each proposal a measure of the length of time that it will take the expected earnings, from the proposal, to pay back the initial investment outlay. This payback period can then be compared with some acceptable payback period to determine whether or not the project is acceptable.

Payback period is computed by the following formula:

$$\text{Payback period (years)} = \frac{\text{Investment Outlay}}{\text{Average cash earnings per year}}$$

Advantages and Limitations of the Payback Period Method

Advantages:

Baggot (34) states the following advantages:

- i. It is simple to calculate, also simple in concept, and therefore, easily understood by non-financial executives.
- ii. It dictates the timing of the investment being available for investment.
- iii. By concentrating on the earliest payback date, it recognises that early returns are preferable to those which accrue later.

Limitations:

Shillinglaw (5) states the following limitations:

- i. It ignores the economic life of the facilities.
- ii. It ignores any time patterns in investment outlays and cash earnings and also ignores any end-of-life recoverable value. Shillinglaw illustrates this point saying that if earnings are zero in the first year and rise gradually for ten years the proposal will be less valuable than another proposal in which the earnings start out at as high level and gradually dwindle as the facilities get older.
- iii. There is no way of deciding what the maximum payback period should be.

Steiner (35) points out that a major shortcoming of the payback period method is that it does not consider total project profitability. He introduces an example whereas project A would be preferred on a typical payback criterion even though project B would yield greater profits over the life of the project.

Table 4:

Project	Cost	Annual Return	Annual Payback Period	Project Life
A	12,000	4,000	3	3
B	12,000	3,000	4	6

Then, Steiner asks, why is it that this method is used with such an obvious shortcoming? He states several answers to that:

i. This method has a built-in conservatism. It emphasises liquidity, but does this sometimes at the expense of profitability.

ii. It also recognises increasing uncertainties as time goes by.

He proposes a solution for that by recognising uncertainties, to make judgements about the degree of uncertainty, and to decide on that basis.

iii. A company may be hard-pressed for cash in the next few years, and the payback period method is used as an evaluation criterion, not because it is the best, but because there is no better solution.

c) Annual Rate of Return: or Average Rate of Return

Collier (36) points out that this method is the next most popular, short-cut approach after the payback period approach. In this approach, book profits are used instead of cash flows. Either first year profits are divided by the initial project cost, or average annual profits are divided by the average project investment. He concludes by saying that managements most concerned with maximising profitability per se would tend to favour this approach.

At the same time Shillinglaw points out that the most common way to compute the average return on investment is to use the following formula:

$$\text{Average return (\%)} = \frac{\text{Average cash earnings per year} - \text{Depreciation per year}}{\text{Average lifetime investment}}$$

We notice that Collier points out that book profits are used, whereas, Shillinglaw points out that cash earnings are used, something which may confuse the non-financial executive. I find it much better to use the term average earnings per year which includes cash earnings and credit earnings which accrue later.

Nevertheless, Shillinglaw continues by saying that this method does consider the expected life of the facilities and it does consider the amount of end-of-life salvage.

Steiner (35) points out that the technique has obvious advantages over payback, inasmuch as it does take account of income over the entire life of a project. Nevertheless, he continues, it also embodies a major weakness (like payback method) because it fails to consider the time value of money.

What worries Steiner about this method is that a project with instant cash inflows in its earliest years may be rejected and another one with a larger stream of cash inflows in its later years may be chosen; all because this method does not consider the time value of money.

2. Finance Planning

Once the corporate objectives have been defined, it will be necessary to examine the whole structure of the business and its financial needs.

In any business, funds will have been applied to the acquisition of assets, some of which (fixed assets) will have been acquired to aid the earning process, others (current assets) will have been acquired for sale like stock and work in progress, the remainder, being debtors and cash, represent the proceeds of sales.

This section of chapter four will deal with finance planning for which I propose the following areas to be covered:

1. Capital structure and capital requirements.
2. Long-range capital budgeting.
3. Long-range cash planning.

2.1. Capital structure and capital requirements

Because capital has to be applied to the acquisition of assets both fixed and current, there will be a relationship between the resources and usages of capital and a relationship between fixed and current assets.

2.1.1. The relationship between resources and usages

It is impossible to put a pattern to the relationship between .

resources and usages, there are many factors which affect and/or determine this relationship.

2.1.1.1. The volume rule

Kamal (26) points out that according to this rule each company has a final or permanent volume which determines the company's requirements of financial resources and usages, therefore, the management of any company has to determine in advance its final or permanent volume, and, as a result, the determination of this volume of resources and usages in a way which guarantees its continuity at a minimum amount of capital. The objective from the determination of the company's volume is to prevent any increase in usages over the resources available to the company, otherwise the company could suffer financial difficulties.

2.1.1.2. The balancing rule

"Balancing" from an accounting point of view is seeing that the total amount of assets or usages is equal to the total amount of liabilities or financial resources; this balance can be obtained as a result of the use of the double entry system. Dr Hassan Kamal points out that "balance" requires not only the balance between usages and resources, but also between the basic groups of the balance sheet in the sense that:

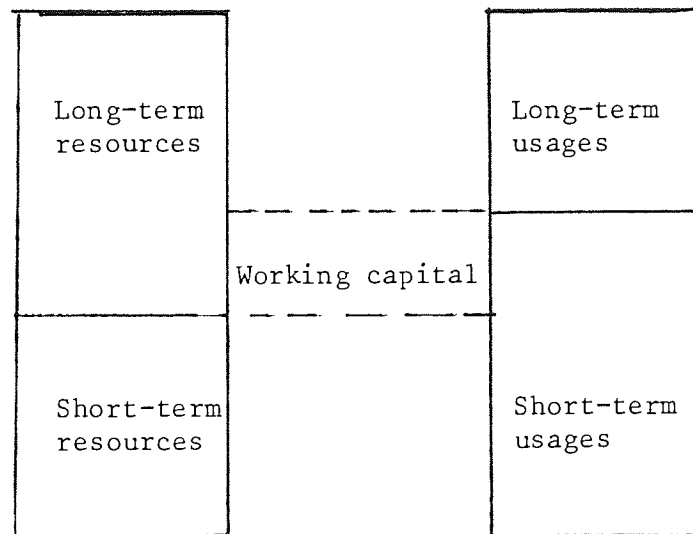
- the long-term usages are equal to the long-term resources
- the short-term usages are equal to the short-term resources.

This rule looks at balancing with a rather rigid view. Another view demands that the long-term resources should be more than the long-term usages ; as a result, a part of the short-term usages would be

financed by the long-term resources. This margin is called the working capital.

This can be summarized in the following figure.

Figure 5:



From this figure we notice that the short-term usages are financed by:

- the surplus of the long-term resources (the surplus of what is used to finance the long-term usages)
- the short-term resources.

Therefore, we can define the working or net working capital as "that part of long-term resources which is more than is invested in long-term usages (fixed assets)".

Walker and Baughn (37) point out that the determinants of capital requirements are the same factors which determine business size and nature of operations. They divide these factors into two broad groups,

the first related to the nature of the enterprise, and the other related to the particular firm's management.

1. Factors related to the nature of the enterprise:
 - a. Industry stability.
 - b. Operating characteristics of the industry:
 1. Rapidity of assets turnover.
 2. Size of physical plant requirements.
 3. Length of production period.
 4. Distribution methods.
 5. General level of profits.
 6. Sales terms.
 7. Growth patterns.
2. Factors related to management
 - a. Efficiency of management as measured by its ability to modify industry ratios in favour of the firm.
 - b. Management's decisions as to degree of risk to be assumed:
 1. Extent to which certain risks are covered by insurance.
 2. Decisions as to necessary liquidity.
 3. Decisions as to other risks to be assumed.
 - c. Management's decisions as to the extent property will be purchased rather than leased or rented.
 - d. Management's decisions as to both scale of operations and capacity that are justified by the future outlook for the firm.

Walker and Baughn also point out that when to stop investing in additional assets is a major question that must be resolved by top

management. They also state the following problems which can result from inadequate capital.

1. Inability to carry an inventory commensurate with the optimum operating level.
2. Restriction of buying policies and inability to take advantage of quantity or cash discounts.
3. Chronic pressure on cash position, which will impair credit standing.
4. Inability to make necessary outlays for machinery and equipment to improve efficiency.
5. Inability to take advantage of sudden changes in business opportunity.

Walker and Baughn also point out that the proportion of total capital funds coming from short-term sources as compared to more permanent sources should be based upon the asset structure and the nature of the firm operations. They state two general rules to be applied to the division between temporary and permanent sources:

1. Permanent capital should be sufficient to finance fixed assets plus minimum working capital which is defined as the lowest point of working capital during the year.
2. The payout period for the asset acquired should match with the debt contract under which the necessary funds are secured.

2.2. Long-range Capital Budgeting

Capital budgeting can be defined as a formalised expression of a company long-range plan for capital expenditure.

Simmons (28) points out that the reported experience of the companies included in the NAA research report indicates that long-range capital budgets provide management with answers to such questions as:

- a) What are the total capital funds the company will need for the duration of the long-range planning period?
- b) When will the funds be needed?
- c) For what purposes will the funds be spent?
- d) Are the proposed projects compatible with company long-range objectives?

In the same research report John V. James states that the major advantages from the use of a capital budget are:

- a) It forces staff and operating personnel to look ahead, thus helping to ensure modern plant and efficient equipment, and reducing the chances that profitable opportunities will be missed.
- b) It also enables management to review projects in terms of relative need and value, and to assign them priorities in keeping with the company's limited resources.
- c) It assists management in forecasting the company's cash needs.

Steiner (35) points out that "A capital budget is a basic management tool in developing, evaluating, and controlling capital expenditures. It is in its approved form an array of expenditures to be made for selected classes of projects in future periods of time." He continues by saying that there are many advantages to having capital expenditure budgets. Management is in a much better position to determine the extent to which proposed facility expenditures are programmed properly with longer-range plans, required plant capacity, cost and profit objectives,

available funds, available manpower, and general economic conditions.

Concluding this point about capital budgeting I introduce the following form adapted from NAA research report No. 42 which summarizes and schedules a capital expenditure budget.

Figure 6:

Long-range Capital Budget

Five year outlook data

	<u>Historical Data</u>			<u>Appr. for Current yr.</u>		<u>Budget</u>		<u>Planned</u>		<u>Total</u>
	1976/77/78			1979	1980	1981	1982	1983	79-83	
	£	£	£	£	£	£	£	£	£	
<u>Capital expenditures</u>										
<u>Land & buildings</u>										
Expansion										
Replacement										
<u>Machinery & Equipment</u>										
Expansion										
Replacement										
<u>Patterns & Tools</u>										
Expansion										
Replacement										
<u>Automobiles & Trucks</u>										
Expansion										
Replacement										
<u>Furniture & Fittings</u>										
Expansion										
Replacement										
<u>Other</u>										
Expansion										
Replacement										
<u>Total</u>										
Expansion										
Replacement										
<u>GRAND TOTAL</u>										

2.3. Long Range Cash Planning

I have pointed out that long lived capital expenditures may require the commitments of huge amounts of funds. Financial arrangements often entail substantial future expenditures and expectations that cash will be received in the future to repay outlays and provide a return on investment.

In explaining the importance of cash to an enterprise Bernstein (38) points out that:

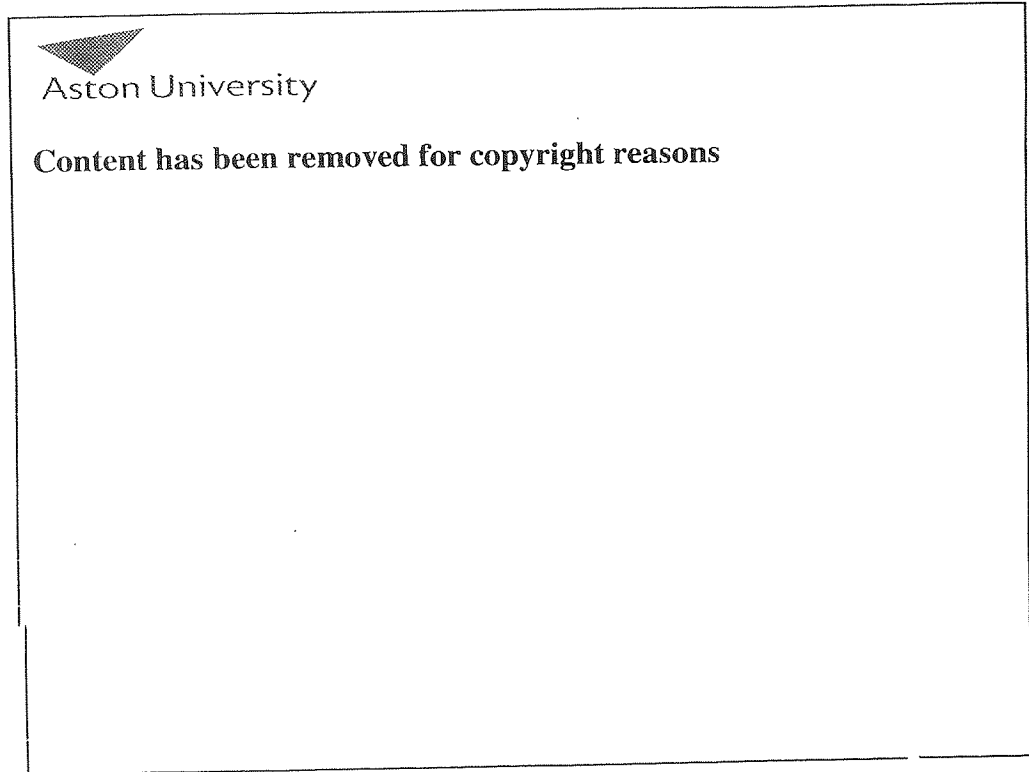
"Cash is considered the most liquid of assets. In fact, it represents the starting point, as well as the finish line, of what is known as the "accounting cycle". This cycle encompasses the purchase and manufacture of goods and services as well as their sale and the collection of the proceeds. The realization of a transaction is measured by a sale and later by the ultimate conversion of the consideration received into cash. Excepting fixed commitments to which cash must be applied, cash represents that point in the accounting cycle at which management has the maximum discretion with regard to the deployment and use of the resources".

Meanwhile, De Paula (39) in pointing out the importance of cash to an enterprise, states:

"Cash can be likened to the blood stream in a living body; for it is very much the life-blood of business. It must be kept circulating round the arteries of the business, because if the circulation gets clogged, sickness may set in just as it may if a clot forms in an artery. If the circulation of cash stops altogether then there is a grave danger that the business may be brought to a complete halt even though it might be profitable".

At the same time De Paula illustrates cash flow diagrammatically in the following figure:

Figure 7:



De Paula, F.C., Management Accounting in Practice.
Pitman Paperbacks, Fourth Edition, 1972, pp. 164,65

Simmons (28) points out that since company growth accompanied by large outlays for plant and equipment usually makes heavy demands for cash, there are dangers inherent in expansion without adequate long-range cash planning.

To show the importance of cash planning, Smith (40) points out that capital expenditure decisions affect earning power, liquidity and growth, and the most important is that they affect the short term cash flows although they are decisions to purchase long-term assets, as there is a point in time at which the cash outflow to buy the fixed asset must take place, furthermore, there are further cash outflows to operate the facility provided by the capital expenditure (though hopefully there are cash inflows, sometimes following much later than the outflows).

Welsch (10) points out that in long-range cash planning the timing is in accord with:

- a) the time dimensions of the capital expenditure projects, and
- b) the time dimension of the long-range profit plan, which means from Welsch's point of view the short-term annual plan.

So, the projection of long-range cash inflows which generate primarily from sales and services, and long-range outflows due to capital expenditures, including expansion projects, is fundamental to sound financing decisions and to the development of optimum lines of long-term credit. So, long-range cash planning focuses on major outflows and inflows.

3. Accounting Projections

Having identified within the internal appraisal of a company, trends about revenues, volumes, fixed and variable costs in the past few years, these trends can be used to make projections about the following years. Such projections about the future based upon past performance do not give accurate indications about the future; they are based upon trends about the past, and assuming that the future will be the same, but it may not. Nevertheless, projections should be considered as guides for the future; forecasts about the future can be done and the projections can be adjusted according to the factors which appear to affect the items upon which projections are built.

Projections may be classified under three main headings:

1. Projections of profit.
2. Projections of the balance sheet.
3. Projections of funds flow.

Having said that, I now turn to discuss how to build the accounting projections in some detail. Illustrations are provided in Appendix 1.

3.1. Projections of Profit

Projections of profit can be done in four steps:

- a. projections of sales
- b. projections of variable costs
- c. projections of fixed costs
- d. projections of profits.

a. Projections of sales

In Chapter Three of this research I discussed in detail long-range marketing planning, pointing out how a company does its sales forecasts. Nevertheless, as the present chapter deals with projections which are mainly built upon historical accounting figures, I refer to the company's sales forecasts discussed in Chapter Three to adjust sales projections according to those forecasts.

Projections of volume of sales have to be made by analysing the past sales, say, up to ten years, then taking the anticipated growth or decline in sales as a guide to make projections of sales (Appendix 1.3).

We have to note here that projections of sales are not forecasts about the future, rather than they are based on the past performance, they are just a rough guide about the future.

b. Projections of variable costs

Projections about sales enable us to project the quantity to be produced. This enables us to make projections of variable costs (the costs which vary according to the quantity produced).

In this respect we need to know the past behaviour of each item of variable costs. It is important to note that in doing that, we have to differentiate between items which have a great effect on profits, and those which have only a slight effect on profits. Analysing the past behaviour of each significant item of variable costs will show whether each of these items was constant, increasing, or declining; by using

these trends we can make projections about those items. We can then draw projections about variable costs in total (Appendix 1.4).

c. Projections of fixed costs

Fixed costs are those costs which do not vary according to the quantity produced, except in the case of increasing the production capacity of a company (by establishing new plant or adding new equipment and machinery). Fixed costs are related to time rather than to products. In doing projections about fixed costs, we have to concentrate upon those items which have a significant effect on profits; those which have only a slight effect on profit should be given less consideration.

Projections of all items of fixed costs which have great effect on profits have to be made to obtain projections of the behaviour of total fixed costs (Appendix 1.5).

d. Projections of profit

Having done projections of sales volume and its expected selling price, projections of variable costs and fixed costs, we can now derive projections of profit using the concept of the contribution margin.

The gross contribution method might be the best way to derive a profit projection. Contribution can be defined as the amount of money each unit of sale contributes towards the fixed costs and profits, after covering its own variable costs. To derive a profit projection we need to know what Argenti (2) calls "The four components of profit".

- The selling price per unit SP
- The variable costs per unit VC
- Sales volume in units SV
- Fixed costs FC

i. The contribution which each unit sold makes towards the company's fixed costs and profit is the difference between the selling price and the variable costs per unit.

$$\begin{aligned} \text{Contribution} &= \text{Selling price} - \text{Variable costs per unit} \\ &= \text{SP} - \text{VC} \end{aligned}$$

ii. The gross contribution is the contribution margin per unit multiplied by the sales volume in units.

$$\text{Gross contribution} = \text{The contribution margin} \times \text{SV}$$

iii. Profit that a company makes is the net of the gross contribution minus the fixed costs.

$$\text{Net profit} = \text{Gross contribution} - \text{FC}$$

From projections of the four components of profit, a projection of profit during the next ten years can be derived by the use of the gross contribution method (Appendix 1.6).

Having done that, management has obtained a profit projection which, as Argenti points out, is useless as a forecast; its value lies solely in providing management and the corporate planner with a guide to the

future on the assumption that the future will be exactly the same as the past. Management and the corporate planner know very well that it will not be, but until these projections have been done do not know how the future may be different, how much the future might affect each item, or which items really matter if they are affected.

Forecasts about the factors inside the company (internal appraisal) and within the environment within which it survives (external appraisal) should be carried out. Projected profits, therefore, should be adjusted to give meaningful projections about the future.

3. 2. Projections of the Balance Sheets

Having done projections of profits for the following years, and having adjusted those according to the factors which appear to affect the future projected profits, we now reach the point where we can make projections of the balance sheets at the end of each of the future planned years. The importance of this stems from the fact that management need to know the financial position of the company at the end of each year.

To make projections of the balance sheets, each important item which appears in it should be projected.

a) Projections of Debtors Including Receivables

Projections of debtors can be done according to the following steps: (Appendix 1.7.A)

- i) Knowledge of the projected sales during the planned period.
- ii) Trends of past performance within the past few years which show the proportion of credit sales to total sales.
- iii) Trends of past performance within the past few years which show the average collection period.

b) Projections of Creditors Including Payables

By the same method of doing projections of debtors, projections of creditors including payables can be done. The following information is needed to do so: (Appendix 1.7.B)

- i) The projected purchases.
- ii) Trends of the past performance which show the proportion of credit purchases to total purchases.
- iii) The average payment period.

c) Projections of Cash Flows

On the one hand the cash balance is needed for the purpose of preparing the projected balance sheet, and, on the other hand, projections of cash flows which indicate the cash inflows and outflows to be expected. These will provide the basis for establishing whether cash resources will be sufficient to meet commitments.

Projected cash flows can be prepared by the use of the receipts and payments method, in which cash transactions only must be taken.

The projections of cash flows may appear as the following figure.

Figure 8:

Long Range Cash Projections for the period 1979 to 1988

	Historical			Projections			
	1976	1977	1978	1980	---	---	1988
Cash Balance brought forward							
<u>Receipts</u>							
Sales Cash							
Debtors (collected)							
Loans							
Issue of share capital							
Sales of fixed assets							
<u>Others:</u>							
Total of cash inflows							
<u>Payments</u>							
Purchases (cash)							
Creditors (payments)							
Taxation							
Wages & salaries							
Dividends paid							
Fixed assets (purchases)							
<u>Others:</u>							
Total of cash outflows							
Cash Balance carried forward							

Other important items appear in the balance sheet like the fixed assets have already been discussed when dealing with capital expenditure

Having done projections of all the important items in the balance sheet, a projection of the balance sheets can be done as in the following figure.

Figure 9:

Projected Balance Sheets For The Years from 1979 to 1988

	Historical			Projected				
	1976	1977	1978	1979	1980	--	--	1988
<u>Fixed Assets</u>								
Cost								
less depreciation								
Written down value								
<u>Current Assets</u>								
Stocks								
Debtors								
Cash in bank								
Total Current Assets								
Total Assets								
<u>Share Capital</u>								
Share Capital								
Capital reserve								
General reserve								
Retained profits								
<u>Long-term liabilities</u>								
Taxation								
Debentures								
Long-term loans								
<u>Current Liabilities</u>								
Creditors								
Taxation								
Bank overdraft								
Total Liabilities								

3.3. Projections of Funds Flow

Having done projections of the balance sheets indicating the likely financial position of the company for future years, projections of fund flows have to be done to determine as precisely as possible the sources and applications of funds. The statement of funds flow is based upon the comparison between the actual balance sheet at the beginning of the planned period and the projected balance sheets from there on. The basic objective is to calculate the increases or decreases in assets and the increases and decreases in liabilities. (An illustration for that is shown in Appendix 1.8).

4. The Control Aspects

One important purpose of the long-range corporate planning is to provide a means for establishing control over performance in order to achieve desired objectives. Any company cannot gain the fruits of planning if it has not a control system which ensures the implementation of plans and the realisation of the company's objectives and target.

Welsch (10) points out that the control function has, as its objective, assurance of conformance with predetermined objectives and plans of the enterprise and each of its sub-divisions. Control, thus, is designed to check on the effectiveness with which those plans are being accomplished. Management must know whether or not policies and plans are being followed throughout the organisation; they must have indicators (reports) of defects in the plans and early warnings of deviations from established goals.

At the same time Koontz (41) points out that control implies the existence of plans. He continues by saying that in assuming clear and integrated plans, it must assume sound organisation. He also indicates that the control process, wherever it is applied, involves three steps:

- a) The establishment of standards;
- b) The appraisal of performance against these standards; and,
- c) The correction of deviation.

Meanwhile, in a precise statement, Massie (42) states that:

"Control is essentially a process of communicating the nature of results back to the source so that corrective action can be taken if necessary".

Millward (43) also points out that:

"To control, in the management sense, is to ensure that the instructions issued, on the plan of operations, have been carried into effect. The process of control is the measurement of performance by comparison with instructions, or programme, or plan".

Newman (44) also points out that:

"Controlling is seeing that operating results conform as nearly as possible to the plans. This involves the establishment of standards, comparison of actual results against the standard, and necessary corrective action when performance deviates from the plan".

This thesis is mainly concerned with planning and control in its broad sense i.e. the role of accounting in the three levels of planning and control. However, emphasis has been given to the role of accounting in long-range planning as this is needed for introducing it to the Egyptian Iron and Steel Company "Hadiolb". So in dealing with control, the three levels of control will be discussed, with special consideration to control over long-range plans. One important purpose of long-range planning is to provide a means for establishing control over performance in order to achieve desired objectives.

The National Association of Accountants (NAA) has carried out a study concerning long-range profit planning, reported in research report 42 (22). The majority of the companies participating in this

study use a two-stage procedure to make actions and results conform to plans. The approach consists of long-range control applied through the long-range profit plan and shorter-range control and follow up by means of annual budgets and a routine reporting system. In brief, the procedure is as follows:

1. The long-range profit plan is the guide for preparing the annual budget and defines actions that need to be taken now in order to move toward long-range objectives.
2. In preparing the budget, there is a year-by-year review of progress made toward realisation of long-range plans. To the extent that the long-range plan is incorporated into the annual budget, the usual budgetary control process acts as a control on actions needed to realise long-range plans.

The following quotation illustrates practices reported in the field study for integrating the long-range plan with short-range control techniques:

"In our planning system, the annual operating objectives form the bridge between the five-year guide plan, which reflects long-term corporate policy, and the quarterly budget plan which is largely an administrative vehicle. Preliminary to the establishment of the annual objective, an annual planning meeting is held at the general office with the management of each division. This meeting is a key step in welding together the various viewpoints of the general office and the division managements. Usually four or five top members of the general office staff and four or five top division management people attend. A preliminary annual operating objective, or a range of possible objectives, is presented to focus attention on the problems and areas requiring major operating decisions in the year ahead; these are discussed in the light of current conditions and in relation to the five-year guide plan. With this background guidance, the division then establishes its annual objective, which is authorised by the division head and subject to acceptance by the corporate president".

In long-range planning; feedback is needed as a means for achieving control over planned performance. Feedback, means providing information on operating performance for comparison against pre-determined results as a basis for taking corrective action to ensure realisation of planned results. There is a need for both short and long-range feedback of results against the long-range profit plan.

a) Short-range feedback

In short-range planning, feedback is an integral part of the budgetary control process. Short-range feedback consists of monitoring performance against the annual budget, which is considered a segment of the long-range plans.

b) Long-range feedback

This type of feedback consists of measuring overall progress towards long-range objectives specified in the long-range plans.

One of the participating companies in the field study carried out by the NAA describes the method developed for the purpose of monitoring performance against the long-range plan as follows:

"Annual and cumulative to-date results are compared against the original objectives specified in the long-range plan. But it is the annual operating budget, with its comprehensive system of performance measurement and routine reports for control and follow-up, that is used for enforcing control."

Part Two

The Steel Industry in Egypt
Hadisob and its Organisation

Chapter Five:

The Steel Industry in Egypt

1. Historical Review of the Steel Industry in Egypt.

The Egyptian steel industry started privately shortly after the Second World War on a very modest scale. The appearance of the steel industry in Egypt at this time may be attributed to four reasons:

First: War expenditure led to a boom in construction, which increased the steel consumption of the country to an annual average of 300,000 tons, against the pre-war average of 100,000 tons. (45)

Second: The Desert Campaigns resulted in the accumulation of great quantities of scrap, which was cheap and easily transportable. (46)

Third: War expenditure by Allied Forces enabled the accumulation of a considerable amount of capital, as the following table show.

Table 5: Capital Formation During the War (45)
L.E. Millions

Year	National Income	Personal Expenditure on Consumer Goods & Services	Net Capital Formation
1939	168	148	8
1940	191	146	33
1941	233	167	51
1942	326	228	76
1943	390	271	78
1944	464	292	132
1945	502	326	122

Finally: the post-war increase in the prices of steel imports acted as a natural stimulant to local production.

So, the increasing demand for steel, together with the availability of cheap raw materials were the main factors which led to the emergence of the industry. (47) and (48)

The total value of steel products imports reached over LE 13M in 1942 and continued to increase till it reached over LE 22M by 1960.

Three private companies undertook steel production from scrap. The oldest of the three, the Egyptian Copper Works, was established in 1936 as a joint-stock company. During the war, restrictions on imports forced it to stop production. After the end of the war, the company decided to produce steel from local scrap from the Western Desert. The capital of the company was LE 80,000, mostly owned by Egyptians. (50)

In 1946, the second company was established, the National Metallic Co., S.A.E, with a capital of LE 120,000 to produce steel from scrap. It had one Siemens Martin Furnace, the first to be seen in the Arab world. (51)

The third company, Delta Steel Co., S.A.E., was established in 1947 with a capital of LE 50,000. (46)

The three companies had a total capacity of 100,000 tons of steel products annually; but they produced at half that capacity, the rest

of Egypt's steel needs being imported at an annual cost of over LE 10M (52). Under-utilisation of capacity was due to the limitations on the supply of scrap.

In 1954, the National Bank of Egypt reported:

"The industry, relying on scrap, may have to stop production in a few years since stocks in the country are being consumed". (53)

2. Early Government Efforts

Geological surveys provided evidence that iron ore existed at Aswan, the Baharia Oases and the Eastern Desert. (54) The Aswan Ore was the most completely surveyed, because of its location near the River Nile and other transport facilities. (55) Its iron content was estimated at from 44% to 56% and it contained no sulphur and little silicon. (54) The surveys were made as part of the ordinary functions of the Ministry of Commerce and Industry (The Geological Administration), and were brought to the attention of the Government when it became aware at the end of the war of the increase in demand for steel products and the burdens which this imposed on the country's balance of payments. The Government then started investigating the possibility of establishing a steel industry in Egypt; through the Ministry of Commerce and Industry. (54) It engaged some international advisors, such as Loftus Engineering of Pettisborough and the Austrian expert Fritz Schusterschitz. (54) Preliminary investigations by these experts led to the emergence of two proposed projects. The first project to be located at Aswan would depend upon the utilisation of the Aswan Dam electricity. The other, to be located at Cairo, would take advantage of the proximity of the

metropolitan markets (54). Both of the two projects involved great business risks, particularly as no proof was yet available that coke existed in Egypt, and neither could be undertaken without Government's support.

It is very important to point out that the Egyptian Revolution led by President Nasser took place in July 1952 and the Revolutionary Council was not yet clear as to the political attitude; also the political crisis of the post-war era caused unco-ordination and hazard in the Government's efforts. The Government was not clear as to its role in industry. Moreover, for political reasons the Government discharged some British personnel engaged in geological research concerned with the steel industry, failing to distinguish between its relations with the British Government and those with the British technical personnel in its service. This left the two projects proposed for establishing a steel industry in Egypt scattered among several governmental branches, the Ministry of Commerce and Industry, the Ministry of Public Works, and the Foreign Ministry.

In 1952, a Production Council was established which drew up a programme for public expenditure in agriculture, irrigation, utilities, and industry. The Council put forward a framework of a ten-year programme in which industry was to receive LE 40M of the total proposed expenditure of over LE 330M. Iron and steel was one of the projects to which the Council gave priority within the industrial programme.

The Council justified the establishing of the iron and steel industry

as follows: (56)

1. The industrialisation of Egypt, which the Council announced to be one of its long-run objectives, would demand the establishment of this particular industry.
2. To meet local demand for steel which was concerning foreign exchange, greater indigenous production was required.
3. This industry would enable the expansion of the existing steel industry, which could depend upon semi-finished steel products as their basic material for production.
4. The industry would meet the needs of the industrial projects which the Council was planning to launch in Egypt.
5. This industry symbolises the national independence of the country and the starting of the route to economic development.

From an economic point of view, the arguments which the Production Council put forward to justify the establishment of the iron and steel industry in Egypt, were of defective validity. The steel industry being capital intensive was highly absorptive of the scarce factors of production. Moreover, its construction and running-in period was a very long one. (57), On the other hand, it could be argued that such heavy and capital intensive industries would, in the long run, justify themselves, by laying the basis for a sounder, more diversified and more self-sufficient industrial structure. (57)

The Production Council announced the intention to establish an iron and steel factory depending upon the Aswan ore and imported coke with a primary capacity of 210,000 tons of steel in sections, plates and sheets.

By-products would include 225,000 tons of slag, 50,000 tons of phosphoric fertilisers and blast furnace gas to be used for the operating of an electric power station of a capacity of 45,000 kw. (49), (56)

The project would initially be based upon the working of two blast furnaces with a primary capacity of 250,000 tons.(56). The initial production would need 650,000 tons of Aswan ore, 300,000 tons of dolomite and limestone (also locally available) and 300,000 tons of imported coke.

The Council invited foreign firms, either independently or through local agents, to submit their estimates. This was accompanied by the offering of improved facilities to foreign capital and investments. The Council in its communications with foreign firms which showed interest in the project made it clear that preference would be given to offers that involved "foreign participation in finance and management" (54). The facilities offered included access to previous studies made on the project by foreign experts.

From several foreign firms the Production Council, which directly negotiated with some German firms, announced in early 1954 that it had accepted an offer from a German firm called Demag. Dr M A Selim, a senior member of the Production Council, pointed out that Demag's offer was the best of all the other offers; that this had been the only reason for accepting it; that the Council would seek the support of private investors; and that it had no intention at all of cutting out the role of the Egyptian business in economic development. (54) Demag's qualifications, he said, were exactly the type required.

The Council would like to have a firm to advise on the establishment of the steel factory and to supply the necessary machinery.

Additional reasons for accepting Demag's offer:

1. Demag's estimates were submitted as final,
2. Demag had suggested a maximum cost margin above estimate of 3%,
3. Demag asked for no immediate payment after signing the agreement, and
4. Demag had not made any stipulation about machinery which would not be bought through them. (54)

In February 1954, an agreement was signed between the Production Council, the Egyptian Government, Demag and the Egyptian Bank for Industry. The agreement provided the following: (54)

1. Demag was to plan the general layout of all main and ancillary departments, and to act as engineers-in-charge during the installation of machinery. As consultant engineer, it was to prepare specifications of machinery, material and equipment and examine the various tenders for their supply.
2. Demag was to participate in the capital at the level of 20% of the cost of machinery; up to a maximum of LE 2M.
3. Demag was to be represented on the Board of Directors by one member (during the first four years at least).
4. The Government was to guarantee a 4% return on shares, starting three years after the establishment of the company.
5. The Government was to participate in the initial capital by LE 2M worth of machinery and equipment and to guarantee the raising of the necessary indigenous finances.

6. The Production Council was to contribute at least LE 1M of the capital of the company; the Bank of Industry LE 1/4 M; and Bank Misr LE 1M.

Bank Misr share in capital was to be contributed by the Bank itself (LE $\frac{1}{2}$ M) and two of its companies: Misr Insurance Co., LE 1/4M, and Misr Spinning and Weaving Co., LE 1/4M.

3. The Egyptian Iron and Steel Company

- HADISOLB -

In May 1954, the Egyptian Iron and Steel Co., SAE was established. (58)

The Decree of Establishment stated the purposes of the company as the following:

1. To exploit the Aswan iron ore mines,
2. To establish and run a steel factory depending upon the Aswan iron ore,
3. To trade in the products of the factory,
4. To supervise all the operations related to the above-mentioned purposes, and
5. To undertake all the necessary financial arrangements.

The founders of the company, i.e. the Production Council, the Egyptian Government, Demag of Germany, the Bank of Industry and Bank Misr, agreed to contribute to the capital as provided in the February agreement. The total capital of the company was to be LE 19M, divided into two million shares of LE 1 and 8.5 million shares of LE 2. The former shares were to represent the Government's initial contribution to the capital of the company which was paid in real terms as machinery and equipment.

The company was to be run by a Board of Directors consisting of a maximum of seven members, in which the Government would be represented according to its share in capital, like any other share-

holder. Membership of the Board of Directors was for a period of five years, except in the case of the Government representatives who were to be appointed for three years only. Decisions were to be taken by majority vote. The Board was to be responsible only to the General Assembly.

The General Assembly was to consist of all shareholders. It would debate the annual reports of the Board of Directors and approve them. It would receive from the Board of Directors the annual reports and accounts, and elect a chartered accountant to audit and approve the accounts.

The Decree of Establishment was like an ordinary joint-stock law apart from the following additional provisions:

1. The first Board of Directors should represent the founders only, as follows:
 - 3 members to represent the Government,
 - 2 members to represent the Production Council, and
 - 1 member to represent each of the other 5 founders -
The Bank of Industry, Bank Misr, Demag, Misr Insurance Co., and Misr Spinning and Weaving Co., Thus the first Board of Directors was to consist of ten members. These were to hold office for three years, after which the normal provisions should apply.
2. The General Assembly could not question the Government's choice of its representatives to the Board of Directors.
3. At least 10% of the company's net profits were to be transferred

to a general reserve up to the point when it reached 50% of the total capital of the company.

4. 5% of net profits of the company were to be spent in the purchase of the Government's Bonds.
5. The Chairman of the Board of Directors was always to be appointed with the approval of the Government.

Chapter Six:

Management and Organisation Structure

Having discussed in the previous chapter the history of the steel industry in Egypt followed by a detailed review of the establishment of the Egyptian Iron and Steel Company "Hadisob", it follows now to turn my discussion to review (a) the early structure of the Board of Directors, followed by (b) the various developments made in its structure, (c) the various developments made in the organisation structure, and (d) the history of operations.

1. First Organisation Structure and Various Developments

The first Board of the company was appointed by the founders viz. the Government, the Production Council, the Bank of Industry, Bank Misr, Misr Spinning and Weaving Co., Misr Insurance Co., and Demag. All ten members of the first Board of Directors were part-timers except the Chairman and the "Executive Member". As a practice followed by most Egyptian joint-stock companies, the Board of Directors appointed a General Manager; the managerial authority was entrusted to the General Manager under the day-to-day supervision of the Executive Member, while the Chairman was to concentrate on relations with the Government and the public. In general, neither the Chairman nor the Executive Member were supposed to take policy decisions on their own, but only to participate in the taking of such decisions by the Board of Directors as a whole.

The main functions of the first Board were "to take the necessary steps to bring the project to life".(59). It had to establish a managerial organisation, prepare the site, make the contract with Demag and make

the necessary arrangements for the supply of raw material.

The first managerial structure which was set up is represented by the following chart:

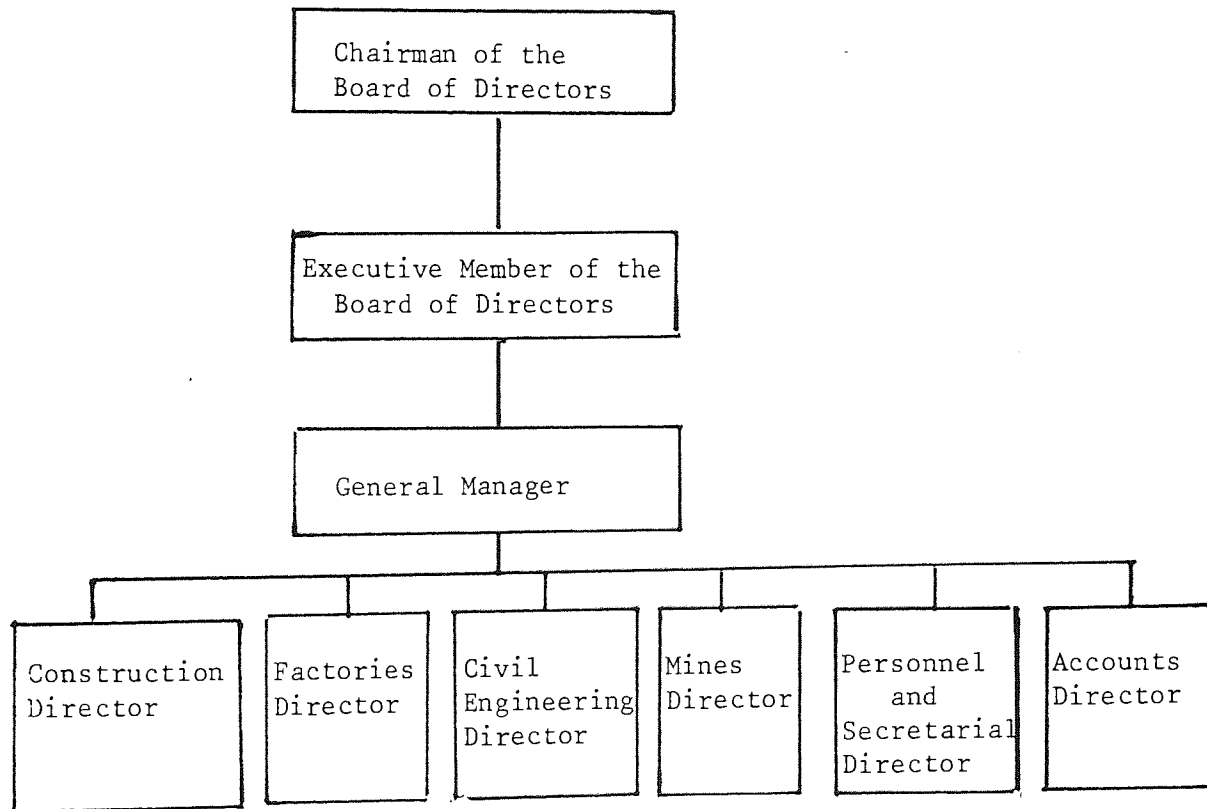


Figure 10: Hadisolb 1st Organisation Chart: 1954/57.

This structure was straight forwardly hierarchical. The mines department, for instance, had its own accounts and personnel offices which acted as staff agencies to the Mines Director and were responsible for technical matters, to the Accounts and Personnel Directors at headquarters at Helwan.

In 1957, the Economic Development Organisation "E.D.O" was established to control all public participation in the economy. It took over the shares of Government, the Production Council (which was abolished) and the Bank of Industry in the capital of the company. Soon after the establishment of the E.D.O. and the subjection of the company to its authority, managerial re-organisation took place. The posts of the Executive Board Member and General Manager were abolished and the Chairman became Chief Executive. Five staff functions were established and attached to the Chairman of the company.

The following chart shows the new organisation chart.

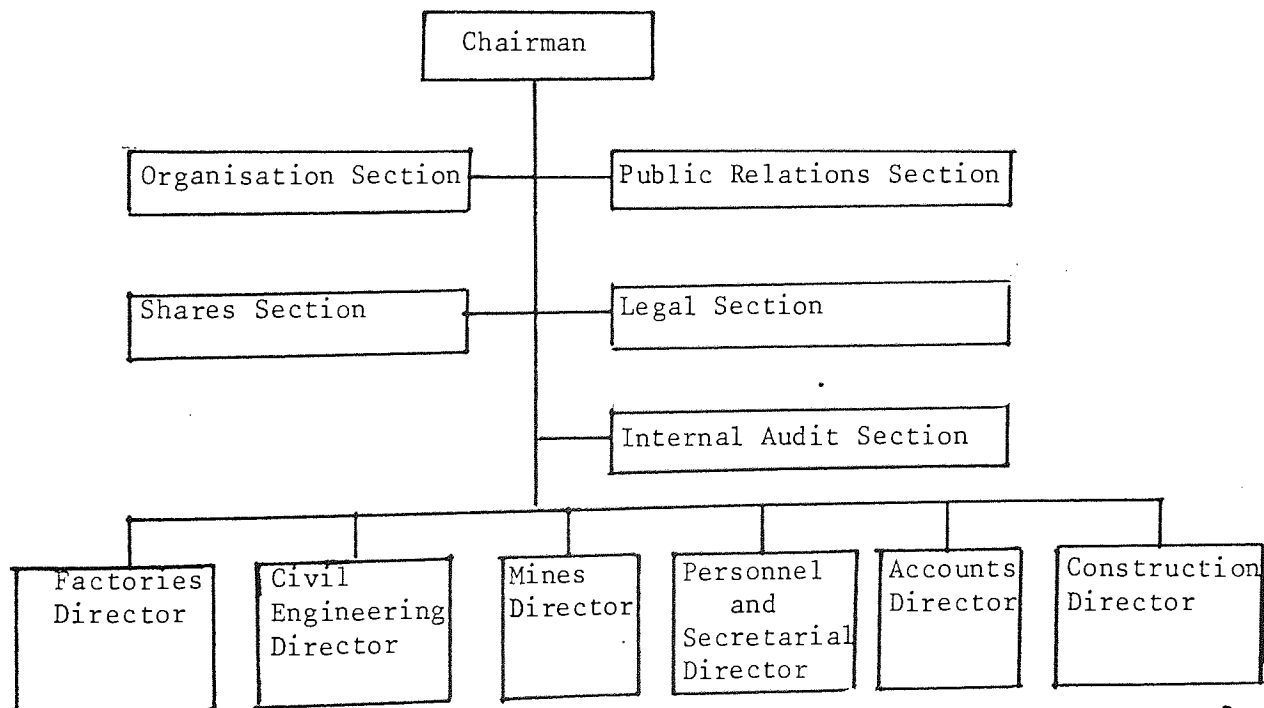


Figure 11: Hadislob, Organisation Chart 1958/1959

The establishment of the five staff functions underlines the significance of putting the Chairman in charge of all management,

and that the Chairman needed a strong body of advisors.

During 1959, further re-organisation took place. The Shares Section was merged with the Public Relations Section. The Personnel and Secretariat Department was enlarged and became a Department for Industrial Relations. A new post was established, the Commercial Director, who took over the Accounts Director Department. Finally, the Construction Department became a section in the Factories Department. The following chart shows this third re-organisation.

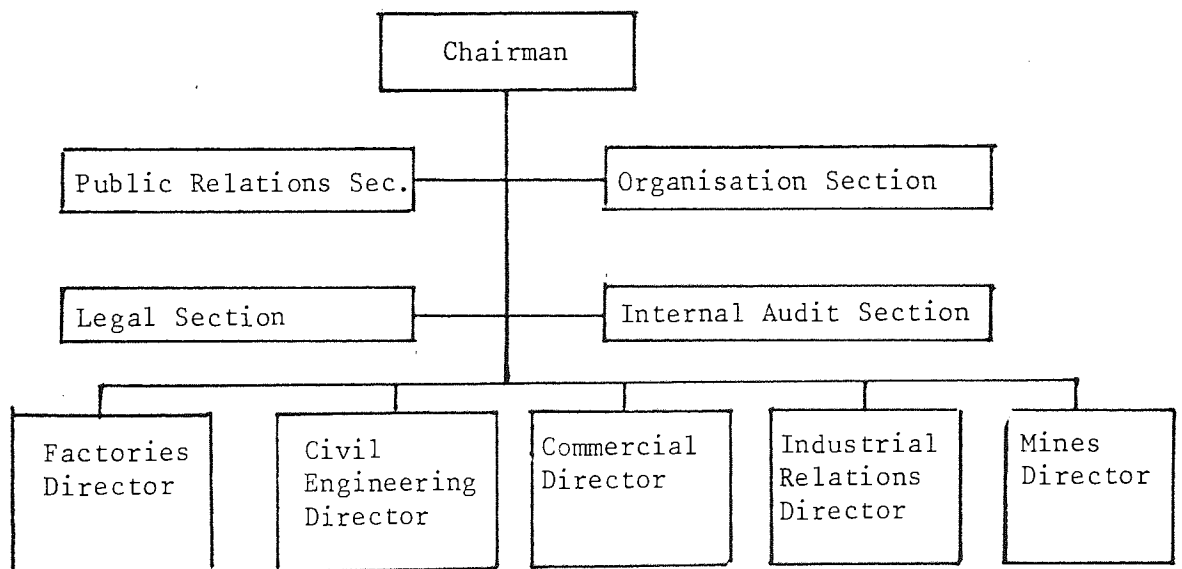


Figure 12: Hadisob Organisation Structure Chart 1959/1960
Several more re-organisations took place.

It is not the writer's intention to comment on all those re-organisations which happened in the far past, rather to concentrate on the present organisation structure of Hadisob, to assist the author in examining the planning and control processes carried out by Hadisob.

2. Present Hadisolb Organisation Structure

In 1979, Hadisolb carried out a restructuring of its organisation, which, while not changing the basic principles or the number of hierarchical levels, regrouped certain functions.

1. Board of Directors

Hadisolb's present Board of Directors consists of nine members:

- a. Five members are appointed by the Minister of Industry, Petroleum and Mineral Wealth. These five members serve for indefinite terms and at the time the author conducted his field research, those five appointed members by posts are:
 - Chairman
 - Deputy Chairman - Services and Utilities
 - Deputy Chairman - Production
 - General Manager - Financial Affairs
 - General Manager - Mines and Quarries.

- b. Four members are elected from the ranks of workers and employees by a secret ballot of workers and employees for two year terms. By Government edict at least two of the four elected must be workers i.e. rank of front-line foreman or below.

- c. The Chief of the labour union attends Board meetings as an observer with no voting rights. He may, however, participate in discussions.

The Board of Directors has full authority to execute various duties

in the interest of the company, mainly:

1. To set executive plans to ensure production development, quality control, good and economic utilisation of available resources and everything that can possibly increase production.
2. To set the policy to raise personnel productivity and to realize high efficiency and smooth running of the unit.
3. To put basis on production cost for the various activities carried out by the unit as well as its operational indices.
4. To put personnel schedules in the company with special consideration to correct economical management.
5. Follow-up of project execution on agreed-upon-date.
6. Realisation of estimated revenues and expenses in the budget and striving to raise revenue and decrease expenses.
7. To set rules and regulations for working overtime.
8. To set a system for training of manpower in the company with respect to newly engaged workmen as well as upgrading for old personnel. (54)

As prescribed by law, Hadisolb Board of Directors must meet at least once each month. Meetings are held in the Chairman's Office and are presided over by the Chairman or, in his absence, by one of his two deputy chairmen. Meetings are usually of one day duration but can last longer.

An agenda is prepared and distributed to Board members prior to each meeting with the following reports attached:

- a. Production statistics
- b. Sales statistics
- c. Inspection and quality reports
- d. Financial reports
- e. Quarterly cost reports
- f. Labour situation
- g. Memos from Project Department on new projects
- h. Once per year, Annual Report and Budget for following year

Board meeting discussions regularly cover significant points in the above reports which are standing items on the agenda. Other items on the agenda are then discussed as well as subjects introduced by individual members.

The following document which the author finds very interesting and of significance is a summary of items, other than the regular monthly reports, discussed at the 15 Board meetings, held in 1977. These statistical data are based upon the Secretary's meeting minutes.

Table 6

	Occurance	Total Hours	Percent of Total Time
a. Annual Budget	1	5	6
b. Financial affairs	14	12	14
c. Corporate liquidity	2	10	11
d. Organisation matters	1	5	6
e. Job classification/specification	11	11	12
f. Personnel affairs	100	30	33
g. Commercial affair	8	4	4
h. Special production problems	4	4	4
i. Purchasing and delivery problems	2	2	2
j. Specific cost and profit results	1	2	2
k. Other special problems	5	5	6
Total	149	90	100

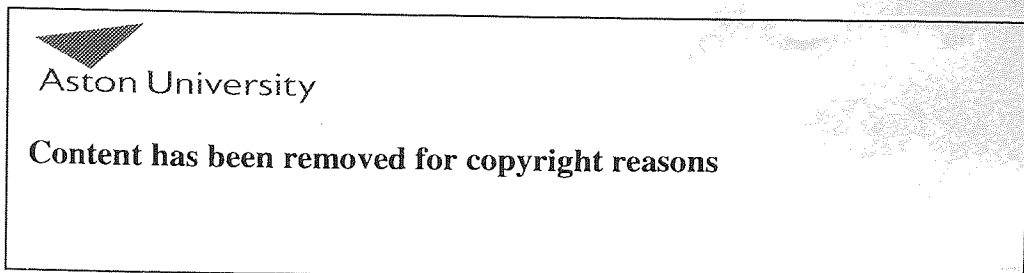
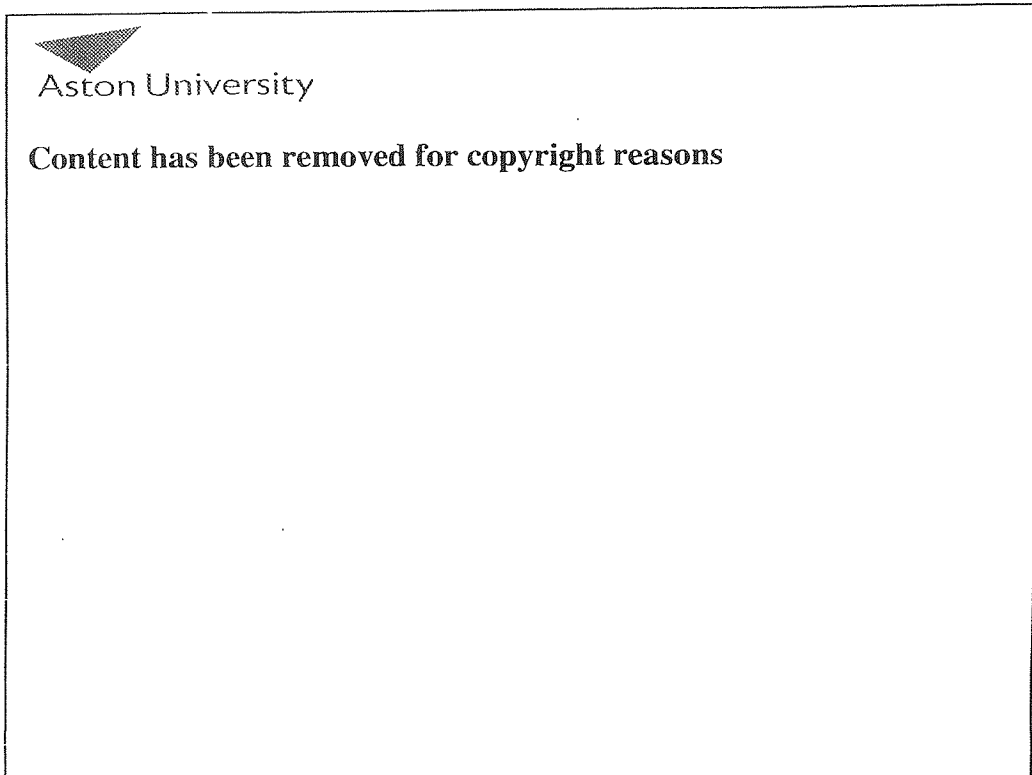
While the author has no intention to comment on something like that at the moment, however, the following general observation applies:-

"The analysis of Board meetings devoted to matters other than regular reports, shows that 51 percent of the total time is spent on organisation, compensation and personnel matters (items d, e and f in the summary above). This appears to be a disproportionate amount of the Board's time considering Hadisolb's serious financial, commercial, raw materials, operational, and purchasing problems". (60).

This revised organisation chart now in effect at Hadisolb is shown below.

Figure 13

Figure 13: A structure chart (this revised organization)



Hadisolb Present Organisation Structure Chart Revised in 1979
Source: Organisation and Management Sector "Hadisolb" (61).

In 1979 the Board of Directors announced this revised organisation structure of Hadisob together with reasons for doing such revision; in the following:

The Egyptian Iron & Steel Company
General Framework for
Hadisob Organisation Structure

Because of the developments in the system of operation in the company after the recent new expansions. From which the second stage is expected to be put in operation after completion during the first half of next year (1979) and within the framework of law 48 for year 1978 issued to organise the workers in the Public Sector. The management foresaw doing some adjustments and developments in the company's present organisation structure to redeem the shortfalls which exist and to coincide with the developments done in the company's activities according to what follows:

First - dividing the general activities of the company to basic sectors which include the following activities.

<u>Sectors by Quality</u>	<u>Units under supervision</u>
1. Mining and Quarries	Gedida Mines
Sectors	Aswan Mines
	Beni Khalid Quarries
	Refai and Adabia Quarries
2. Iron and Steel-	<u>Iron which include:</u>
making Sectors	Sintering
	Blast Furnaces 1, 2, 3, 4
	Skip
	Cast Pouring Machine

Sectors by Quality

Units under Supervision

- Steel which include:
- Thomas Convertors
 - Electric Furnaces
 - Oxygen Convertors (LD Shop)
 - Stone and Dolomite
 - Continuous Casting
 - Rolling sections and Flats
 - Hot Rolling Mill
 - Cold Rolling Mill
 - Medium Sections Rolling
 - Cold Forming
3. Forming
4. Maintenance and Utilities
- Centralised Maintenance and Repairs
 - Spare Parts Production
 - Metals Departments
 - Civil Maintenance
 - Mechanic Maintenance
 - Electric Power
 - Machines and Communications
 - Transportation
5. Research and Development
- Laboratories
 - Quality
 - Heating Isolators
 - Research
6. Planning and Projects
- Central Planning
 - Production Planning and Monitoring
 - Projects Planning
 - Projects Implementation
 - Information Centre.

Sectors by Quality

Units under Supervision

7. Financial and Commercial Affairs	Financial Affairs Purchase Stores Financial Control
8. Sales	Local Sales Export Sales Finished Goods Stores
9. Managerial Affairs	Personnel Affairs Managerial and Social Medical Industrial Security Security Affairs

Second: The determination of high posts which fulfill the superior grade, by eight posts with regard to the evaluation of the basic activities in the company as follows:

1. President of the Board of Directors (Chairman)
2. General Director of Mining and Quarries Sectors
(Member of the Board)
3. General Director Iron and Steel Making Sectors
(Member of the Board)
4. General Director Forming Sectors
5. General Director Maintenance, Utilities and Services Sectors
(Member of the Board)
6. General Director Quality Control, Laboratories and Research Sectors
7. General Director Planning and Projects Sectors
8. General Director Financial and Commercial Sectors
(Member of the Board)

Third: The determination of high posts which fulfill the high grade by twenty eight posts and for general managers by seventy six posts.

Fourth: Structuring of High Council for sectors presided by the Chairman and the General Directors of all sectors as members for the follow up of policies implementation imposed by the Board of Directors.

Fifth: Structuring of a Council for all sectors presided by the General Director of each and Directors of each sector and managers of each department as members for the implementaton which concern each from the policies imposed by the High Council for sectors and the Board of Directors.

Sixth: The decentralisation of managerial and financial affairs in major sectors by supplying each sector with the following units:

1. Financial Affairs which include:

- Costing
- Salaries and wages (Auding, Adjustments and Payments)
- Day by day consumable expenses (Auditing and Payments)
- Urgent Purchases (for regular production flow)
- Sub-stores

2. Managerial Affairs:

- What is due for personnel from wages, incentives, rewards, financial adjustments, holidays and punishments
- Personnel Affairs
- Social, sport, entertainment, housing and medical services
- Industrial security

Seventh: Each sector is considered as an independent unit which has its own budget to operate within from the point of:

- Wages
- Product requirements
- Services requirements
- Production plan
- Cost

Moreover, each unit has its own system for incentives and rewards and any systems which lead to improvements and rising of performance ratios and increasing in production according to the policies imposed by the Board of Directors.

The following is a comparison between the present quantity of production from steel and the target after the completion of the second stage of expansion:

Present Production	506,840 tonnes p.a.
Target	1,500,000 tonnes p.a.
Ratio of growth	196%

Chairman

President of the Board of Directors

Engineer Fouad Abu Zaghla

In addition to the High Council and the sector's councils mentioned in the Board's issue above, there exist executive committees which are sub-committees of the Board of Directors. This is a common practice in all companies in the public sector, whose function can vary from company to company but the usual pattern is to:

1. Serve in an advisory and counselling role to the Board of Directors. Committees can include specialists in specific areas, or they can recruit such expertise in-house or from outside organisations on an ad hoc basis.
2. Serve as working groups for the Board of Directors, to take specific assignments, develop solutions and for recommendations and report back to the Board.
3. Serve as review or screening groups for proposals before they are submitted to the Board of Directors. For example, it is a common arrangement to have the Executive Committee - Planning review and clean all capital appropriation requests before they are submitted to the Board for approval.

Each Executive Committee is chaired by a member of the Board of Directors. Committees should meet at regular intervals and should have ongoing responsibility assignments. Executive Committees perform an advisory, and in-house consulting service to the Board of Directors and must report back to the Board. They must not be assigned, nor allowed line implementation type activities.

3. Executive Committees

Hadisob has six formally-established Executive Committee with membership as follows:

- a. Safety Committee:
- Chairman - Deputy Chairman Production
 - Manager - Safety
 - Department Managers
- b. Production Committee:
- Chairman - Deputy Chairman Production
 - Board of Directors (3)
 - Department Managers (4)
 - Labour Union (7)
 - Ad Hoc Members (as required)
- c. Training Committee:
- Chairman - Deputy Chairman Production
 - Manager - Training
 - Department Managers (about 7)
- d. Personnel Affairs Committee:
- Chairman - Deputy Chairman Production
 - Manager - Personnel Affairs
 - Department Managers (4)
 - Labour Union (1)
- e. Foreign Purchasing Committee:
- Chairman - Chairman of the Board
 - Deputy Chairman - Production
 - General Manager - Mines and Quarries
 - General Manager - Financial Affairs
 - Manager - Purchasing
 - Ad Hoc Members (as required)
- f. Export Committee:
- Same membership as Foreign Purchasing Committee except Manager - Purchasing is replaced by General Manager - sales.

In addition to the foregoing six Standing Committees, special temporary committees are created as the need arises.

All Hadisolb Executive Committees have regular meetings once each month, and special meetings as required. All Executive Committees report officially to the Chairman of the Board. However, because the Chairman of each Committee is also a member of the Board of Directors, most reporting takes place in meetings of the Board.

Chapter Seven:

Facilities, Processes, Products, Markets and Marketing

In this chapter, the author intends to discuss the products which Hadisolb produces and the markets of these products. Firstly, however, I find it necessary to include a brief discussion about the existing facilities in Hadisolb. The present chapter will therefore be divided into the following sections:

Section One: 1. Existing facilities

Section Two: 2. Product Range

3. Processes

4. The Market

5. Hadisolb's Marketing Policies.

Section One:

1. Existing Facilities

The Egyptian Iron and Steel Company, Helwan Steel Works, is an integrated steel plant which was commissioned in stages, starting from June 1958. Initial ingot steel capacity was 300,000 tonnes per year and has been increased through programmes of expansion to a current approximate capacity of 1,500,000 per year of raw steel (continuous cast slabs and billets plus ingots). The current full capacity is supported by coking, sintering, iron making and finished product facilities as established by the product plans of the last stage (Stage 2) of the USSR expansion plans for Helwan Works, completed in 1978 - 1979. A description of each major facility follows:

1. Coke Plant

The Al Nasr coke works is operated as an independent company, the Al Nasr Company for Coke and Chemicals. The coke plant is included in the Helwan plant existing facility because it is the Helwan's sole domestic source of metallurgical coke. In addition, the two plants are interrelated in that Al Nasr's excess coke oven gas is a source of energy for Helwan, and the coke batteries are a potential customer for Helwan blast furnace gas.

The coke plant was built and progressively enlarged in four major steps, as follows:

- a) In 1964, No. 1 coke battery and the associated gas processing units were put into operation.
- b) In 1971, operations were started in the newly constructed fertilizer plant.
- c) In 1974, No. 2 coke battery and additions to gas processing units were put into operation.
- d) The new No. 3 coke battery and the new gas processing area were completed in 1977. This coke unit was placed in operation in 1979.

2. Sintering Facilities

No. 1 Sinter Plant

The No. 1 sinter plant, built in 1964 and expanded in 1975, was designed to supply screened sinter to No. 1 and No. 2 blast furnaces. It has a rated capacity of 750,000 tons per year but a projected

attainable production of 505,000 tons per year of skip sinter. The sinter from No. 2 plant is transferred by conveyor and transfer car to the blast furnace bins.

No. 2 Sinter Plant

The No. 2 sinter plant started production in January 1974, when two of the four sintering lines began operations. The other two lines were placed in production in February and September 1977, respectively. The No. 2 sinter plant was designed to supply screened sinter to the new Nos. 3 and 4 blast furnaces. It has a rated capacity of 2,400,000 tons per year of skip sinter, but a projected attainable production of 1,895,000 tons per year based on producing self-fluxing sinter from Baharia feed ore (details about Baharia ore will be discussed later when discussing raw-materials).

3. Raw-Material Handling Facilities.

Incoming raw material handling facilities include a single railroad car, unloading unit, blending yards and an ore preparation plant.

4. Blast Furnaces

Hot metal production equipment consists of four blast furnaces, each with its own stock house and cast house. Nos. 1 and 2 blast furnaces, which were built in 1958 and are skip charged, have a common high-line and transfer car system for charging the stock houses. Nos. 3 and 4 blast furnaces were erected as a part of the 1972 expansion plan, with No. 3 furnace start of production in 1974.

No. 4 furnace is part of the full development stage of the expansion plan, and started operation in May 1979.

Metallurgical coke consumed is received from Al Nasr Coke Works by belt conveyor at blast furnace Nos. 3 and 4 and by railroad car at blast furnace Nos. 1 and 2.

Sinter from No. 1 sinter plant is delivered to blast furnace Nos. 1 and 2 stock house by transfer car. Sinter from No. 2 sinter plant is delivered to blast furnaces Nos. 3 and 4 by belt conveyor.

Blast Furnace Nos. 1 and 2

Blast furnace Nos. 1 and 2 are a part of the original Demag plant constructed at Hadisolb and began operations in 1958. They are identical in design and dimensions. They provide hot metal for Thomas Shop (Thomas Convertors). They produce high phosphorous iron for use in the Thomas Shop. Current projected attainable production rate is 175,000 tons per year per furnace with a net coke rate of 870 kg. per ton.

Blast Furnace Nos. 3 and 4

Blast furnace nos. 3 and 4 are part of the expansion plan for Hadisolb which increased raw steel capacity to 1,500,000 tons per year. Both furnaces are identical Russian design. Hot metal produced from blast furnace No. 3 and No. 4 is normally shipped to the LD steel producing shop. Current projected attainable production rate is 650,000 tons per year per furnace with a net coke rate of 650 kg. per ton.

This current practice falls short of the prediction made by the Russian Detailed Project Report, where the expected production rate is established at 1,915 tons per day per furnace with a net coke rate of 486 kg. per ton.

All blast furnaces are supplied with other facilities which are not the main purpose of this thesis.

5. Steel-making Facilities

The present steel-making facilities at Helwan represent three separate technologies located in two distinct and separate steel producing operations within the plant. The first operation, known as the Thomas Shop, includes the technologies of Basic Bessemer Convertors and Electric Furnaces and produces raw steel in the form of ingots. The second facility is the LD shop which utilises the more modern technology of top blown oxygen conversion for steel-making, producing steel for continuous casting.

5.1. Thomas Shop

The Thomas Shop is the original steel producing facility installed in the plant. It was built by Demag in 1958 to produce 300,000 MT of raw steel ingots per year for conversion to semi-finished and finished steel products. The facility consists of four basic Bessemer (Thomas) convertors with 17 MT heat size capacity and two electric furnaces with 13 MT heat size capacity. Steel ingots produced are "ground poured", stripped from the moulds by crane and loaded on ingot transport rail cars for shipment to the soaking pits for rolling.

The two electric furnaces contained in the Thomas Shop have a rated capacity of 40,000 MT per year. The actual production is 48,000 MT of ingots per year.

5.2. LD Shop

The LD shop is a basic oxygen steel-making which started operation in 1974 as part of the Helwan Expansion Programme. Phase 1 of this programme installed two convertors, and Phase 2 provides for the installation of a third convertor in this shop. In the full development stage (after completion of Phase 2), the operating plan of the Expansion Programme is based on the operation of two convertors, with the third convertor being in re-line or available status. On the basis of this plan, the rated capacity of this shop is 1,200,000 MT of raw steel per year. All liquid steel produced in the LD shop is continuous cast into slabs and billets.

5.3. Rolling Mills

5.3.1. Old Rolling Mills

The old rolling mills are a part of the original plant facilities at Helwan, built by Demag between years 1958 to 1960. Included are a blooming mill, heavy section mill, light section mill, plate mill, and finishing and shipping facilities for the products produced.

5.3.1.1. Blooming Mill

The blooming mill is a 900 mm, 2-high reversing mill supported by soaking pits. The mill has a rated rolling capacity of 480,000

tons of ingots per year. The soaking pits have a heating requirement of 300,000 tons of ingots per year, which is the stated ingot production per year for the plant. The mill is designed to produce billets and blooms from 140 x 140 mm to 225 x 225 mm for further processing in the heavy section mill and the light section mill, and slabs from 80 mm to 170 mm thick up to 500 mm wide for processing on the plate mill.

5.3.1.2. Heavy Section Mill

The heavy section mill is designed to produce merchant sections structurals, rails, railroad ties (sleepers), fishplates, flats, billets, etc., It is designed to "direct roll" from the Blooming Mill, with only a small reheating furnace provided for charging cold blooms. The heavy section mill has a stated capacity of 180,000 tons per year, including 55,000 TPY of small billets (80 x 80 mm to 120 x 120 mm) for processing on the light section mill.

5.3.1.3. Light Section Mill

The light section mill is a 360/280 mm mill which produces bar size sections. The mill consists of a 3-high roughing stand, 4-stand continuous intermediate rolling, and 4 finishing stands with looping between each stand. The mill has a rated capacity of 100,000 tons per year.

5.3.1.4. Plate Mill

The plate mill produces plate products from 5.0 to 25 mm thick and up to 1500 mm wide. It is supplied with rolled slabs from the

primary mill and cast slabs from the continuous casting facility.

5.3.1.5. New Rolling Mills

The hot strip mill and cold reduction and finishing (flat products) areas have been in operation for about ten years. These facilities were installed as part of Stage 1 of the expansion plans and are of Russian design. These areas include the following production units:

- One 1200 mm semi-continuous hot strip mill.
- The mill is capable of rolling strip from 2 mm to 7 mm in thickness and from 500 mm to 1050 mm in width, with coils weighing up to 7.5 tons. Two slab reheating furnaces are provided. The annual production capacity of this mill is 835,800 tons.
- One 1,200 mm continuous pickle line, capable of handling strip from 2 mm to 7 mm in thickness and up to 1,050 mm in width, with annual production capacity of 430,000 tons.
- Two 1,250 mm 4-high reversing cold reduction mills, capable of rolling strip from 0.22 mm to 1.5 mm in thickness and up to 1,050 mm in width. The annual production capacity of the two mills is 313,200 tons.
- One 1,200 mm electrolytic cleaning (degreasing) line, with a gauge range of 0.22 mm to 0.35 mm; the annual capacity is 69,700 tons.
- Twenty-seven bell-type annealing furnaces designed to handle strip of 0.20 mm to 2.5 mm in gauge, up to 1,050 mm in width,

- One 1,200 mm, 4-high, single stand temper mill, designed to handle a gauge range of 0.22 mm to 1.0 mm and up to 1,050 mm in width, with an annual capacity of 422,100 tons.
- One slitting line for strip, with a gauge range of 0.5 mm to 2.5 mm, capable of handling 1,050 mm maximum strip width.
- One slitting line for band, with a gauge range of 0.25 mm to 1.0 mm, 1,050 mm maximum strip width. The annual capacity of these two slitting lines is 116,300 tons.
- One shear line, with a gauge range of 0.5 mm to 2.5 mm, 1,050 mm maximum strip width.
- One shear line, with a gauge range of 0.20 mm to 0.80 mm, 1,050 mm maximum strip width. The annual capacity of these two shear lines is 253,200 tons.
- One combination shearing and slitting line for hot rolled strip capable of handling 2 mm to 7 mm gauge range; the normal strip width is 870 mm. The annual capacity is 220,400 tons.
- One sheet corrugator, designed for sheets 1 mm thick and 2,000 mm width, with annual capacity of 30,000 tons.
- One hot dip sheet galvanizing line, producing 0.89 mm x 650 mm wide sheets, with annual capacity of 26,300 tons.
- Six hot dip tinning lines, designed to produce 45,000 tons per year of 0.25 mm x 530 mm wide tin plate. It should be stated that two lines only are in operating condition.

5.4. Other Production Facilities

5.4.1. One 480 mm medium section mill, designed to produce 225,000 tons per year.

- Structural shapes up to 120 mm,
- Flats up to 150 mm,
- Rounds up to 80 mm,
- Squares,
- Equal and unequal angles.

5.4.2. One cold forming mill, designed to produce 40,000 tons per year of formed angles, channels, and other shapes in cold-rolled gauges from 1.0 mm to 2.5 mm, and 2.0 mm to 6 mm in hot-rolled material in material widths from 75 mm to 500 mm.

5.5. Continuous Casting Shop

The LD shop is the source of liquid steel for the continuous casting process. This shop consists of slab casters and billet casters.

6. Utilities

Utilities include acetylene, argon, compressed air, fuel oil, natural gas, nitrogen, oxygen, steam, electrical power distribution and water system.

7. Maintenance Shops

The existing maintenance facilities of the Helwan Plant were provided in two phases. The first phase was erected in 1956 as part

of the original Demag facility and consisted of two basic central repair shops, one for mechanical and one for electrical repairs, plus small repair shops at certain of the basic production facilities locations. The second phase was provided in the late 1960's as part of the planned expansion to 1.5 million tons per year. This last phase provided extensive repair shops including a forge shop, foundry, structural wood working and pattern and additional machine and electrical shops as well as storage for maintenance materials and produced parts.

The total maintenance facility, which is organised with both centralised and decentralised shops, is considered to be adequate to provide the required service to sustain the production facilities at the 1.5 million tons per year level.

8. Transportation

The present Transportation Department at Helwan consists of two major responsibilities, namely:

8.1. Railway Operations and Maintenance

Facilities which fall within the scope of Hadisalb's Plan Railway Operation consists of railway tracks, locomotive and rolling stock, supported by the locomotive and car repair shops.

Helwan, in total, has about 100 km of railway track within the Plant boundaries.

8.2. Automotive Equipment

The present automotive equipment at Helwan Plant is divided for the

purpose of control between the Operating Departments and the Transportation Department.

Figure 14:

Facilities at Hadislob

Facilities	Plant	General Description	Year of Installation	Rated Output tpy
Sintering	Sinter Plant 1	2 machines 50 m ² strand area	1964	500,000
	Sinter Plant 2	2 machines 75 m ² strand area	1973	1,325,000
	Sinter Plant 2	2 machines 75 m ² strand area	1977	1,325,000
Blast Furnaces	Blast Furnaces 1 & 2	2 furnaces 476 m ³ , 409 tpd	1958	500,000
	Blast Furnace 3	1 furnace 1,033 m ³ - 1,930 tpd	1975	670,000
	Blast Furnace 4	1 furnace 1,033 m ³ - 1,930 tpd	1979	670,000
Pig Casting	Pig Casters	2 machines 1,600 tpd each	1973	-
Steel Making	Thomas Converters	4 x 17 t convertors	1958	300,000
	Elec. Furnaces	2 x 12 t furnaces	1958	50,000
	BOS Plant	1 out of 2 vessels	1973) 1,200,000
	BOS Plant	Third vessel	1977	
	Ingot Casting	Several Casting Bays	-	-
	Continuous Casting	1 billet caster 2 slab casters	1973) 1,500,000
	Continuous Casting	2 billet casters 1 slab caster	1977	
Rolling	Blooming Mill	Soaking pits p a 2-high reversing mill	1958	200,000
	Plate Mill	1.5 metre single stand reversing mill	1958	45,000
	Reaving Section Mill	Three stand 2-high Mill	1958	125,000
	Light section Mill	Six stands	1964	70,000
	Hot Strip Mill	1 metre continuous Mill	1973	500,000
	Cold Strip Mill	2 single stand reversing mill	1973	260,000
	Medium Section Mill	8 stand mill	1977	200,000
Tinning & Galvanising		Hot Dip Tanks for sheets	1973	60,000
Forming	Gold Farming Mill	14 stand continuous mill	1977	40,000
Repair Shops		- Foundry - Forge - Machine Shop - Fabrication Shop		

Section Two:

Products, Processes, Markets and Marketing

2. Products

My discussion will turn now to list the products and ranges of products Hadisolb produces at present.

Hadisolb's Products from all Sections

Figure 15:

1. Non-continuous Rolling

Rolling Mill	Product	Nominal Size of Existing Products	Main Uses
Heavy Sections	Strips of Triangular Sections	Thickness x width 8 - 12 x 40	Workshop Processes
	Equal Angles	70 x 70 x 7 80 x 80 x 8 90 x 90 x 8 90 x 90 x 9 100 x 100 x 10 120 x 120 x 11 120 x 120 x 12	Fabrications and Metalec Constructions Manufacturing of Rolling stock (railway carriages)
	Unequal Angles	100 x 50 x 8 100 x 50 x 10 120 x 80 x 8 170 x 80 x 10 150 x 100 x 10 150 x 100 x 12	" "

Rolling Mill	Product	Nominal Size of Existing Products	Main Uses
Heavy Sections cont/d..	Guarders	80, 100, 120, 140, 160, 200, 260 mm	Fabrications and Metalec Constructions Manufacturing or rolling stock (railway carriages)
	I. Beams	100, 120, 140, 160, 200, 260 mm	" "
	Circulars	Diameter: 50, 60, 65, 70, 80, 90, 100, 110, 120, 125 mm.	Workshop Processes, Forgings
	Square Sections with sharp corners removed	Side length: 50, 55, 60, 65, 70, 75, 80, 90, 100, 110, to 300 mm	" "
	Rails with base	- Rails weight of 52 kg/ in length. For railways of length from 6-18 m. - Rails weight of 27 kg/ in length for railways of length from 6-18 m - Rails weight of 18 kg/ in length from Dicoville of length from 6-10 m.	Railways
	Sleepers	Sleepers 52) for heavy " 47) rails " 18 Rails 18	

Rolling Mill	Product	Nominal Size of Existing Products	Main Uses
	Clamps	Clamps 52 for fixing Rails 52	Railways
Light Sections	Reinforced	Diameter: 10, 13, 16, 19, 22, 25, 28, 32	Buildings
	Square	Length 12 mm with sharp corners removed length 37 mm with sharp corners	Workshop, Forgings, Fences, and Chairs
	Equal Angles	30 x 30 x 4, 5 40 x 40 x 4, 5, 6, 50 x 50 x 5, 6	Metalec Furniture, Beds, and Metalec Fabrications
Plates (Triple Machine)	Plates	Thickness 4 - 25 (as ordered) Maximum width 1500 mm Length according to the weight and orders. Maximum weight/500 kg	Ship building, Oil tanks, Water pipes, and Railway Works.
Tin Plates (Twin machine)	- Commercial sheets - Steel 34, 37, 42, 50 - Gas steel	Thickness 1 - 3 mm width x length 1000 x 2000 800 x 1600	Mechanical Workshop Processes.

2. Continuous Rolling "Strips Rolling"

Product	Main Nominal Products	Main uses
Hot Rolled Sheets	Thickness from 2 - 7mm Width from 600 - 1000mm Length from 1600 - 6000mm	<ul style="list-style-type: none"> - Butane Gas containers - Oil Tanks - Water Tanks - Barages - Metalec fabrication - Workshop requirements
Hot Rolled Strips	Thickness from 2 - 6mm Width less than 600mm Inner diameter 750mm	<ul style="list-style-type: none"> - Pipes - Beds and Metalec Furniture
Cold Rolled Sheets	Thickness less than 3mm Width 1000mm Length up to 4000mm	<ul style="list-style-type: none"> - Metalec Furniture - Refregations - Gas cookers - Butane Gas containers - Gas Boilers - Heating sets - Containers - Cars bodies - Porcelain Plated Pans - Air-condition sets
Cold Rolled Strips in Rolls	Thickness up to 2mm Width less than 600mm Inner Diameter 500 or 300mm	<ul style="list-style-type: none"> - Strengthen Electric Caples - Electric Pipes - Cycles Pipes - Cotton & Textile wrappers - Metalec Beds
Galvanised Sheets	Thickness from 0.4 to 1.5mm Width 900mm Length 2000mm Production can be done in less sizes	<ul style="list-style-type: none"> - Struss Roof - Agriculture Machines - Water Wheels - House use machines - Water Tanks - Steel Gates - General Maintenance Machines
Tin plates	Thickness 0.20, 0.22, 0.25 0.28, 0.32mm Width 508/530mm Length 712/760mm	<ul style="list-style-type: none"> - Food Cans - Oil Product Cans - Toys - Soft Drinks led covers

3. Processes

3.1. Iron Ore Mining and Transportation

Iron ore mining in Egypt began at Aswan. The Aswan ore is of very poor quality being about 42 per cent iron and having high silica. The proven reserves amount to only 25 million tonnes, and the ore has to be shipped a long distance from Aswan to Helwan, some 1000 kilometres. For these reasons it was decided to discontinue the use of Aswan ore in favour of the higher grade ores in the Baharia deposit. From 1973 increasing amounts of Baharia ore have been used and the Aswan mine is being run down.

The Baharia deposit is one of three in the same region in the Western Desert, but the other in El Hara and Gorabi are inferior to those at Baharia.

The Baharia Ore Deposits

Blast furnace iron making at Hadisolb is now based mainly in Baharia iron ore mines which are managed by Hadisolb. The Baharia iron ore deposit is one of the El Gedida reserves and is located in the Western Desert about 350 kilometres south-west of Cairo.

The deposit is said to contain 127 million tonnes of proven reserves. It is approximately 2 kilometres by $2\frac{1}{2}$ kilometres and is faulted in the eastern and western sides. The mixing programme is designed to produce a blend of iron ore with an acceptably constant analysis. The iron ore is transported from Baharia to Helwan by rail, a distance of 350 kilometres. The railway was built by Egyptian contractors for the Egyptian Railways Department.

"Ministry of Transportation." It is single line with passing loops and stopping points for drivers. The railway is, for most of its length, built in slight embankments. The railway was equipped with 23 Russian locomotives and 540 wagons each with a carrying capacity of 65 tonnes. The unit cost of iron ore transported was set and remains at 3 milliems per tonne.

3.2. Helwan Iron and Steelworks (Hadisolb)

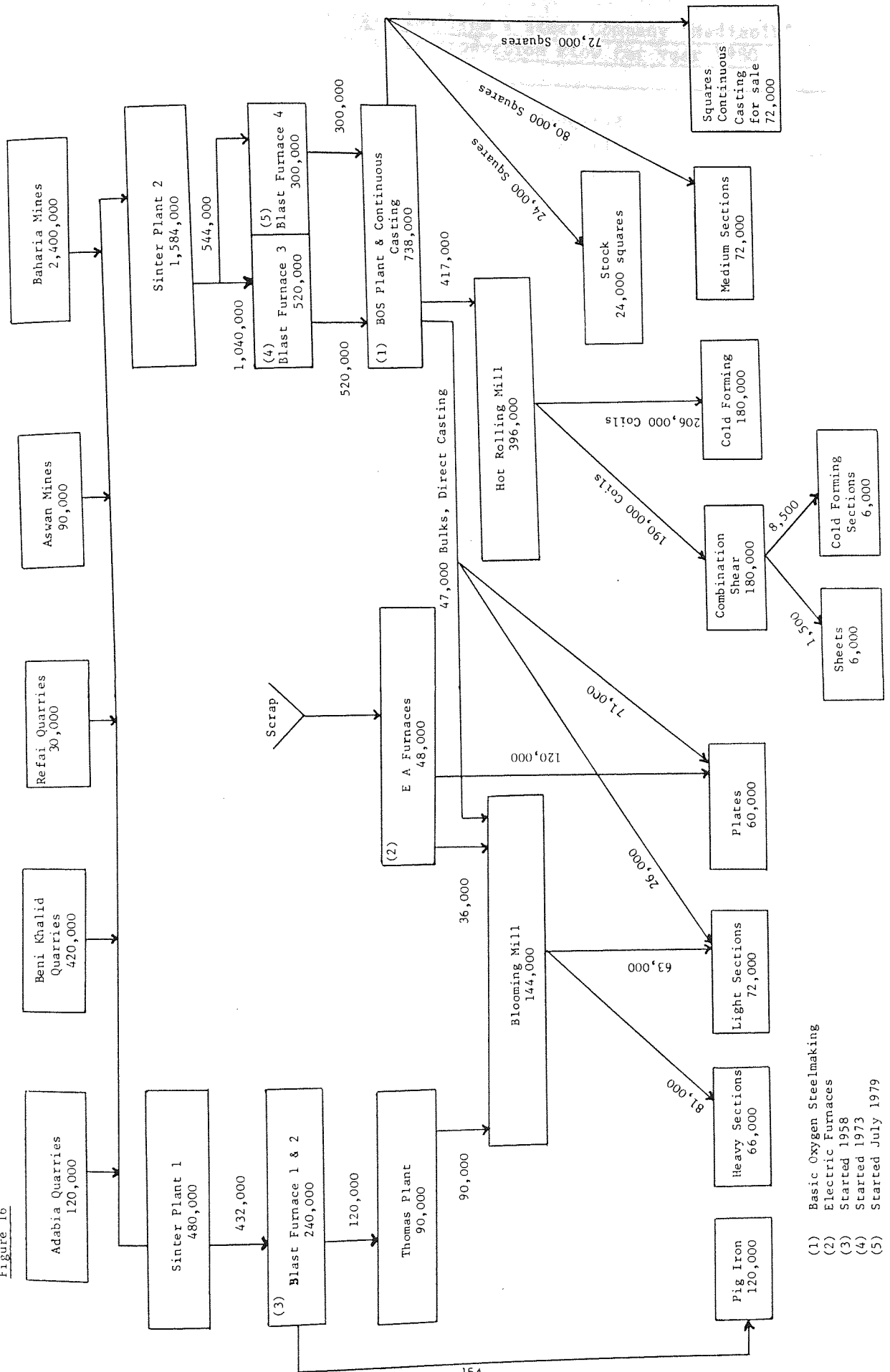
The production activity at Hadisolb Steelworks as planned for year 1980, is summarised in a flowsheet form in Figure 16 and Table 7.

3.2.1. Sintering

The first sintering plants at Hadisolb began operation in 1964 in order to deal with the accumulating iron ore at Aswan. Two machines known as Sinter Plant 1 were installed; they were of Russian design. They were operating on Aswan ore and it was said that they performed satisfactorily. In 1973, two new machines known as Sinter Plant 2 commenced operation to supply the new blast furnace. The new machines began working mainly with Baharia iron ore. Two additional sinter machines were constructed to provide the increased capacity for blast furnace 4 which came into operation in July 1979.

The iron ore from the main stockyard passes through crusher buildings to ensure that it is all -10 mm. Sinter Plant 1 has a blending and storage building with provision for a stockpile of 4½ days capacity.

Figure 16



- (1) Basic Oxygen Steelmaking
- (2) Electric Furnaces
- (3) Started 1958
- (4) Started 1973
- (5) Started July 1979

Table 7

The Egyptian Iron & Steel Company "Hadislob"
Budgeted Production Flow for year 1980

Description	Budgeted Production for year 1980 in tonnes	Monthly Average
<u>Mines & Quarries</u>		
Baharia Oasis	2,250,000	187,500
Aswan Mines	-	-
Benni Khalid & Raffai Quarries	815,000	67,917
Adabia Quarries	110,000	9,167
<u>Sintering & Blast Furnaces</u>		
Sintering 1	480,000	40,000
Sintering 2	1,584,000	132,000
Blast furnace 1 & 2	240,000	20,000
Blast furnace 3	364,000	30,333
Blast furnace 4	456,000	38,000
Big Casting	120,000	10,000
<u>Steel</u>		
Tomas Convertors	90,000	7,500
Electric furnaces	48,000	4,000
LD Shops	797,850	66,488
Continuous Casting	738,000	61,500
<u>Rolling</u>		
Bulk Rolling	144,000	12,000
Heavy Sections	66,000	5,500
Light Sections	72,000	6,000
Plates	60,000	5,000
Sheets	6,000	500
Medium Sections	72,000	6,000
<u>Rolling Strips</u>		
Hot Rolling	396,000	33,000
Pickling	195,400	16,283
Annealing	195,200	16,267
Soaking	195,200	16,267
Tempering	193,000	16,083
Cutting Shear	24,000	2,000
Flying Shear	155,382	12,949
Combination Shear	180,000	15,000
Galvanising	6,000	500
Cold Forming	6,000	500

Source: Hadislob budget for the year 1980 (62).

3.2.2. Blast Furnaces

Hot metal production equipment consists of four blast furnaces, each with its own stockhouse and cast house. Nos. 1 and 2 Blast Furnaces, which were built in 1958 and are skip charged, have a common high-line and transfer car system for charging the stockhouses. Nos. 3 and 4 Blast Furnaces were erected as a part of the 1972 expansion plan, with No. 3 furnace starting production in 1974. No. 4 furnace is a part of the full development stage of the expansion plan and started operation in July 1979.

Metallurgical coke consumed is received from Al Nasr Coke Works by belt conveyor at Blast Furnaces nos. 3 and 4 and by railroad at Blast Furnaces nos. 1 and 2. Sinter from No. 1 Sinter Plant is delivered to Blast Furnaces Nos. 3 and 4 by belt conveyor.

Blast Furnaces Nos. 1 and 2 normally provide hot metal for the Thomas Shop (Thomas convertors). Current projected production rate is 120,000 tons each furnace as figures show in the production budget for year 1980. Blast Furnaces Nos. 3 and 4 provide hot metal to the LD steel producing shop. Current projected production rate is 300,000 tonnes from Blast Furnace 3 and 530,000 tonnes from Blast Furnace 4 as figures show in the production budget for year 1980.

3.2.3. Steelmaking

The present steelmaking at Helwan represents three separate technologies located in two distinct and separate steel producing operations within the plant.

The first operation, known as the Thomas Shop, includes the technologies of Bessemer Converters and electric furnaces and produces raw steel in the forms of ingots. The second operation is the LD shop which utilises the more modern technology of top blown oxygen conversion for steelmaking, producing steel for continuous casting. Steel ingots produced by the Thomas Shop are "ground poured", stripped from the moulds by crane and loaded on ingot transport rail cars for shipment to the soaking pits for rolling. Mould cleaning and preparation, as well as ladle preparation and repair, are also performed in the same general ingot teeming and stripping area. Current projected production rate is 90,000 tons for both furnaces in the Thomas Shop as figures shown in the production budget for year 1980. On the other hand, all liquid steel produced in the LD shop is continuous cast into slabs and billets.

3.2.4. Rolling

Rolling is carried out in two different technologies rolling mills.

3.2.4.1. Old Rolling Mills

As pointed out before when talking about facilities at Hadisob, the old rolling mills consist of a blooming, mill, heavy section mill, light section mill, plate mill, and finishing and shipping facilities for products produced.

Ingots from the Thomas and electric furnace shops and blooms and billets from the continuous caster go to the blooming mill and sections

mill. Rated output for the blooming mill is 200,000 tonnes per year. Nevertheless, the budgeted production for year 1980 is 144,000. Ingots of 3-4 tonnes take about three minutes to roll to slab, blooms, or billets.

Materials from the blooming mill passes to the section mills. The heavy section mill is connected directly to the blooming mill by roller tables. Its capacity has been described as between 125,000 and 180,000 tonnes per year. Its budgeted production for year 1980 is 66,000 only. The mill is capable of producing billets from 90 to 130 mm, rounds from 90 to 130 mm, angles from 100 to 150 mm, beams from 140 to 260 mm, channels from 140 to 260 mm, rails 37, 52 and sleepers 52.

The light section mill produces bar size sections. The rated capacity is 100,000 tonnes per year, the budgeted production for year 1980 is 72,000 tonnes. The mill produces rounds 13 mm and 19 mm and equal angles 30 mm, 40 mm and 50 mm.

The plate mill produces plate products from 5.0 to 25 mm thick and up to 1500 mm wide. It is supplied with rolled slabs from the primary mill and cast slabs from the continuous casting facility. The rated capacity of the mill is 75,000 tonnes per year of shipped plate product. The budgeted production for year 1980 is 60,000 tonnes.

3.2.4.2. New Rolling Mills

Most of the output of continuous casting is at present in slab form and passes to the hot strip mill which is capable of making strip

up to one metre in width. The rated capacity of the hot strip mill is 542,000 tonnes per year. Its budgeted production for year 1980 is 396,000 tonnes.

The hot rolled coil is transferred by underground conveyor to the cold strip mill; which consists of two reversing 4-high mills, one being used to produce general purpose sheet 0.5 to 2.5 mm thick and the other to make sheet for tinplate. A temper rolling machine is installed. Pickling and degreasing facilities preceded cold rolling. Batch annealing is practised. The total capacity of the cold mills is given as 260,000 tonnes per year. The budgeted production for year 1980 is 180,000 tonnes.

Facilities exist for tinplating and galvanising. Six hot dip tinplate stations each with a capacity of about 7,000 tonnes per year are installed. So far only two have been used. They are designed to produce 0.25 mm x 530 mm wide tinplate.

3.3. Continuous Casting

Designed to receive hot metal from Blast Furnace Nos. 3 and 4, to produce slab casters, and billet casters. According to the budgeted production for year 1980, production flow from the continuous casting process is as follows:

- 72,000 tonnes of squares for sale
- 80,000 tonnes of squares to supply the medium sections mill.
- 24,000 tonnes of squares for stock
- 417,000 tonnes to supply the hot rolling mills.

- 47,000 tonnes bulk direct casting to supply the blooming mill
- 71,000 tonnes direct casting to supply the plate mill
- 26,000 tonnes direct casting to supply the light section mill.

4. The Market for Steel in Egypt

When discussing the market for steel in Egypt, concentration will be given to the period 1975-77; justification for this is that information for that period is the best the author has found.

Apparent consumption

- An average of 1.2 million tons of steel products have been consumed over the last three years, 1975-77.
- More than half of this was supplied by imports.
- The raw steel equivalent amounted to an annual of 1.6 million tonnes in this period.
- The deductions shown on the following table for conversion tonnage take into account those billets and other semi-finished products and some bar squares included in domestic and import shipments, but later rolled into reinforcing bars, rods products which are also reported as shipments.

Table 8: Apparent Steel Consumption
Thousand Metric Tonnes

Steel Product Source	1975	1976	1977	Average
Domestic	490	530	622	547
Import	838	655	781	758
Gross total Steel Products	1,328	1,185	1,403	1,305
Less Duplication of Conversion	68	71	120	86
Net Apparent Consumption	1,260	1,114	1,283	1,219
Equivalent Raw Steel at 75% yield	1,680	1,485	1,710	1,625

Source: Domestic shipments - Hadisob Annual Reports (63).
 Imports (64). World Steel Exports, International Iron &
 Steel Institute, Statistics of World Trade in Steel,
 United Nations (65) Economic Commission for Europe.

Per Capita Consumption

The apparent consumption of raw steel amounted to an average of 42.9 kg per capita in the 1975-77 period, as the following table shows:

Table 9: Egypt Steel Consumption Per Capita

Item				
Raw Steel Apparent Consumption (Thousand Metric Tonnes)	1,680	1,485	1,710	1,625
Population (Millions)	37.2	37.9	38.7	37.9
Kg Steel Per Capita	45.2	39.2	44.2	42.9

Sources:

Steel Consumption - Hadisob and other producers annual reports.
 Population - Central Agency for Public Mobilization and
 Statistics; Annual Statistics for years
 75, 76, 77.

Product Markets

The following table shows the product by product fluctuation and relative volumes over the years 1975/76/77, for steel from all domestic and foreign sources.

Table 10

The Market For Steel Products in Egypt
Domestic Plus Imports less Exports

	1975	1976	1977	Three year average	
				Tonnes	per cent of total
<u>Flat Rolled</u>					
CR Sheet, strip & Galvanised Tin plate	145 54	99 31	120 32	121 39	9.9 3.2
Total CR flat	199	130	152	160	13.1
HR Sheet, strip & skelp Plates	31 77	42 67	73 61	49 68	4.0 5.6
Total HR flat	108	109	134	117	9.6
Total flat rolled	307	239	286	277	22.7
Pipe & Tube-Imports	294	115	75	161	13.2
<u>Rolled Sections:</u>					
HR Bars, Rebars, Light shapes Rods & Wire	515 52	585 39	747 41	615 44	50.4 3.6
Heavy & medium sections	68	76	93	79	6.5
Railway Material	30	76	39	49	4.0
Semis; Blooms, Billets	62	55	122	80	6.6
Total Sections	727	831	1,042	867	71.1
Total All Products Less conversion	1,328 68	1,185 71	1,403 120	1,305 86	107.0 7.0
Net consumption Raw Steel Equivalent at 75 percent yield	1,260 1,680	1,114 1,485	1,283 1,710	1,219 1,625	100.0 133.4

Source: General Organisation for Industrialisation Annual Reports
1975, 76,77 (67).

Consuming Industry Markets

- Constructions are the main consumer of steel in Egypt, Table 11. Reinforcing bars, structural shapes, and other products to this market accounted for about 63% of the total net shipments.
- The next largest category, convertors and processors, includes the shipments of semi-finished to bar and rod producers and hot rolled sheet and strip to pipe producers.
- All other consuming industries are relatively small, reflecting the thin development of the present market. Nevertheless, these industries have strong growth prospects.
- Automative steel requirements are minor because the small car volume is from assemblies rather than full production.

5. Hadisolb's Marketing Policies

It is the task of marketing management to decide how much of which product the market wants, at what price, how the products should be promoted and sold, and through which channels of distribution they should reach the customer. Then, in discussion with other management functions, marketing policies are framed which offer maximum consumer satisfaction to the customer at an acceptable rate of return to the producer.

In Egypt, these marketing functions are performed partly by government and partly by companies in the public sector. In many instances the combined outcome has not been in the national interest.

Table 11 1977 Shipments by Consuming Industry
Egypt Domestic Plus Imports (Thousand Metric Tonnes)

	Total		CR sheet & strip & galvan- ised	Tin plate	HR sheet strip skelp	Plates	Pipe & tube imported only	HR Bars Rebars & light shapes	Rods & wire	Heavy & medium sections	Rails & Access- ories	Semis: Bloomsp Billets
	Tonnes	Percent										
Convertors & processors	180	14.0			53			4		8		115
Forgings & Fasteners	26	2.0			2			13	6	1		7
Wholesalers	17	1.3	4			4		6				
Construction & Contractors Products	809	63.1	14		4	29	15	689	9	49		
Automotive & light Transport	10	0.8	4		1			5				
Machinery:	42	3.3	9		3	1	1	9	17	2		
Industrial	10	0.8	9					1				
Electrical	31	2.4	27		1			2	1			
Appliances:	35	2.7	26					3	4	2		
Furniture & eqpmnt	40	3.1	8	32								
Containers & packing												
Rail Transport	55	4.3	2		1	5		2		6	39	
Shipbuilding	24	1.9			1	13		2	1	7		
Oil & Gas	63	4.9				4	55	1		3		
Agricultural	14	1.1	5			1	2	1	3	2		
Mining, Ordnance & all other	48	3.7	12		7	4	2	10		13		
Total	1404	109.4	120	32	73	61	75	748	41	93	39	122
Less: duplication	121	9.4										121
Net total	1283	100.0	120	32	73	61	75	748	41	93	39	1

Table 12

Imports Versus Domestic Shipments

The following table shows imports versus domestic shipments of steel in year 1975, 76, 77.

Product	Three Year Averages 000 Tonnes			Percentage Imports
	Domestic	Imports	Total	
<u>Flat Rolled</u>				
CR sheets, strip & galvanised	68	53	121	44
Tin plate	4	35	39	90
Total CR flat	72	88	160	55
HR sheet, strip & skelp	40	9	49	18
Plates	53	15	68	22
Total HR flat	93	24	117	21
Total flat rolled	165	112	277	40
Pipe & Tube - imports	-	161	161	100
Rolled sections				
HR bars, rebars, light shapes	296	319	615	52
Rods & wire products	10	34	44	77
Heavy & medium sections	39	40	79	51
Railway material	12	37	49	76
Semis; blooms, billets	25	55	80	69
Total sections	382	485	867	56
Gross total steel products	547	758	1,305	58
Less conversion			86	
Net consumption			1,219	-

Source: Domestic shipments: Hadisolv and annual reports of other producers (66)

Imports: World Steel Exports 1975, 76, 77 International Iron & Steel Institute (64)
 Statistics of World Trade of Steel - 1975, 76, 77
 Economic Commission for Europe United Nations (65).

Table 13 Hadisolb Actual Sales for Years 1975 to 1979 (68).

Products	1975		1976		1977		1978		1979	
	Tonnes	Value	Tonnes	Value	Tonnes	Value	Tonnes	Value	Tonnes	Value
<u>Factories Main Products</u>										
Bulk Half Formed "Domestic"	2764	257525	5737	561857	7511	771706	2784	365316	2066	249383
Heavy sections and equipments	55135	7552236	51490	7793082	49802	7311039	56536	11350658	57163	11814890
Light sections "Domestic"	56071	7118157	43142	5789384	47963	6947782	53055	9701986	61192	12660105
Plates "Domestic"	35490	6173319	32580	5551278	25662	4356208	30112	7026415	42817	10020066
Sheets "Domestic"	7097	1251061	8226	1524340	6619	1300927	4498	1042639	4742	1091496
Plates "Exports"					-		925	126702	150	28352
Sheets "Exports"					-		1149	188975		
Factories Total "Domestic" & Exports	156557	22352298	141175	21219941	137557	20687662	149059	29802691	168130	35864292
<u>Strips Main Products</u>										
Hot Production "Domestic"	48554	8446733	53503	9043684	61739	10294898	62048	12786727	94012	19985229
Cold Production "Domestic"	65938	13595703	67167	13274255	81498	16356086	78936	19018282	86096	20855939
Hot Production "Exports"			5201	690428	-	-	28317	3867566	21945	4425242
Cold Production "Exports"	36495	4069675	16316	2351838	5842	1013290	23521	3791433	19762	3943866
Strips "Total"	150987	26112111	142187	25360205	149079	276664274	192822	39464008	221815	49210276
Cold Formed Sections	-	-	-	-	-	-	2734	693364	7754	1998365

Hadislob Actual Sales for Years 1975 to 1979 (Continued).

Products	1975		1976		1977		1978		1979	
	Tonnes	Value	Tonnes	Value	Tonnes	Value	Tonnes	Value	Tonnes	Value
<u>Expansions:</u>										
Pig Iron "Domestic"	45923	3675258	67204	5377355	66748	5343260	55758	6133409	71487	7913341
Pig Iron "Exports"	89301	4277837	39581	1691466	15120	786269	920	79240		
Phosphoric Pig Iron "Domestic"	-	-	1541	123305	3950	317542	8231	720319	13164	1239896
Squares & continuous castings bulks	1286	140747	17079	1912412	32288	3552345	43485	5853192	74815	10281361
Plates of continuous casting	-	-	14	2590	-	-	59	7126	706	95375
Expansions Total	136510	8093842	125419	9107122	118106	9999416	108453	12793286	160172	19529973
Total of Factories, strips and expansions	444054	57558251	408781	55687268	404742	58351352	453068	82753349	557871	106602906
<u>By-Products</u>										
Fertilizer "Domestic"					6655	79202	3595	42535	1655	20766
Fertilizer "Exports"					23000	402202	21333	252127	22000	219675
Miscellaneous		4271351		2067807		240482		202268		24936427
Forgings "Products"						789696		648994		
Scrap "Factories"				2062566		1799301		890467		
Scrap "Strips"				1236677		981963		1612790		
Scrap "Expansions"						808926		1404849		

Hadisob Actual Sales for Years 1975 to 1979 (Continued).

Products	1975		1976		1977		1978		1979	
	Tonnes	Value	Tonnes	Value	Tonnes	Value	Tonnes	Value	Tonnes	Value
Scrap "Non-Productive" Services "Sold"		900361		1604805		629505 908165		618146 929588		
By-Products Total		5171712		6971855	29655	6639042	24928	6601764	23655	25176868
Total Sales	444054	62729963	408781	62659123	434397	64990394	477996	89355113	581526	131,679,774

Source: Sales Sector's Reports For Years: 1975, 76, 77, 78, 79.

Sales Prices

Hadisolb steel products are now priced on the conventional system of a base price for each product plus extra charges, according to width, thickness, grade and other typical specification options. Customers pay all freight costs.

Government approval is required for changes in base prices. Historically, this has been a lengthy procedure, taking at least two years to obtain authorisation of an increase. At the same time, many of the products are so unprofitable at the official prices determined by Government.

On 25 December 1977, prices were increased by 25 to 30% over those which had been in effect since November 1973.

The following table compares Hadisolb base prices with international prices.

Table 14

Hadisolb Base Prices compared with
International Price Levels
LE per Metric Tonne (69)

Domestic Base	CR sheets	HR sheets	Plates	Struc- turals	HR Bars	Re bars
Hadisolb Dec-77	220	210	200	195	205	N.A.
<u>EEC Producers Guide Min.</u>						
- Country averages, Jan 79	308	245	245	251	241	199
- West Germany Jan 79	312	250	250	255	244	202
EEC Import Reference						
Dec 78	299	246	246	-	250	201
USA Producers list Jan 79	304	260	276	274	248	208
USA Import Trigger,						
1st quarter 79	304	259	281	250	269	241
Japan, dealers wholesale						
Oct 78	348	318	314	229	228	-
<u>Export Quotations</u>						
EEC, Jan 79	252	213	213	217	206	196
Japan, Jan 79	241	203	238	238	210	210

- (1) Pound Egyptian LE equals 1.43 US\$ at the time.
- (2) Sources: Europe, Japan Metal Bulletin, Metal Bulletin, Hadisolb and UEC.

Distribution Systems

Because, in Egypt, the demand for steel products has consistently exceeded the domestic supply - see the apparent steel consumption in Egypt years 1975-77 - steel that can be produced can be sold and without any great expenditure of sales effort. Distribution channels at Hadisob are at present fairly simple: wholesalers are relatively numerous, some 20 to 30, but they distribute only a small amount of steel, approximately 17,000 tonnes in 1977; their capacity to stock or to do minor processing is extremely limited. Customers must pay in advance and pick up their own shipments at the mill according to the following system:

- All companies related to the public sector must pay 10% of their contracts as an insurance value; each company has to pay the value of each shipment on delivery, the insurance value to be seen at the end of the contract.
- Government agencies have to pay in governmental cheques on delivery.
- Private sector to pay in cash or by accepted cheques from their own bank in advance.
- Foreign importers have to pay through an international bank after receiving shipment documents.

All rebars, except seconds, are distributed by the R.C. Bar Distribution Bureau operated by Delta Steel, this is because of the short supply in these products.

Chapter Eight:

Planning and Control in Hadisob

Section One: Functions of Main and Sub-sectors in Hadisob

Because we are now familiar with Hadisob, its history, structure, facilities and products, this chapter will be concerned with planning and control in Hadisob; within this chapter there will be a full examination of the three levels of planning and control including the Government involvement.

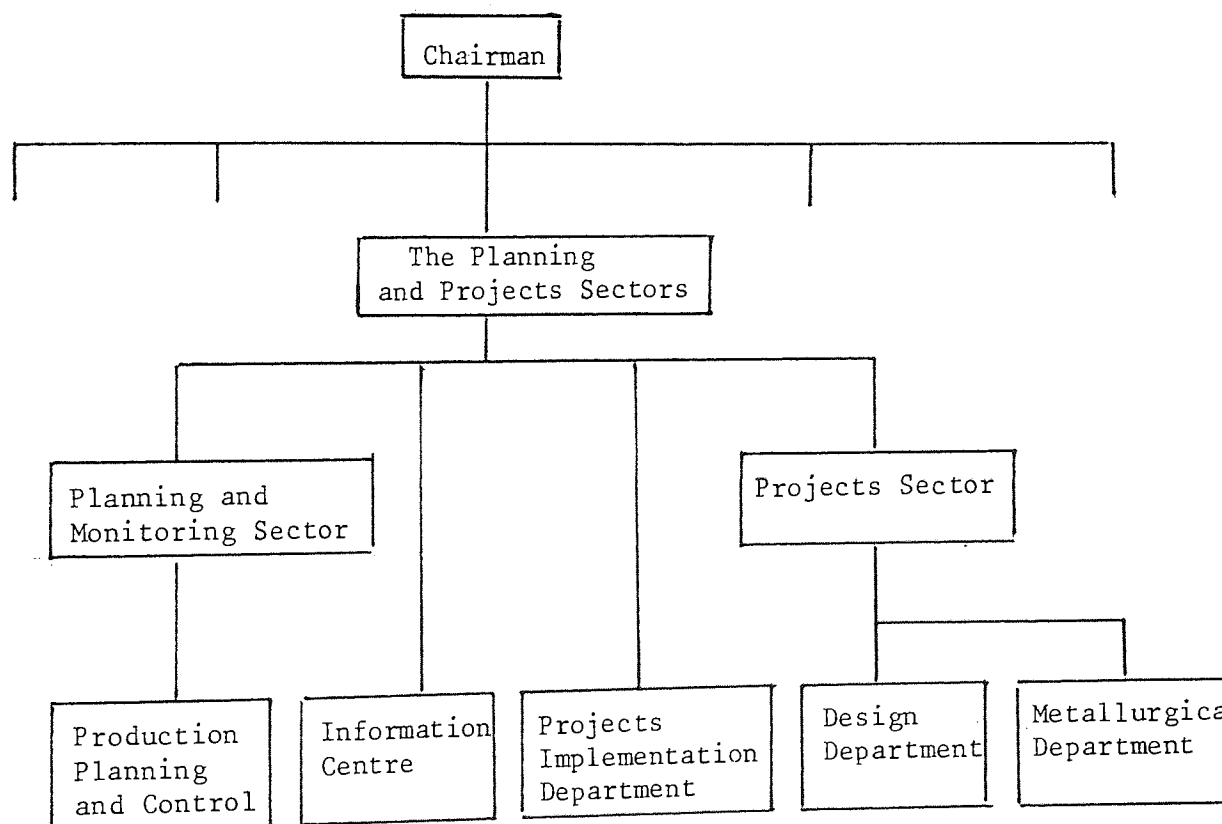
Much time and effort was spent in Hadisob to study, discuss, and examine the planning and control system in Hadisob. This included the design of a detailed questionnaire which was used. The following is to highlight the planning and control system in Hadisob without any comments; a separate section of the thesis will deal with that.

When discussing the managerial structure of Hadisob in its last development in Chapter Seven, it was mentioned that there exists in the top managerial level a planning department which is called "The Planning and Projects Sector". The following is a detailed description of this department quoted from the full description of the latest development in the managerial structure in Hadisob.

8.1.1 The Planning and Projects Sectors in Hadisolb

Figure 17 shows the structure of this department and its direct communication with the Chairman of the company.

Figure 17:



Besides its participation in formulating the general policy of the company, these sectors have three main functions which should be together in harmony with the rest of all sectors to achieve the objectives of the company. These three main functions are:

1. Corporate planning and monitoring for the company as a whole. In this respect, these sectors, Planning and Projects, participate in preparing the production, sales, inventory, purchase, personnel and investment projects budgets. In addition they, together with the concerned departments in the company, make studies of the needs

for production materials.

- Discuss the sub-plans prepared by each sector with regard to the corporate plan decided upon for the company as a whole.
- Foreseeing expected problems and suggesting solutions to these.
- Study different figures and production statistics, analysing them, with the objective of evaluation and submit their reports to the personnel concerned.
- Monitor the budgets, knowing the reasons for deviations, if any, proposing actions to prevent any deviations from the plan in the future.
- Collecting central and detailed data about the company in a scientific manner to facilitate its use with the collaboration of the information centre in the sectors.

2. Projects

In this respect, the sectors are supposed to plan for: new projects (replacement, expansions, renewal, or improvements) in the company in such a way as to improve the efficiency of operations and the increase and diversification of production to the market needs.

- To do the feasibility studies of all projects; "technical and financial".
- To put the technical descriptions of all projects and investment requirements. The technical descriptions include mining, ways of extracting pig iron, or its conversion to steel, or its formation until it becomes finished products.
- The design of building constructions.
- The design of the mechanical, electrical, and technical descriptions for equipment and machinery.

- Submission of the descriptions of the projects, equipment and materials in a suitable and understandable way to local and international tenders.
- Evaluation of the local and international offers to determine the most suitable economically and technically.
- Following up the implementation of building constructions and the mechanical and electrical constructions and writing the preliminary and final delivery reports.

3. Information Centre

In this respect, the planning and projects sectors are supposed to design the methods and systems to carry out the responsibilities for collecting, filing, storage, recalling, analysing, all data about the company.

- To support all departments in the company with data and any analysis required.
- To preserve all technical documents and to print or photo copy whatever may be required from them.

The Planning and Projects Sectors include the following sectors, together with a detailed description about their functions.

8.1.1.1. The Planning and Monitoring Sector

- To participate with all sectors in the company in preparing the budgets for production, sales, inventories, manpower, investment projects etc., to all the activities of the company.
- To do studies about the operations departments from production

requirements with the concerned departments in the company to guarantee the existence of all these needs in the required times, the required descriptions and the monitoring of the agreed plan in this respect.

- The discussion of sub-plans for each sector with regard to the corporate plan, and to participate with each concerned sector in foreseeing problems, to propose solutions for them in advance.
- Periodic monitoring of budgets because of deviations, to analyse those deviations, causes, and to propose corrective action.
- The study of all data and statistics to evaluate the efficiency of operations and production quantitatively and qualitatively, and to prepare reports including the results of these studies to submit them to personnel concerned.
- The collection of all information about the company with the collaboration of the information centre.
- The follow-up of the international statistics and production of iron and steel, and to compare them with local figures.
- To carry out studies and analyses of managerial problems with the participation of the organisational and managerial sector to reach a scientific solution for them to realise the following objectives:
 - The improvement of handling and transporting materials.
 - Increasing production, and to increase the efficiency of human and financial abilities.
 - The improvement of materials and energy yields.
 - Decreasing the operating costs.

- The improvement of industrial security and safety of operations.
- To put and develop in quantitative units the standard production in the production sectors, this includes
 - The standards of production or machinery in time unit.
 - The standards of manpower to each operation.
 - The standard consumption of materials, energy and other utilities.
 - The standards of maintenance and repairs.
- To collaborate and participate in putting the following standard measures:
 - The operating standards for each method of production and for each machine.
 - The standard measures of materials, products of middle processes, and finished products, energy, all stores supplements.
 - The steps required to produce every single product.
- To carry out the technical and economical studies for each subject forwarded from the President of the Planning and Projects sectors.

8.1.1.2. Projects Study Sector

- Carry out the primary feasibility studies for new projects and expansions.
- Carry out the final feasibility studies also, so as to be sure of the feasibility of any project technically and economically before taking the decision for its implementation.

- Preparing studies about replacement and renewals projects for keeping production lines in good order to carry out the production policy agreed upon.
- Preparing technical studies to determine the best of the metallurgical methods to extract the iron ore or its processing or forming for the new projects or expansions in addition to determine the most suitable methods of handling the metal, unfinished, and finished products.
- Preparing the civilian, buildings, mechanical and electrical designs of the new projects and expansions.
- Submitting conditions and descriptions for projects and equipment, in a suitable manner before announcement for international and local tenders.
- Submitting a timetable for implementation according to the financial policies of the company.
- Preparing drawings and measurements and the estimated cost of each project.
- Preparing announcements for tenders, choosing the best, and writing contracts with contractors in collaboration with other sectors in the company.
- Drawing charts for project sites.
- Doing laboratory analyses and tests for materials and constructions to be sure that they coincide with pre-descriptions.

8.1.1.3. Department of Projects Implementation

- Supervising the implementation of projects according to drawings

and conditions of contraction.

- Monitoring the implementation of civil and mechanical and electrical constructions according to the plan and timetables.
- Preparing reports about new projects implementation, what is already implemented, and taking any actions to prevent the delay.
- The follow-up of supplies written into contracts and taking actions to assure deliveries in time.
- The announcement of new projects for tender according to the descriptions and drawings.
- Writing contracts with contractors and follow-up implementation.
- Auditing current and final statements presented from contractors.
- Heading primary and final committees for the deliveries of fully implemented projects and writing primary and final reports concerning the deliveries.
- Agreeing upon samples provided by contraction companies.
- Doing all preparatory work and budgets for new projects before design to complete the primary studies.

8.1.1.4. Information Centre

- The construction of a central Data Base by organising and bearing responsibilities for documents, drawings, data and information:
collection, coding, storing, re-call, treatment and analysis of data, and supporting all levels with data and analysis.
- Offering an information and coding service.
- Usage rationalisation of new information technology units and

recommendation of the usage of new inventions in this respect to raise performance level with regard to yield economical cost.

- The development of technical methods used in the information centre to serve company objectives.
- The development of subsidiary information systems to serve operation systems in company sectors and to effect integration between them.
- To carry out technical studies and consultations to evaluate and develop information systems continuously.
- Participation in forming information policy in the company which coincides with company's future goals.
- Participation in submitting plans for the preparing and training of information users and professionals.
- To put a plan to the delivery of the documents and information of construction stage which the complex of iron and steel is doing at the present time.

8.1.2 Financial and Commercial Affairs Sectors:

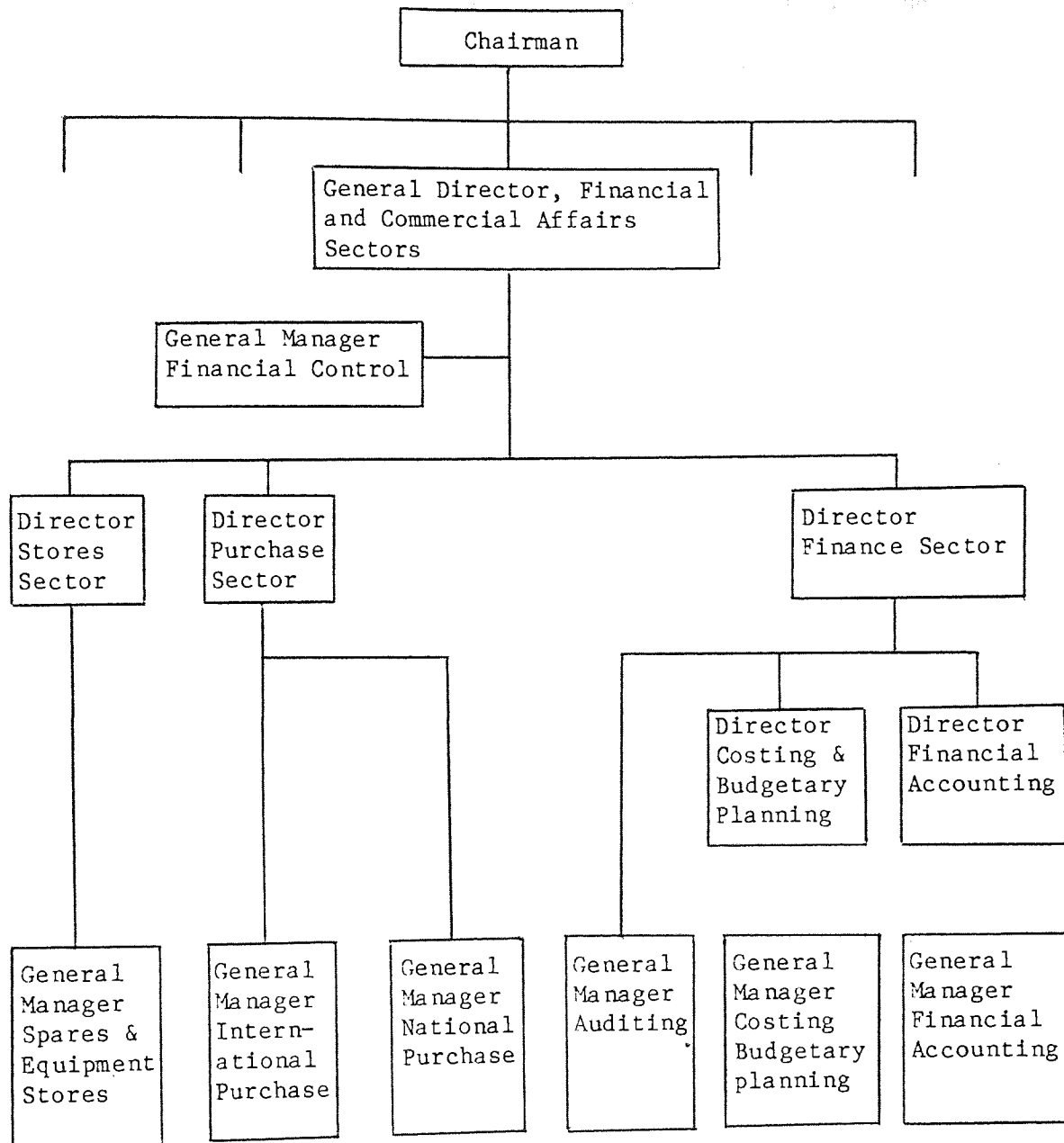
These sectors have to carry out the following functions:

- To participate in the formulation of a general policy for the company.
- To form the financial policy of the company and to supervise its implementation to ensure that the company has funds to manage its operations from the best resources.
- To organise the accounting records to ensure the preparation of the profit and loss account, the balance sheet, and the periodical reports about the financial position of the company as demanded by the standardised accounting system, and in a way which serves the objectives of the national accounting system.
- To design cost accounting systems which ensure the calculation of product costs, to analyse costs and prepare standard costs, and to derive the variances and their causes.
- To put an insurance system on the company's assets and properties against all dangers.
- To carry out all auditing of documents before payment.
- To organise continuous and final stock-taking, changes in assets, and internal auditing of all the company's activities.
- Evaluate all the company's requirements, and provisions to all different debts.
- To prepare the master budget and supervise its implementation.
- To participate in drawing up the general purchases plan with regard to the general policy of the company, to implement that plan and monitor it.
- The purchase of raw material, equipments, and all the company requirements.

- To supply the production departments with all their requirements; in reasonable quantities, prices and times.
- To put the supply and storage policy for production departments requirements and to follow-up its implementation.
- The deliveries and storage of spare parts, equipments, and materials.
- To control the balance of finished goods.
- To put preservation systems for stock from damage, fire and theft.
- To ensure that the purchase and storage rules are followed.
- To organise the financial and commercial affairs units in each sector according to the general policy of the company.
- To ensure that the financial, purchase and storage rules are carried out in all financial, purchase and storage transactions.
- Systems analysis and programme designing for the Computer Centre.

The managerial structure and its relation with the chairman of the company for the Financial and Commercial Affairs Sectors is as follows:

Figure 18:



The following are the basic functions of each of these sectors as described in the latest development in Hadisolb's managerial structure:

8.1.2.1 Finance Sector:

To implement the financial policy of the company to ensure the money supply to operate the company.

2. To prepare the financial accounts: payments, revenues, and to organise entries in the accounting records, and to prepare the profit and loss account and the balance sheet at the end of each financial year. To prepare periodical reports about the financial situation of the company as prescribed by the standardised accounting system.
3. To carry out transactions required to ensure all assets and properties of the company against all dangers.
4. To finance all company's operations according to the policy imposed, to control payments according to pre-decided limits, and to prepare the cash flow statements.
5. To implement cost accounting systems required to calculate production and service costs and to participate in preparing standard costs.
6. To prepare the planning budgets and to control cash payments according to limits imposed for each sector.
7. To carry out financial and documental auditing of revenues and expenses, to ensure that financial rules have been put in practice, to control goods and responsibilities, and to carry out the annual stock-taking and record differences.
8. To look for scientific developments in finance, financial accounting, cost accounting and auditing and take necessary actions for their implementation within the company, as appropriate.

9. To participate with the managerial and organisational sector in determining personnel required for the finance sector, to develop manpower, and to determine the necessary training.

The following are the main departments of the finance sector together with a detailed description of the functions attached to each:

A. Financial Accounting Sector:

1. Preparing the balance sheet according to the standard accounting system.
2. Preparing the periodical balance sheets.
3. Carry out the financial policy decided upon from top management.
4. Preparing and monitoring the cash budget.
5. To pass expenses within limitations imposed after auditing.
6. Preparing the general accounts.
7. To prepare branch accounts; and link them with central office.
8. To prepare customers' accounts and to follow-up the payments of accrued balances.
9. To prepare creditors' and suppliers' accounts and to follow-up the entries of transactions.

10. Prepare stores accounts for materials, products, spare parts and projects.
11. To prepare the budget for the sector with regard to the budget prepared for the finance sectors as a whole.
12. To participate with the organisation and management sector in determining personnel for the sector and to develop manpower and the necessary training for them.
13. To follow up scientific development in finance and accounting to develop appropriate use in the sector.
14. To implement the financial and managerial policy of the company.

B. Costing and Budgetary Planning Sector:

1. Counting production costs for each process and also for production services.
2. Participating in preparing the standard costs for products and spare parts.
3. Counting the costs of services done for the company's customers and contractors.
4. Controlling administrative expenses of the different operation in the company, and also capital and marketing expenses of formulating operations.

5. Controlling operating expenses and to supply all sectors by cost statements after distributing operating costs on all cost centres.
6. Pricing all spareparts produced in the workshops before their delivery to stores.
7. Cost analysis and the preparation of all statistics required.
8. Preparing the budget for the cost and budgetary planning sector in light of the budget prepared to the financial and commercial affairs sector.
9. Preparing budgets for investments, revenues, expenses, auditing of payments according to limits agreed upon and to prepare financial researches required.
10. Participates with the organisation and management sector in determining new posts in the sector, develop manpower in the sector, and determine training required.
11. Follow-up scientific developments in finance and accounting to develop work systems in the sector.
12. Implement the financial and managerial policy of the company and take decisions as to its implementation.

C. Auditing Department:

1. Auditing of company's revenues, expenses, and payments due to working personnel.

2. Ensure that the regulations concerned with the company's funds are carried out according to the regulations and financial system of the company.
3. Ensure that regulations concerned with purchases and contracts are carried out, this is to be done by participation in purchases by practice and/or tenders.
4. To put plans for random cash stock-taking.
5. To participate in yearly stock-taking with other departments.
6. To control the actual inventory in stock. To carry out continuous checking of stores and documentary auditing.
7. To carry out necessary auditing of balances due to suppliers for home and import supplies and purchases.
8. Carry out necessary auditing to balances due to contractors of civil and construction works.
9. To be sure that company's weighing machines are in good order.
10. To prepare the budget for the department with regard to the budget previously prepared to the finance sector.
11. To participate with the organisation and management sector in the determination of personnel needed for the department, to develop manpower in the department and to specify the training required for them.

12. To follow-up scientific developments in accounting and finance, to undertake necessary developments in the department.
13. To be sure that the financial policies of the company are implemented, and to issue any necessary decisions to ensure that.

8.1.2.2 Purchase Sector:

This sector is supposed to carry out the following functions.

1. To participate in forming a general policy for national and international purchases of the company. To see that this policy is implemented, to ensure that all company requirements flow in at due times, in descriptions specified, in the quantities required, at convenient prices and times and from appropriate suppliers.
2. To participate in the drawing up of systems and procedures required to carry out purchase transactions nationally and internationally according to law and regulations specified.
3. To carry out all procedures for tenders, competitive or other forms of purchasing, according to purchase circumstances and workshop requirements; whether for material and equipment or to write down contracts concerned with works and services.
4. To participate in committees formed to study all tenders offered, to carry out necessary comparisons between tenders from price point of view, then to choose the most convenient supplier.

5. To prepare statistics for materials and equipments required from foreign markets and to determine foreign currency requirements.
6. Carry out all procedures needed for the contracting of importing of all the company's requirements from foreign countries.
7. To follow up that all contracts with foreign or local suppliers are implemented.
8. To prepare the purchase budget in the highlight of the budget previously prepared for the finance and commercial sectors.
9. To participate with the organisation and management sector in the determination of personnel required for the purchase sector, to develop manpower in the sector and to specify necessary training for them.
10. To follow-up any scientific developments in purchase methods to develop works practice in the sector.
11. To implement the company's financial and managerial policies and to issue necessary decisions to ensure that.

8.1.2.3 Stores Sector:

1. To participate in forming the policy for supplying the company with spare parts, equipments and materials and to monitor the implementation of this policy to supply all company departments with all their requirements; in doing all that, the sector has

to keep capital investments in stock at a convenient level.

2. Evaluate storage levels taking into consideration financial purchase circumstances and the areas available for storage.
3. To put a time table to stores supply with workshop requirements according to the supply policy decided upon.
4. To put forward the system which ensures fast receipt of supply requests in times and places specified in them.
5. Monitoring of works done by inspection committees, issuing of final decisions in disputes arising between committee members and suppliers.
6. To put systems for stock preservation against spoilage, fire and theft.
7. Controlling storage transactions in sub-stores, carry out necessary arrangements between main stores, sub-stores, receiving and stores control division to ensure that the storage policy put forward is implemented.
8. To determine balances of stocks and to monitor the implementation of decisions and regulations issued from top management concerned with organising stores transactions.
9. Organising the counting of scrap and unsold products; what actions should be taken for disposal by collaboration with the purchase sector.

10. Controlling the internal control system and to follow up the implementation of reports about continuous stock-taking.
11. To participate in the annual stock-taking and to prepare annual reports about the sector's activities.
12. To prepare the budget for the sector in the light of the budget previously prepared for the financial and commercial sectors.
13. To participate with the organisation and management sector in the determination of personnel required to the stores sector, to develop manpower in the sector and to specify necessary training for it.
14. To follow up any scientific developments in storage systems to develop works in the sector.
15. To implement the financial and managerial policies of the company and to issue instructions and decisions to ensure that.

8.1.2.4 Department of Financial Control:

1. To control the implementation of financial, purchase and stores regulations.
2. To carry out studies about deviations from the regulations, and to prepare necessary reports about them.

3. To participate in preparing general stock-taking plans and to supervise their implementation.
4. To put forward systems for controlling commodities in stock, reasons for obsolescence of commodities and proposals for disposal.
5. To put forward an internal control system for all financial transactions.
6. To carry out financial inspection on cash safes and also for revenues and expenses transactions.
7. To participate in investigations of financial crimes, to specify personnel responsible and to propose recommendations to develop control systems to ensure the elimination of such crimes.
8. To participate with the organisation and management sector in studying and developing documents circulation of financial transactions.

8.1.2.5 The Computer Centre:

1. To carry out studies with the concerned sectors about transactions which need to be computerised.
2. To forward programmes required to implement transactions of the financial and commercial sectors in the convenient language or

languages; to carry out necessary tests to ensure that the results are what are required.

3. To operate different transactions on the computer according to schedules previously submitted.
4. To carry out necessary arrangements between all computer units.
5. To control the productivity ratio for all computer machines and also the cost of transactions on operation.
6. To use machines at their available capacity to ensure their economical use.

To form an opinion as to how planning is carried out in Hadisoltb I find it convenient to discuss the basic functions of the sales sector, as has been done in the last two sections dealing with the projects and planning sectors, and the financial and commercial sectors.

8.1.3 Basic Functions of the Sales Sector in Hadisoltb

As a full discussion of the function of the sales sector will be included in the departments into which it is divided, the following is a brief general discussion of this sector's functions:

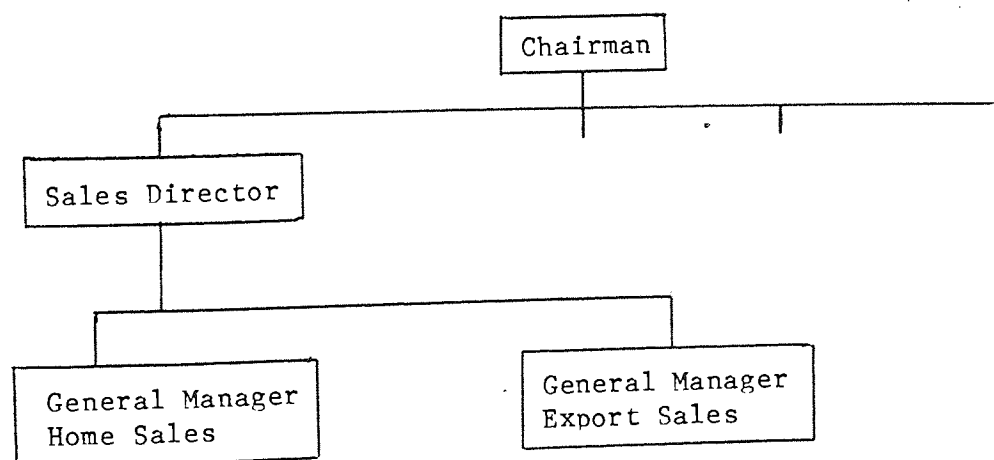
1. Form policies for home and export sales and monitor their implementation.

2. Carry out periodical researches about the demand in national and in international markets, their trends, and factors which affect the demand.
3. The distribution of the company's products on the basis of scientific studies about the nature of products and channels of distribution.
4. Monitoring daily and periodical sales of main products, by products and scrap.
5. To prepare the annual sales budget for both home and export leading to the achievement of company objectives.
6. To carry out studies about problems and difficulties which might affect the implementation of the sales plan, and to put forward necessary remedies to prevent their occurrence.
7. To participate in preparing monthly production programmes according to home and export market needs.
8. To compare actual sales with budgeted, to specify the causes of any deviation from the budget and to take whatever actions to remedy some.
9. To put forward programmes for production development which should be convenient to prices and cost of production, and production for export.

10. Draw necessary programmes of advertising and promotion for company's products, and national and international exhibitions.
11. Propose selling prices with the guidance of home and foreign prices and production costs.
12. To follow up customers' payments and balances.
13. To follow up import, export, exchange transactions and manufacturing samples.

The following chart shows the sales sector, the departments into which it is divided and the location of the sector within the managerial structure of Hadisolb "latest developed structure".

Figure 19



It follows to discuss in detail the basic functions of each department

8.1.3.1 Home Sales Department:

1. Marketing all company's main products, by products and manufactured in home markets.
2. To participate in preparing the home sales budget in the light of the sales budget previously prepared for the sales sector.
3. To participate with the production setors concerned in planning and programming monthly production.
4. Monitoring the shipment of products from workshops to home market.
5. Monitoring sales value collection.
6. To participate in forming the pricing policy for the home market.
7. To participate with the organisation and management sector in specifying personnel needed for the department, to develop manpower in the department and to specify necessary training for them.
8. Monitoring marketing research studies and to take necessary procedures for their implementation to develop company's sales.

8.1.3.2 Export Department:

1. To participate in forming the export policy for company's products and by-products and the monitoring of its implementation.

2. To put priorities to new markets which the company may enter and give special care to traditional markets.
3. Monitoring international developments in demand prices according to marketing research and to benefit from the changes in prices.
4. To prepare the export plan for the products available for export whether by direct export, manufacturing, or exchange and to write export contracts in convenient quantities and prices according to the policy which the Government has agreed and according to decisions issued in this respect.
5. To relate export transactions of the steel products to its import for other sectors, to benefit from the differences in prices of imported products.
6. To propose the types of products needed for the foreign market to monitor its production and readiness for shipment.
7. To form a storage policy for products to export in the light of the circumstances of ports.
8. To complete banking and custom procedures and prepare the shipment documents.
9. Controlling the products entry in the custom area, ships loading and shipment documents.

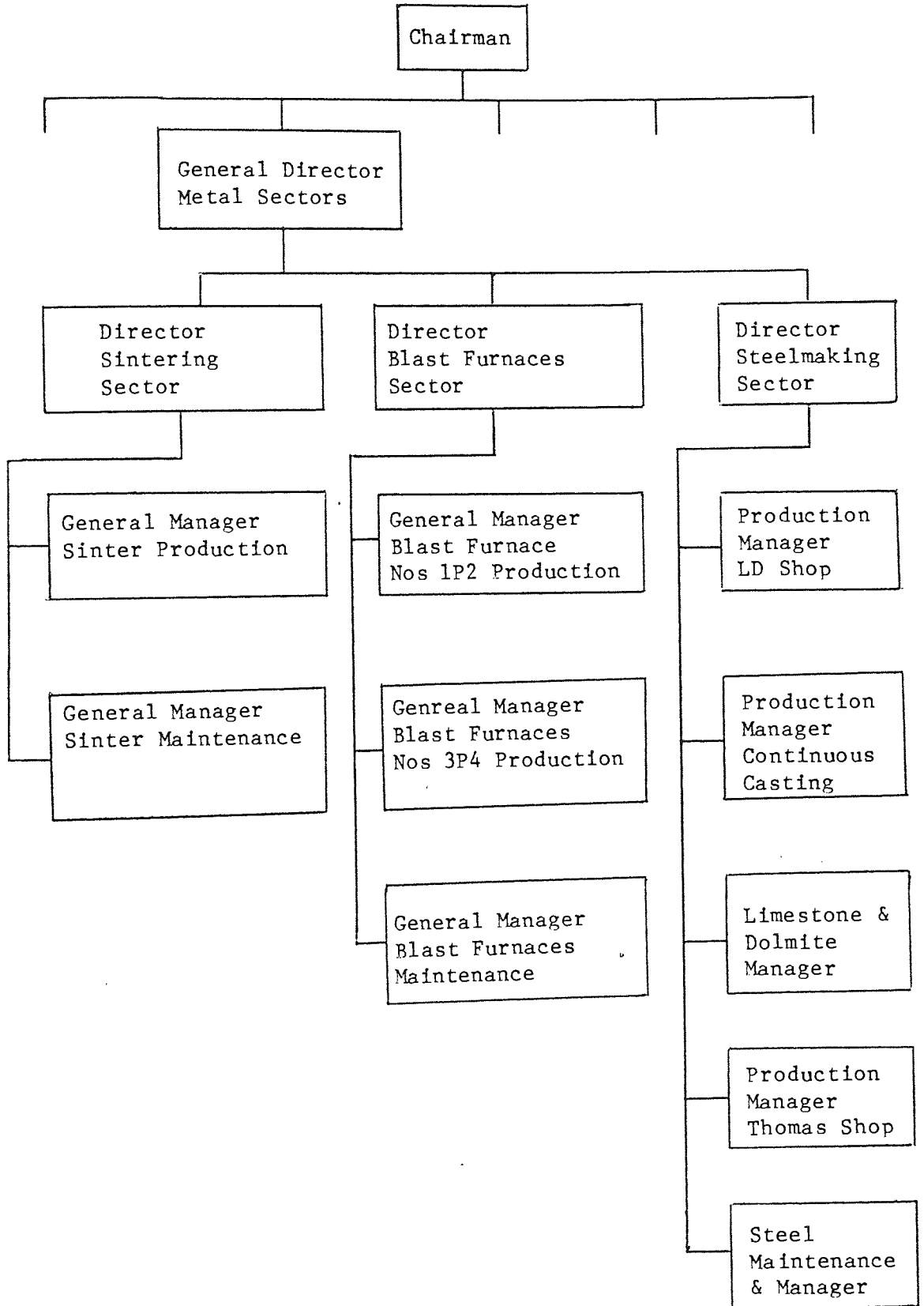
10. To prepare the export department budget in the light of the sales budget previously prepared for the sales sector as a whole.
11. To participate with the organisation and management sector in specifying personnel needs for the department, to develop and specify training necessary for manpower in the department.

8.1.4 The Metal and Forming Sectors have an important part to play in forming the company's policies and objectives, and also in planning and control.

8.1.4.1 The Metal Sectors:

Before discussing the main functions which these sectors play in planning and control in Hadisob, the following is the managerial structure of these sectors and its relation with top management.

Figure 20



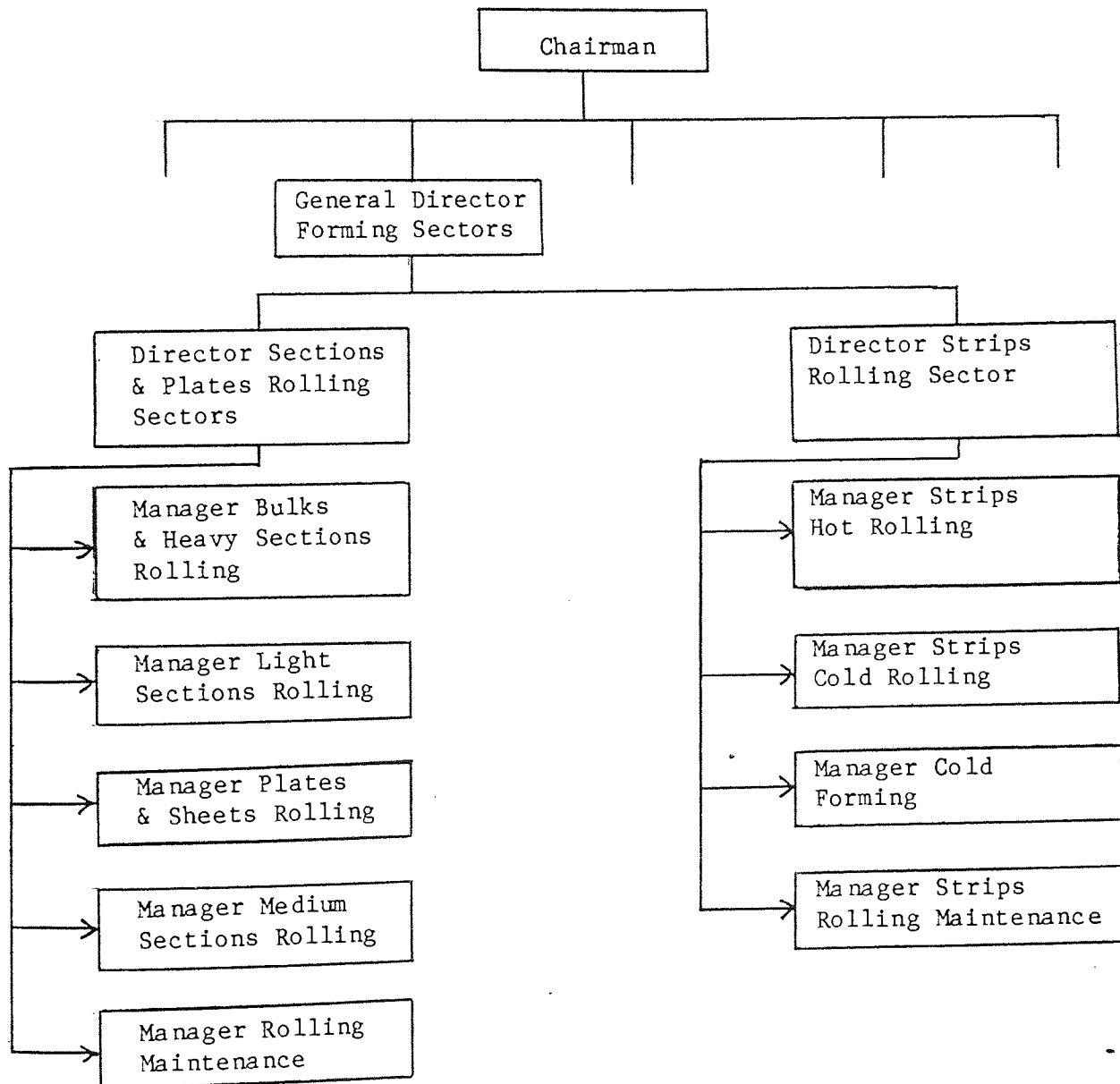
The Role of the Metal Sectors in Planning and Control

1. To participate in forming the production policy for sinter, pig iron, and Thomas, electric and oxygen steel.
2. To prepare production and associated maintenance plans and programmes in the light of desired plans to produce metal, and their implementation at the efficiency and rates required.
3. To prepare a budget for the metal sectors as a whole in the light of the corporate budget for the company as a whole, then to prepare divisional budgets for the sintering, blast furnaces and steel sectors in the light of the budget prepared for the metal sector.
4. To participate in the arrangements between production plans for the mines and quarries and those of sintering and blast furnaces and steel.
5. To determine specifications and quantities of production requirements from materials and spare parts and ensure continuous supply.
6. To participate with the planning and projects sectors in studying new projects for expansion, replacement or renewal.
7. To implement the financial and managerial policy of the company and issue necessary decisions and instructions to ensure its implementation.

8.1.4.2 The Forming Sectors:

The following is the managerial structure of these sectors and its relation with top management.

Figure 21



These sectors participate in forming the production policy of all products that they have to produce, in exactly the same way as the metal sectors.

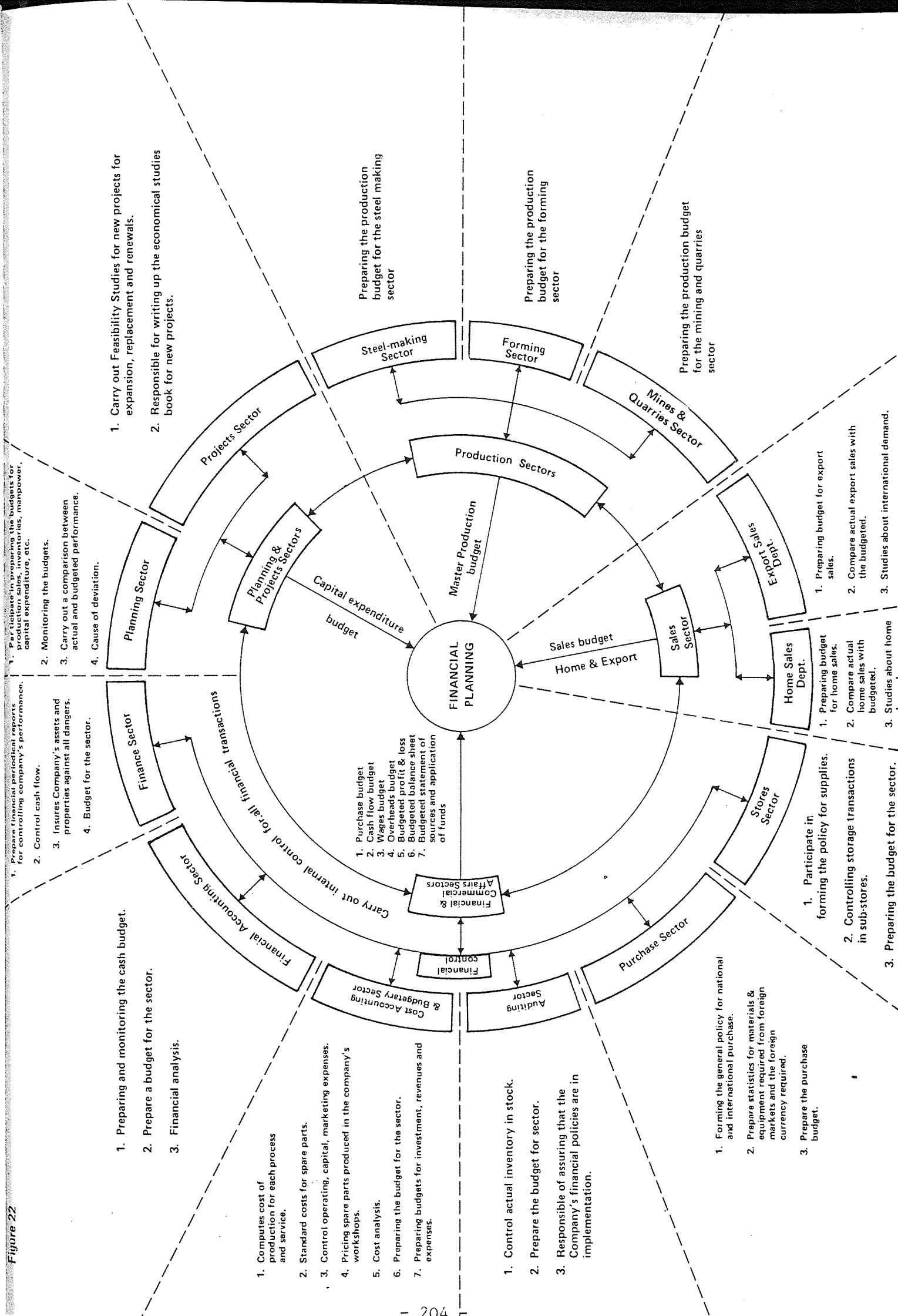
Section Two:

Planning and Control Activities at Hadisolb

In the first section of this chapter, the functions attached to each main and sub-sector in Hadisolb have been detailed. Since it is very difficult for a reader of this section to form an opinion as to how planning and control are carried out in the company, I will now extract from what has been mentioned as the functions of the main and sub-sectors in Hadisolb the planning and control activities in the company, and provide flow charts which will assist understanding.

1. Financial Planning and Control at Hadisolb

Figure 22



2. Production Planning

Production planning as now carried out by Hadisolb is primarily concerned with the development of a schedule to deliver the monthly quota of tonnes in accordance with annual contracts. In most cases there is no identification of sales or production by orders or order items, nor is there a commitment to deliver the customer specific tonnes by product type and size at a specific time. To a considerable degree Hadisolb's present production planning activities appear to be oriented toward plant operating consideration or priorities, rather than to the needs of the customer.

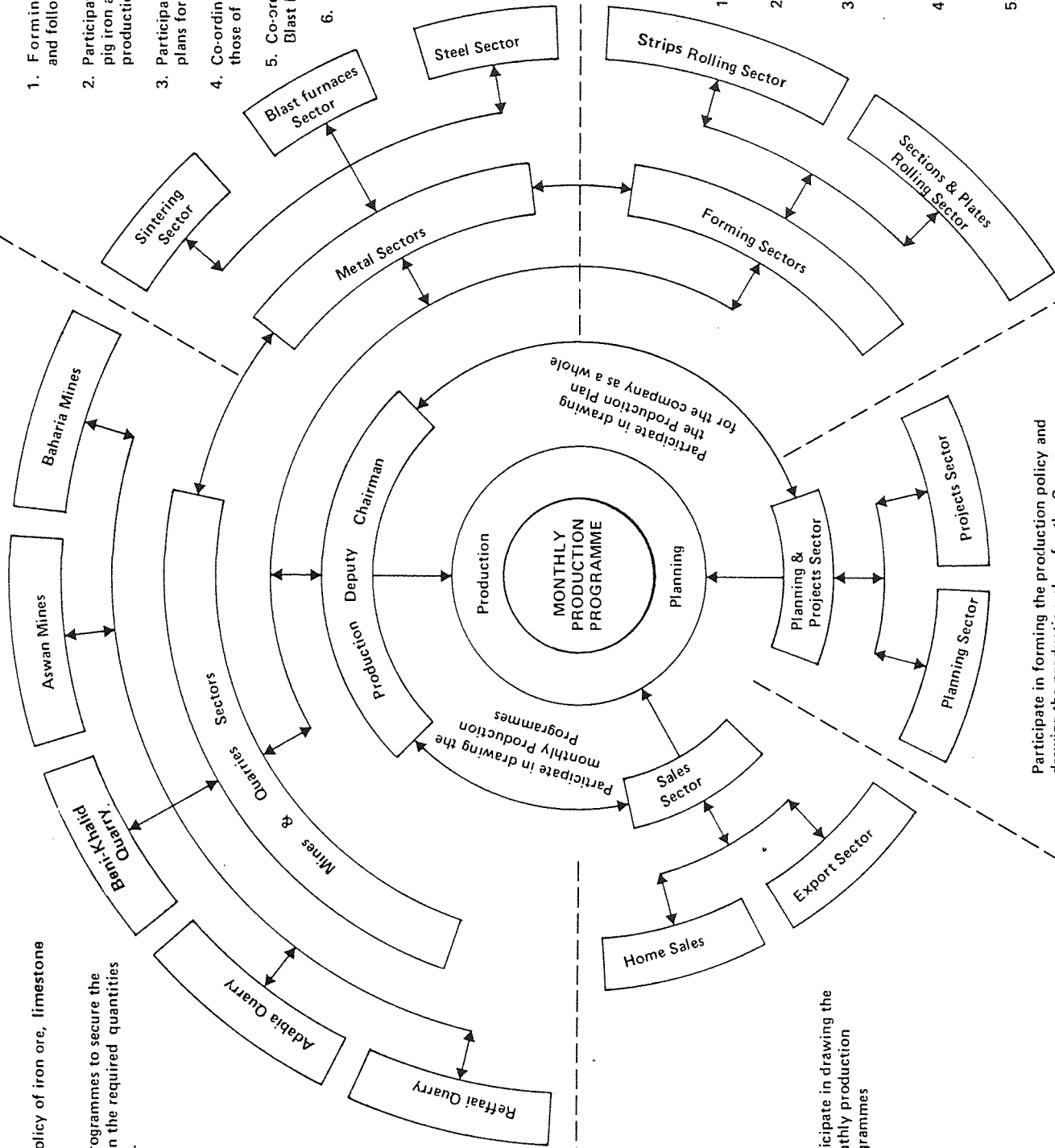
Detail about all the company sectors' contribution in production planning have been indicated in Section One of this chapter. What I would like to add is that a Production Planning Committee was created in the latest managerial development of Hadisolb which consists of the following personnel:

1. Chairman of the Company
2. Board of Directors - 3 members
3. Department Managers - 4 members
4. Labour Union - 7 members
5. Ad hoc Members - as required.

The following diagramatic chart shows the sectors involved in production planning, together with a summary of their functions.

Figure 23

1. Form the production policy of iron ore, limestone and dolomite.
2. Production plans and programmes to secure the factory's requirements in the required quantities and at convenient times.



1. Forming the production policy in regard to metal and follow it up.
2. Participate in drawing production plans of sinter, pig iron and steel according to the predetermined production objectives for the company as a whole.
3. Participate in the co-ordination between production plans for mines and quarries and those of sinter.
4. Co-ordinate between production plans of sinter and those of the Blast Furnaces.
5. Co-ordination between production plans of Blast Furnaces and those of Rollings.
6. Draw plans for the upkeep and overall maintenance to ensure machine running.

1. Form the production policy of Rollings and follow it up.
2. Draw plans for production policy implementation according to the company objectives.
3. Participate in forming the production policy of rollings for bulks, heavy, medium, and light sections, plates and sheets.
4. Participate in the co-ordination between production plans of steel and those of rollings.
5. Participate in drawing the production policy for hot and cold rolling strips, cold forming sections, galvanised plates and tin plates.
6. Drawing up overall maintenance plans to ensure machine and equipment running.

Participate in forming the production policy and drawing the production plans for the Company as a whole

Participate in drawing the monthly production programmes

3. Sales Planning

Hadisolb in its history to date has operated primarily in a production oriented environment in which it has been assumed that:

- a. All the steel that can be produced can be sold, without any great sales expenses or efforts.
- b. Domestic customers have relatively simple requirements.

So, sales plans tend to evolve from production plans. Furthermore, one can add that the Egyptian steel industry in general to date, has enjoyed a situation in which the demand for steel products has consistently exceeded the domestic supply, so, steel has had to be imported to satisfy the domestic demand.

Having said that, I do not want the reader to pick up the idea that the Sales Sector in Hadisolb has not a role to play in the planning activities; indeed, it is a weak role, but it is of use in drawing the monthly production programmes.

Nationally the Department of Marketing Research carries out a survey of large customers' requirements of steel products to draw a production plan which will satisfy their needs.

Internationally, representatives of the Sales Sector usually carry out visits to foreign countries, which studies show their needs to import foreign steel, and make contracts with them.

Previously, I indicated that all concerned sectors participate in

preparing the production plan for the company as a whole; however, the production sectors depend in the first place on the monthly programmes which the Deputy Chairman for Production takes an active part in.

Having said that, I have to point out that the Deputy Chairman for Production depends in drawing up the Production Monthly Programmes on a monthly letter sent from the Sales Sector, shortly before the start of the month, containing production and shipment instructions which designates the customer, the sales contract reference and itemizes the grades, sizes and quantities.

Section Three:

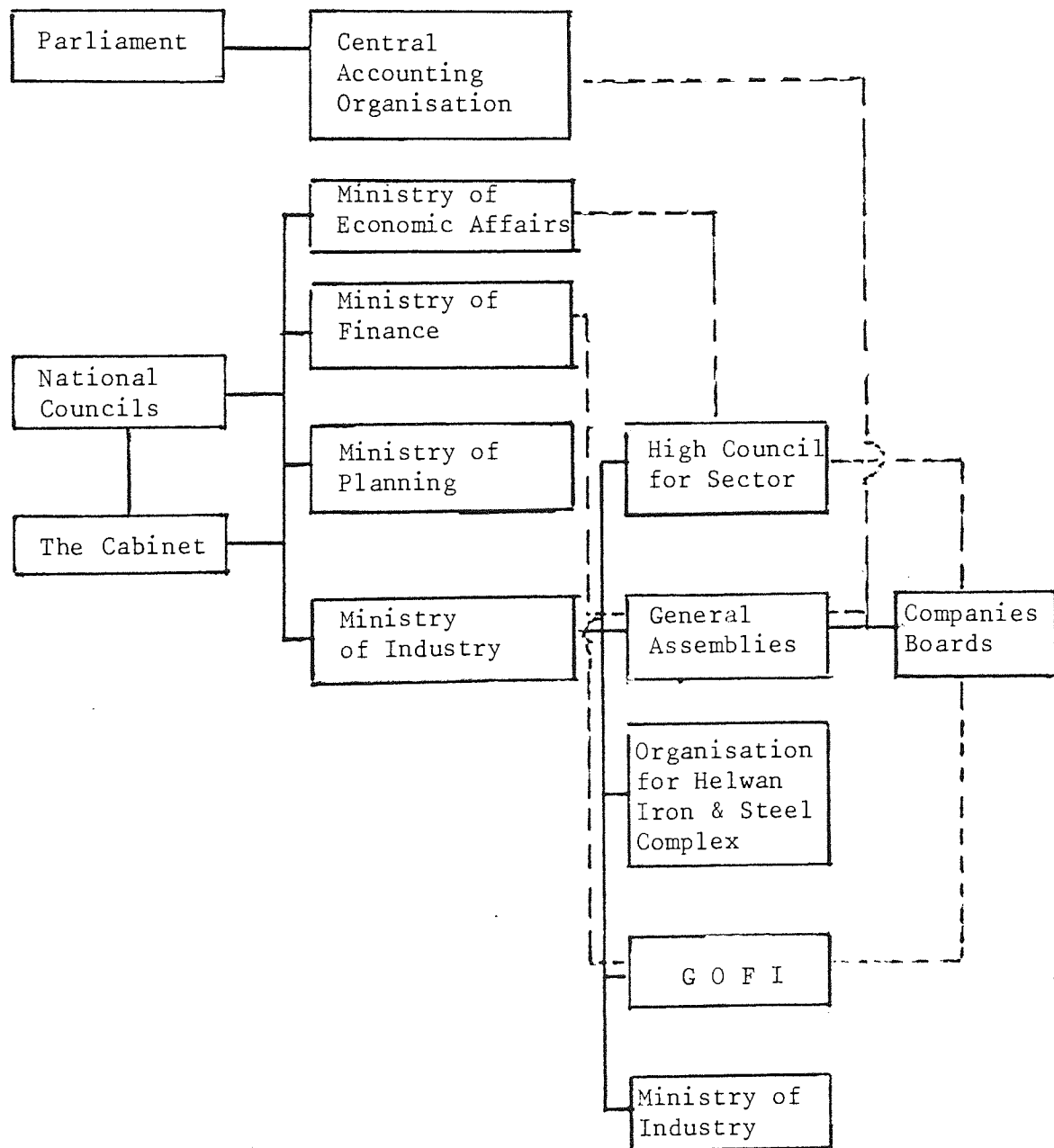
Government and Government Agencies Involved in Planning and Control.

Having pointed out in the first section of this chapter the main sectors in Hadisolb involved in planning and controlling the company's activities, and with detailed discussion indicating the highlights of the functions each of these sectors carries out, and also the structure of each of the main sectors, I then discussed in the second section the planning and control activities in Hadisolb. It is appropriate now to turn to a discussion of the Government and the government agencies involved in planning and control. Since Hadisolb is a part of a large industry in Egypt, viz. the metallurgical sector, it is worth including in my discussion the involvement of the Egyptian Government and its agencies in planning and controlling the metallurgical sector activities.

8.3.1. The Metallurgical Sector Companies Relationships
with Government Organisations

Figure 24 shows in diagrammatic form the relationship of the companies in the metallurgical sector with other government organisations. The continuous lines show direct lines of responsibility, whereas the dotted lines show indirect responsibilities.

Figure 24:



Relationships of Metallurgical Companies with Government Organisations

In a later stage in this section, after discussing the involvement of each of those government organisations in planning and control in the public sector in Egypt as a whole and the metallurgical sector in particular, an attempt will be made to draw a chart which sums up all of those organisations roles.

8.3.2. Ministry of Industry

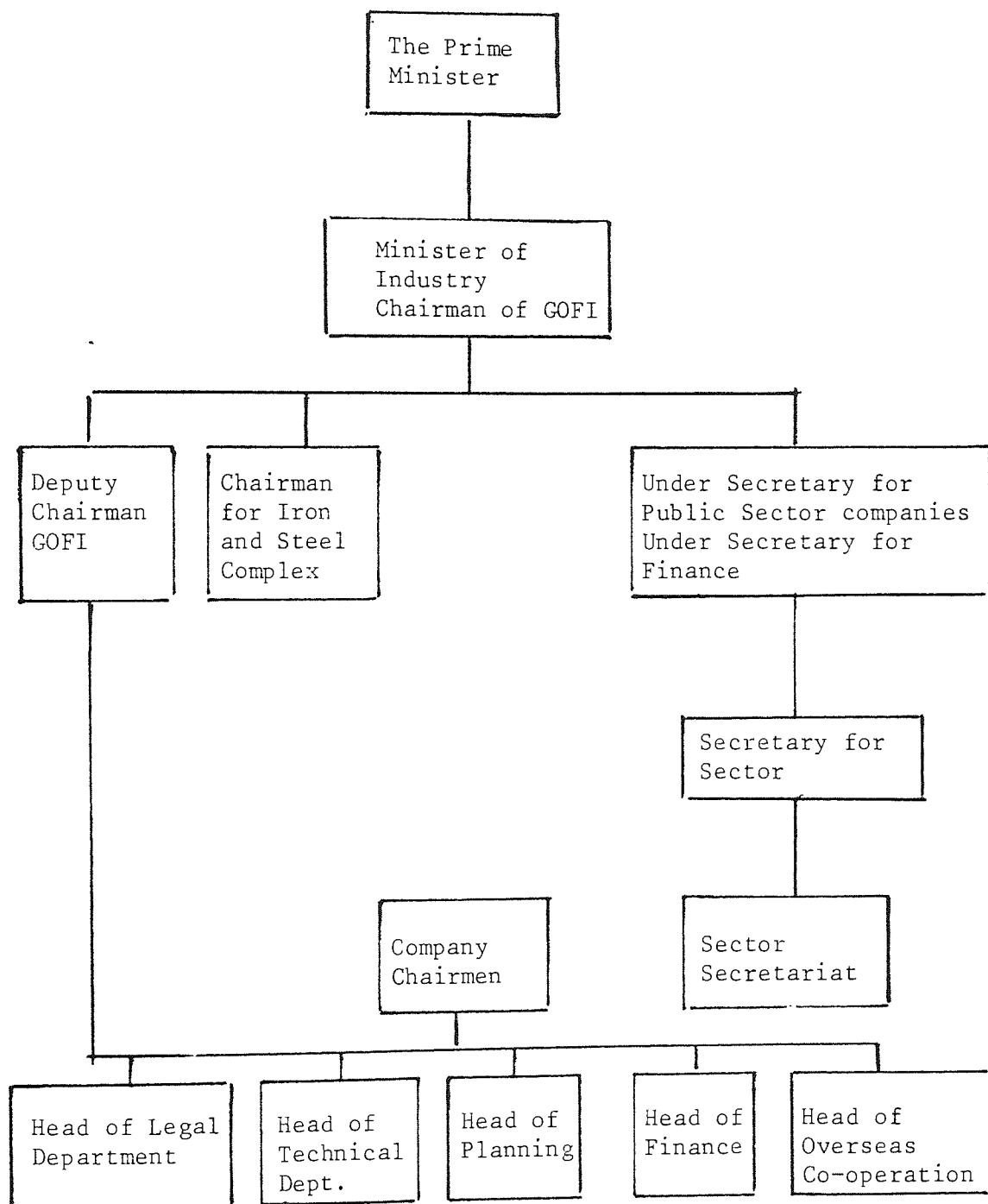
Two departments in the Ministry of Industry are in charge of public sector companies. The first is the public sector company department which is responsible for revising and agreeing upon production targets set annually by industrial public sector companies. The second is the public sector finance department, which revises and agrees upon annual financial budgets for current operations, in particular the foreign currency element.

8.3.3. General Organisation for Industry 'GOFI'

GOFI is responsible primarily for the study, definition and the placing of contracts for all new projects within the Ministry of Industry which exceed LE 500,000 in value and which require foreign currency from government sources. The companies themselves can enter into contracts for projects of smaller value and can also spend foreign currency they generate themselves "mainly from export sales". GOFI has the power to sign contracts on behalf of the Egyptian Government.

The following figure shows the structure of GOFI.

Figure 25:



Structure of GOFI and Relationship of Individuals.

I must also point out that the Board of GOFI is made up of the Minister of Industry, the Deputy Chairman, the five sector

secretariats, the Head of Central Organisation for Statistics and Mobilisation, the Chairman of the National Bank of Egypt, and Under Secretaries of Ministries of Planning, Finance, Economics and Industry.

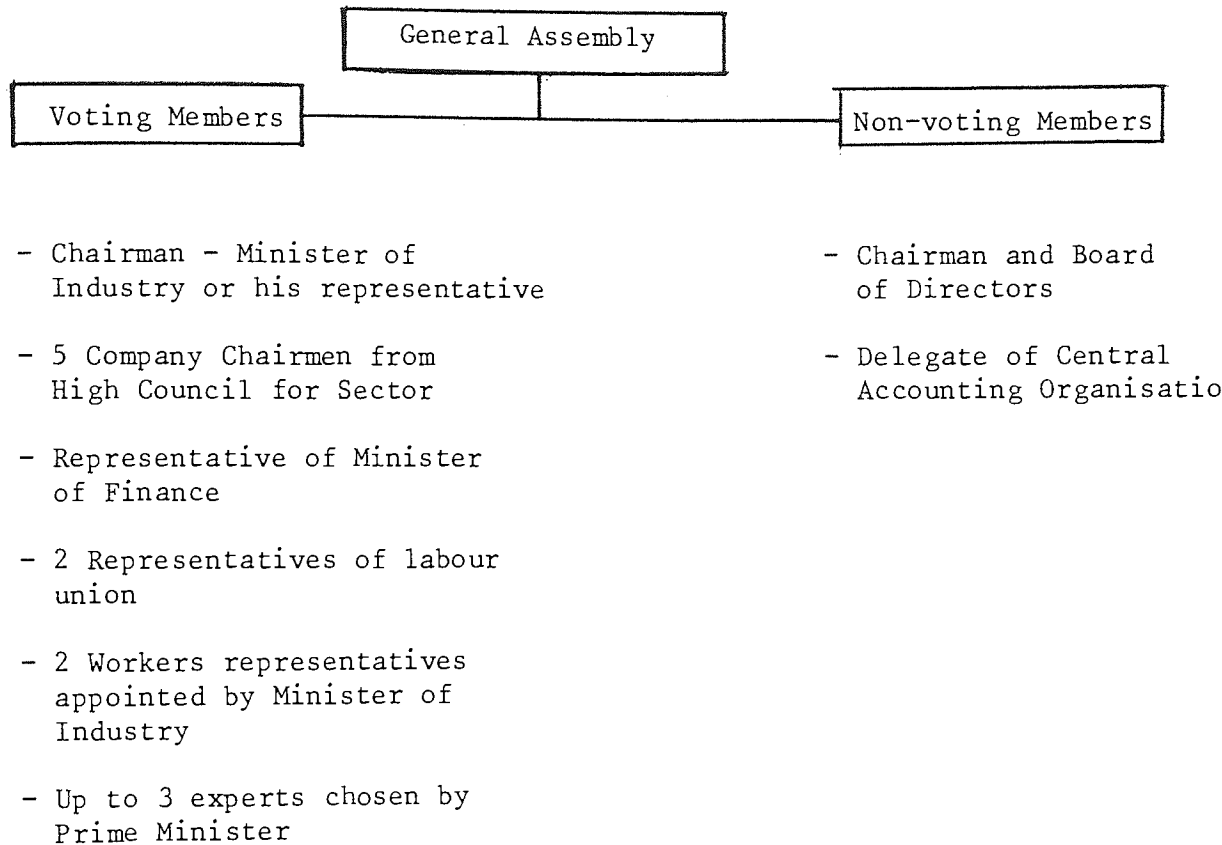
8.3.4. Iron and Steel Complex

This organisation was set up to implement the Egyptian side of Hadisolb expansions which were planned to be implemented within two stages previously discussed when reviewing the history of Hadisolb. Having said that, after the expansions were handed over to Hadisolb's management, the complex was no longer in relationship with Hadisolb; however, as the country is in its industrialisation stage, it was decided by the authorities that the complex had to be responsible for new projects implementation to establish new industries agreed upon by the Egyptian Government. So, the complex was converted to be the Central Organisation for the Metallurgical Industry, and is responsible for carrying out all feasibility studies for new industry projects to be established in the country until handing it over to the management when formed.

8.3.5. General Assemblies

The following figure shows the composition of general assemblies for the voting and non-voting members; this refers to the corporations wholly owned by the Government. However, as Decree No. 111 for the year 1979 says, in mixed company's where private shareholders who own more than 100 shares may attend a General Assembly, and that voting should be proportioned to public and private shareholding; and they are entitled to play their part in the General Assemblies meeting.

Figure 26:



The Structure of General Assemblies in the Public Sector Companies.

General Assemblies are supposed to play the following parts in their meetings:

- To approve the budget, and the profit and loss accounts and the distribution of profits.
- To examine the Board of Directors' report on the company's performance.
- To approve the general plan for the company.
- To amend the company's Articles Memoranda.
- To expand or liquidate the company.

- To increase or decrease the company's capital.
- To locate funds for purposes other than specified in the budget.
- To merge the company with another company or to sub-divide the company.
- To remove with a two-thirds majority vote the Company Chairman or any Board Member.
- To reduce the "representation allowance" of the Chairman or any Board Member, if the company fails to achieve its planned targets after a two-third majority vote.

The General Assemblies meet twice a year, once to consider the company annual budgets, and once for a review of the company results.

8.3.6. High Council for the Metallurgical Sector

Before discussing the activities which the High Council is supposed to carry out, the following shows the structure of the High Council.

The High Council for the Metallurgical Sector consists of:

- Chairman - The Minister of Industry
- Deputy Chairman - Secretary of Sector
- Chairmen of the companies in the Metallurgical Sector
- A representative of the Ministry of Finance
- A representative of the Ministry of Planning
- A representative of the Ministry of Economics
- At least three experts in the sector activity on economic, administrative, or legal fields.
- Technical secretariat.

The Council comprises some 46 people and should meet once a month.

The High Council is responsible for:

1. setting general goals for the sector,
2. the formulation of plans and policies,
3. the co-ordination and integration of the plans and projects of all the companies within the sector,
4. the financing of these companies in accordance with national policies and national plans,
5. the follow-up of the fulfilment of the stated goals, and
6. is required to offer opinion on any matter raised by the Ministry of Industry.

8.3.7. Ministry of Planning

The activities of the Ministry of Planning embrace:-

1. The co-ordination of the five year plans and the capital and operating budgets of all units in all sectors and ministries.
2. Responsible for the implementation of Government policies, such as price control.
3. To carry out its work the Ministry of Planning has a secretariat divided into departments, one of which is responsible for the metallurgical and engineering sector companies.
4. The Ministry of Planning is responsible for statistics and controls the Central Agency for Mobilisation and Statistics; however, this agency is supposed to report directly to the Prime Minister.

The Egyptian Government prepares a five year national plan which is outside the scope of this study, however, it is worth saying that forecasts and estimates have to be produced for the whole of the public sector activities to form the five year plan in a realistic manner; nevertheless, the companies involved have no role to play in preparing the so-called five year plan.

8.3.8. The Ministry of Finance

The Ministry of Finance controls the financial resources of the country and allocates resources on a short and long term basis to the various areas of the economy. The Ministry of Finance issues in July each year instructions which govern the preparation of the general national budget which include instructions to companies in the public sector. The whole of these instructions, because of their importance, will be included in the appendices, but for the moment the following is a summary of these instructions issued in July 1979 to govern the preparation of the budget for year 1980.

1. 9 committees for the preparation of the 1980's budget are to be formed, chaired by the Deputy Minister concerned, the Chairman of the Board of Directors, or a representative of them; representatives of the Ministry of Finance, the Ministry of Planning and Central Agency for Organisation and Management should be included.
2. The budget must be presented not later than 1st July 1979.
3. All resources and usages, financial transactions, are to be

included in the budget putting into practice the principle of budget integration described by law No. 11 for year 1979.

4. The budget should include all requirements to prevent any reconciliation after its delivery to the Ministry of Finance.
5. A plan for the year 1980 has to be presented to the high council of each sector; moreover, the budget prepared according to the plan presented to the High Council has to be presented to the General Assembly according to law No. 11 for year 1979 mentioned above.
6. The budget has to be prepared according to decisions issued within the current year (1979) and on the highlights of the standards of each activity.
7. The following are the basic points which should be put into consideration when preparing the budget for year 1980:
 - Ensure improvements in economic trends, especially ratios of production growth, added value, surplus with relation to wages, and to give reasons for any deviations in the growth ratios.
 - Study of production efficiency especially through the follow up of improvement in budgeted production for year 1980 compared with actual production of the previous years and available capacities, aiming to reduce the unused capacities and redeem its causes.
 - To optimise the use of production resources by concentrating on a product mix which will optimise contribution, at the same time limiting increases in fixed costs.

- Follow up the financial deviations between cost and prices of products and activities in order to prevent them and redeem the causes.
- To improve the company's situation in the balance of payments through the follow-up of exchange efficiency between local costs and the net effect of production on the balance of payments, aiming to reach the best production mix, bearing in mind the balance of payments.
- To concentrate on bringing under implementation projects to the production stage.

8.3.9. Ministry of Economic Affairs

The Ministry of Economic Affairs is responsible for the implementation of the "Open Door" policy adopted by the Egyptian Government in 1974 after the 1973 war to encourage and improve foreign and Arab investment in the country after the damage which happened all over the country as a result of committing the country to a war situation for more than 25 years. Also, the Ministry of Economic Affairs is responsible for the administration of foreign and Arab investment within the country and for all banking activities in the country.

8.3.10. Central Accounting Organisation

The Central Accounting Organisation carries out a central auditing function on all public sector companies and is responsible to Parliament for ensuring that all company accounts are drawn up in the

proper manner according to the standardised accounting system. All companies in the public sector are required to submit their final accounts and balance sheets for inspection by the Central Accounting Organisation staff, at least two months before the Annual General Meeting for the General Assemblies. Furthermore, all public companies are required to fill in special forms designed by the Central Accounting Organisation for the follow-up and evaluation of their activities.

So far in this section, the Government and Government Organisations involved in planning and controlling the public sector companies' activities have been reviewed. Having said that, it yet remains to review the procedures carried out for various key activities. Therefore, the remaining segment of this section will concentrate on the following:

1. The procedures for planning and implementation of new projects.
2. The procedures for annual capital budget allocation.
3. The procedures for annual operations budgets.
4. The procedures for review of company results.

1. Procedures for Planning and Implementation of New Projects

Those procedures can be summarised in the following:

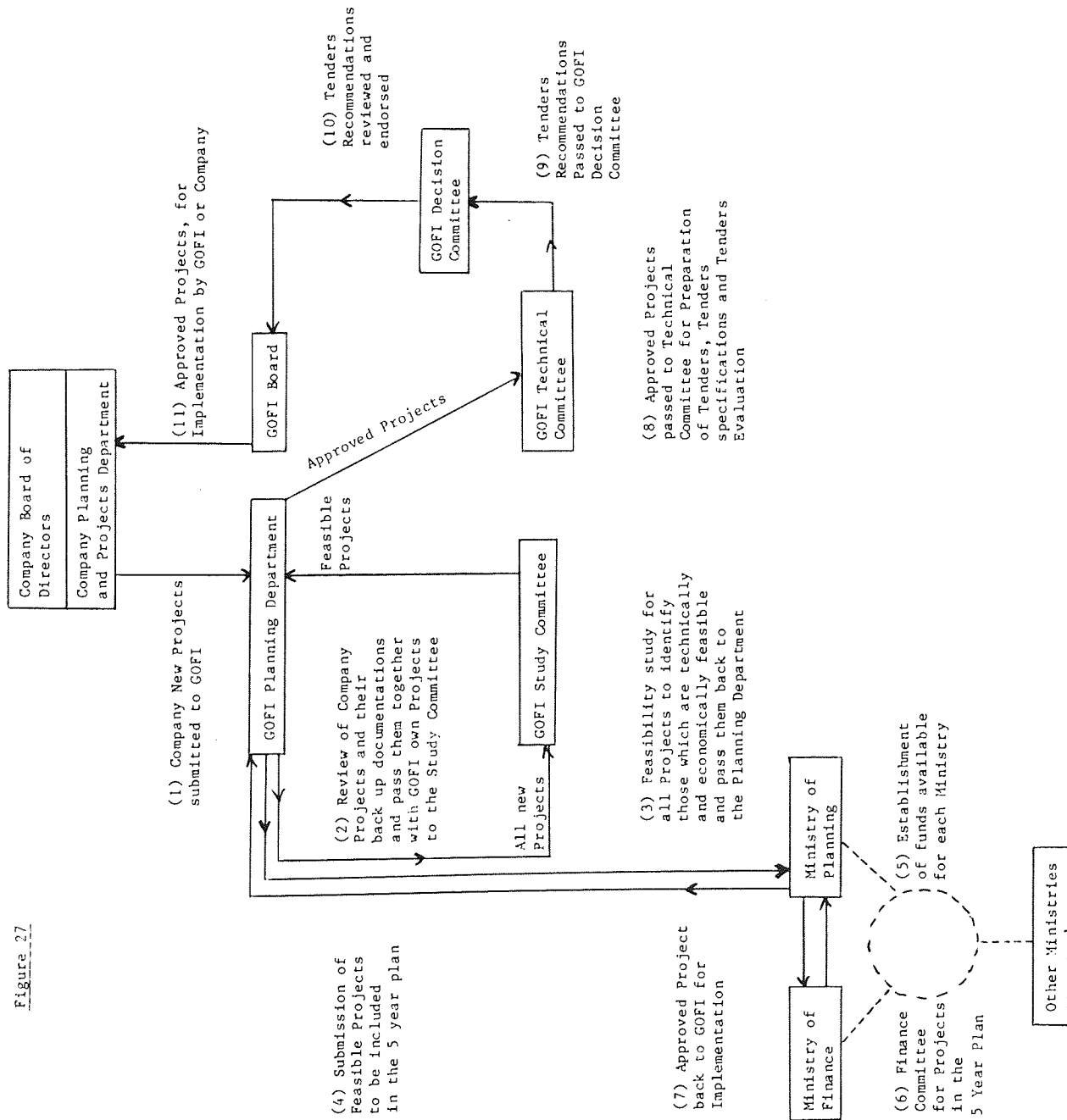
1. The plans for new projects previously prepared by the companies together with studies and back-up documentation are passed up to GOFI technical departments.

2. At the same time, GOFI prepares its own plans for new projects in a similar way. The projects planned for by GOFI are large projects which do not lie within the responsibility of companies. I would like to point out that, as previously mentioned in this section, the sphere of companies responsibilities for new projects are those which its value does not exceed LE 500,000 or it does not require hard currency.
3. All projects are then referred to GOFI study committees, one for each project, which are made up of representatives from the company's Project and Planning Department, experts from GOFI and a number of other experts.
4. The study committees review the back-up documentation of all projects and identify projects which are considered as technically and economically feasible.
5. Such projects are then passed back to the GOFI Planning Department who put them together as a proposed five-year plan for the sector.
6. The plans are then submitted to the Ministry of Planning, who approaches the Ministry of Finance to obtain a commitment to finance the plan.
7. As the aggregate cost of the plans usually exceeds the available funds, there follows a bargaining process between the Ministry of Planning, the Ministry of Finance and all the other resource consuming ministries to establish priorities and to determine which projects shall be included in the five year plan.

8. Once the plans have been refined they are passed, together with a guarantee of funds, back to GOFI for implementation.
9. GOFI then passes the individual projects to technical committees for the preparation of tender specifications, calls for tenders, and tender evaluation.
10. The technical committees make tender recommendations to a Decision Committee which reviews and endorses the recommendations and then passes them for ratification by the GOFI Board.
11. GOFI signs the contracts and starts implementing them itself, or passes them to the companies for implementation.

The following figure (Figure 24) shows step by step the approval and implementation of new projects together with the composition of the committees and boards involved.

Figure 27



Composition of Committees and Boards

Decision Committee

Deputy Chairman of GOFI
Secretary of Sector
Chairman of Company
General Manager GOFI
Finance Dept., and Legal Dept.,
Representative of Ministry of Finance
Representative of National Legal Council
Up to 2 experts from GOFI

Technical Committee

Representative of:
GOFI Technical Dept.,
Financial Dept.,
Legal Dept.,
Company Planning and Projects Dept.,
Sector Secretarial

Study Committees

Representatives of the Company
Experts from GOFI
Other Experts

Board of GOFI

Chairman: Minister of Industry
Deputy Chairman
Secretaries of Sectors
Under Secretaries of Ministry of Planning,
Industry, Finance
Economic Affairs
Head of Central Agency for Mobilisation and Statistics.

2. Procedures for Annual Capital Budget Allocation

These procedures are linked to the previous one and involve obtaining the inclusion of the funds in the company's annual budget for the implementation of the approved projects in the current year.

The following are the procedures adopted for annual capital budget allocation:

1. The company prepares its capital budget and has it endorsed by the General Assembly and submits it to GOFI. At the same time the company informs the metallurgical sector.
2. GOFI submits aggregate capital budgets for all the sectors to the Ministry of Planning who in turn submit them to the Ministry of Finance for the necessary funds.
3. If funds are not available, priorities again have to be established between the sectors by means of further discussions between the High Council, GOFI, and the Ministries of Planning and Finance; at this stage the implementation of some of the projects might be delayed rather than cancelled.
4. The authorised budgets are then passed to GOFI who in turn passes them to companies to include them in revised capital budgets, Sectors are also informed.

The following figure shows the procedures for Annual Capital Budget Allocation.

(8) Revised Capital Budget

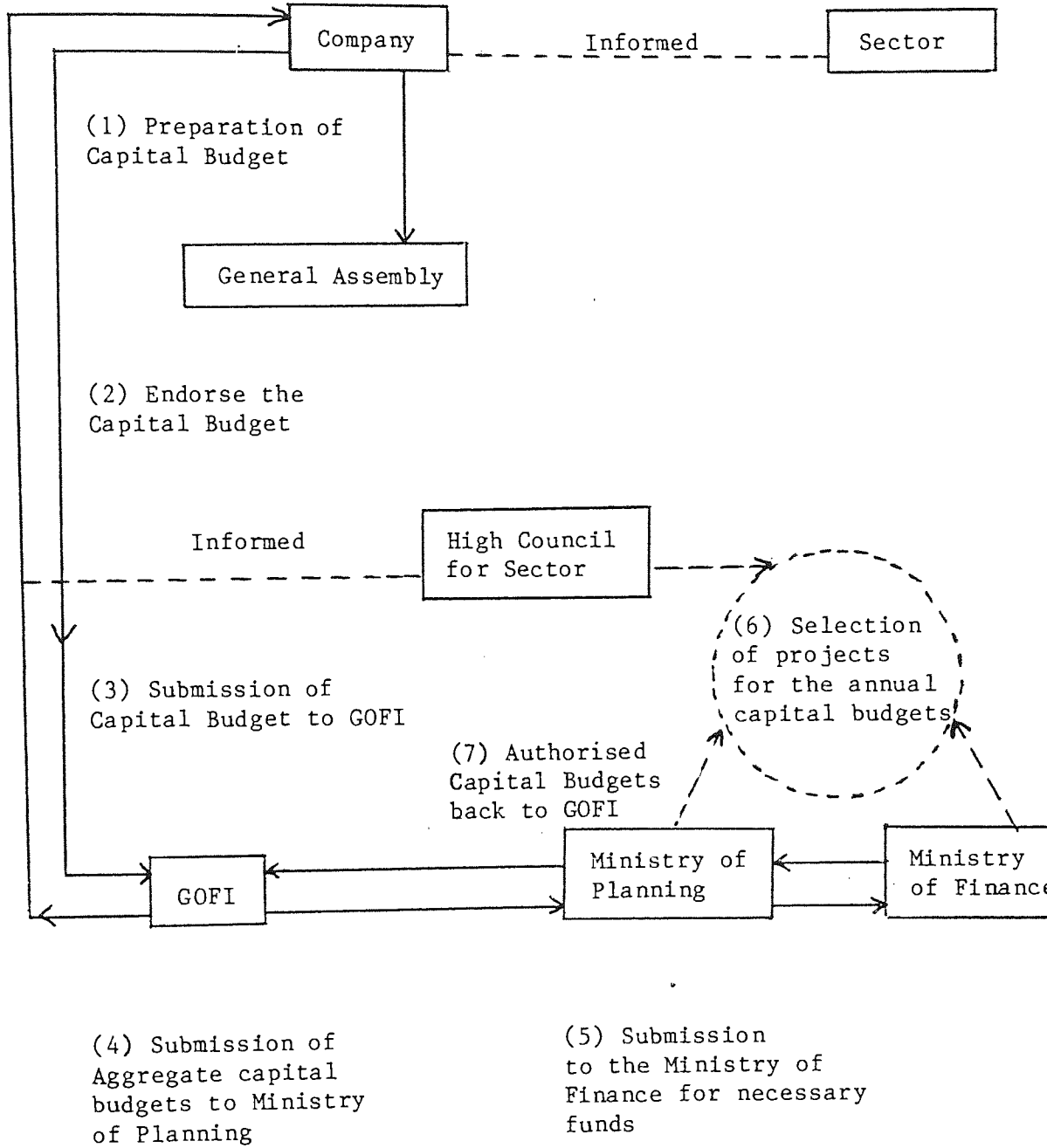


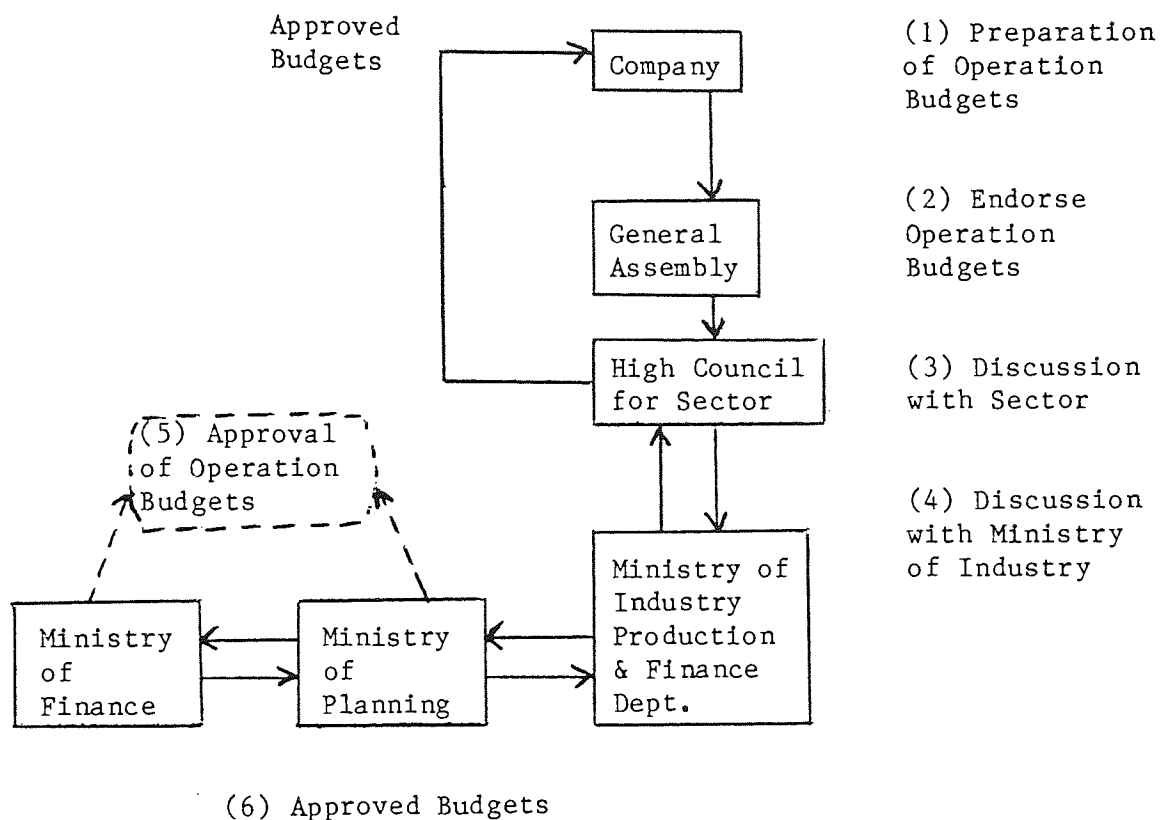
Figure 28 Procedures for the Approval of Capital Budget Allocation.

(3) Procedures for Annual Operations Budget:

1. The company prepares its annual operations budget; after approval from the General Assembly, it is then submitted to the High Council for the sector.
2. In the High Council Discussions and possible amendments take place.
3. The High Council for the sector submits revised operation budgets to the Ministry of Industry Departments responsible for production and finance.
4. Within the Ministry of Industry Departments discussion also takes place, about the level of production and requirements for foreign currency and possible amendments which might occur.
5. The operation budgets are then passed to the Ministries of Planning and Finance for approval.
6. Approved operation budgets are then returned by the same route.

The following Figure shows the procedures for the approval of annual operations budgets.

Figure 29



(4) Procedures for Review of Company Results

The following procedures show how the company results are revised:

1. The Company prepares its final accounts and the balance sheet within the three months which follow the financial year, together with reports from the Board of Directors about the performance of the company in the year just ended.
2. The Central Accounting Organisation receives copies from the final accounts, the balance sheet, and the Board's Reports. At this stage accountants from the Central Accounting Organisation are authorised to perform as external auditors, who ensure at

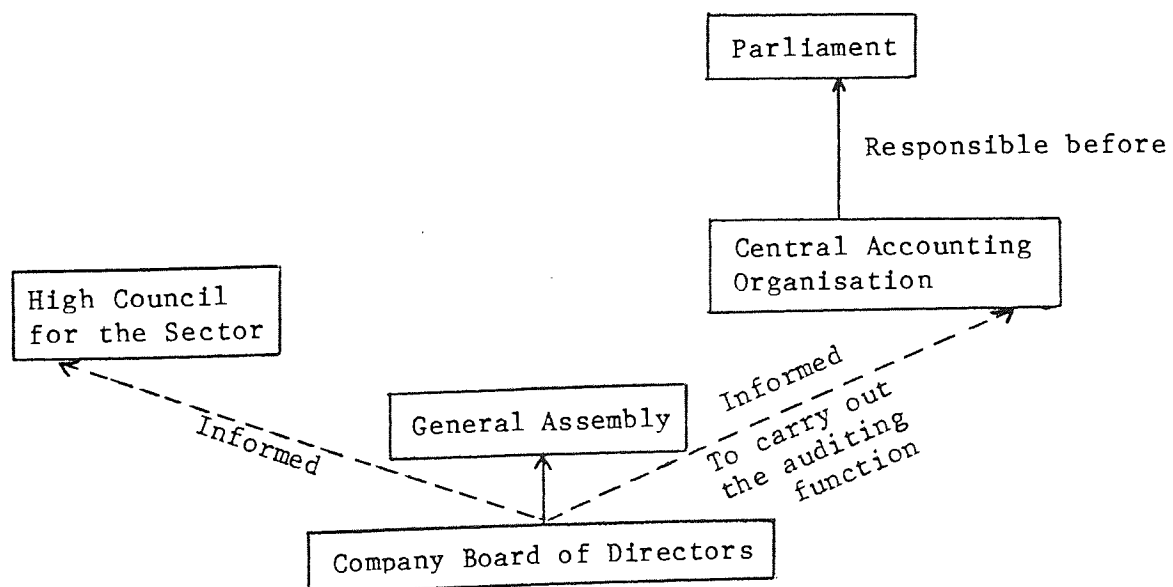
the end of their audit that the final accounts show the actual net profit or loss, and the balance sheet shows the actual financial position of the company, these are all prepared according to the standardised accounting system.

3. As the company being responsible to their General Assembly only, a meeting to the General Assembly has to be held and the results of the Financial Year have to be presented together with the Board of Directors report.

4. The High Council of the Sector has to be informed with the results.

The following Figure shows the procedures for reviewing the company results.

Figure 30



Conclusion

Chapter Five of this second part of the thesis reviewed the history of the steel industry in Egypt and the establishment of the Egypt Iron and Steel Company "Hadisob". Then Chapter Six has reviewed organisation and management in Hadisob from the early beginnings until recent developments within the organisation structure in operation at the present time. In Chapter Seven the product, markets and existing facilities in Hadisob has been discussed. Equipment and machinery in operation and those under construction have been stated, various production processes, mines and quarries have been discussed and illustrated. Chapter Eight dealt with planning and control in Hadisob without referring to the role of accounting, since the next part of the thesis will deal with this.

Something which stands out from the research contained in the above chapters is the inadequacy of certain aspects of organisation. The present organisation structure was an attempt by Hadisob's management to apply decentralisation in managing the business. However, from what has been discussed, the present organisation structure, despite what has been mentioned in the Board of Directors decision on the recent organisation structure, is nothing more than centralised. A large company like Hadisob which embraces mines and quarries about a thousand kilometers from the plant in Helwan; should make another attempt to develop the organisation structure and apply more decentralisation in running the business. Organisation and management is out of the scope of this research, however, the Author will offer some thoughts to improve the organisation and management in Hadisob when proposing long-range corporate planning.

This will be covered at the end of the thesis within the recommendations and possible improvements.

The present organisation structure places a very heavy burden on the Chairman of Hadisolb and required him to act in three conflicting roles. The position of Chairman itself is largely a political role and requires involvement in affairs concerning the political and commercial environment in which his company operates. Then as a chief executive he is involved in the day-to-day activities in his company; moreover, because below the Chairman there is no single position which is responsible for steel operations, it becomes necessary for the Chairman to be constantly involved in day-to-day operational matters. In addition, the chairman through his membership of the General Assembly, is put into the role of shareholder on behalf of the Government. Those are a multiplicity of roles and in the end will lead to the conclusion that the Chairman of Hadisolb will not be successful in any of them.

Furthermore, from the present organisation structure, it is obvious that there are eleven separate organisation heads answering to the Chairman of Hadisolb. This is in itself a large number of subordinates, moreover, three of them represent steel operations. Because there is no intervening executive position between the Chairman and the three General Directors of steel operations, this places an unreasonable and impossible load on the Chairman of Hadosolb. The Chairman of the Company should concentrate on policy, objectives, programmes and other aspects of the overall management of the business.

Executive Committees are numerous and embrace affairs which can be attached to one committee. Three different committees for safety, training and personnel affairs could be assigned to one committee only. Furthermore, affairs of great importance to the company have no committee to look after them. There is no committee for planning which would cover all matters concerned with long range planning, moreover, instead of having a committee for export, there should be a committee for sales which looks after export and home sales.

It has been noticed also that the organisation structure of Hadisob embraces two similar but conflicting positions. In top management there is the position of General Director of Financial and Commercial sectors. There is also the position of General Director of the Financial sector. Those are by no means conflicting positions, and my own judgement is that there should be only one post to fulfil financial and commercial affairs.

Part Three:

Planning and Control in Hadisob

- The Role of Accounting -

Introduction:

- The Role of Accounting

The main objective of this thesis is to examine the role of accounting in planning and control in Hadisolb. However, it was not possible to form a clear idea concerning that role without having a detailed description of the company which Part Two of the thesis dealt with. Now, I turn to discuss in detail the role of accounting in planning and control in Hadisolb, having reached the destination which I aimed for up till now. Therefore, this third part of the thesis will be mainly a detailed description of the accounting systems in Hadisolb, mainly those of planning and control. Having said that, one more thing I found will be of great help in dealing with the problem, that is, as Hadisolb is part of the public sector in Egypt, and as a standardised accounting system was formed in 1968 which basically applies to economic units within the public sector, with the exception of banks and insurance companies, therefore I found it worth keeping the first chapter of this part to describe in brief the Standardised Accounting System (SAS), which will be a short informational note, in the sense that it will not go beyond mere description. Even, when evaluating the role of accounting in planning and control in Hadisolb, no attempt from the author will be made to evaluate the Standardised Accounting System (SAS) as this goes beyond the scope of this thesis. Evaluation of the SAS is left to other theses which I hope postgraduate Egyptian students will tackle in the near future.

Chapter Nine:

The Standardised Accounting System (SAS)

1. General Objectives

The general objectives of the Standardised Accounting System, as stated by the Central Accounting Organisation, may be summarised as follows:

- a) Provision of a chart of accounts embracing a wide range of comparable basic information, as well as several accounting statements which are required for planning and control at all levels, i.e. at levels of the economic unit, organisation, sector and national economy.
- b) Provision of necessary links between micro-accounting on the one hand and macro-accounting on the other, thus contributing to the accuracy of national accounts based on the business accounts of economic units.
- c) Facilitating collection, tabulation and assimilation of accounting standardised data.

2. Economic Units to Implement the System

Basically, the SAS applies to the economic units of the public sector, with the exception of banks and insurance companies. But since national comprehensive planning in Egypt requires information from both public and private sectors of the economy, the scope of SAS - as it was mentioned in the introduction of the system - may be extended to cover the economic units of the private sector by managements through

decisions by concerned authorities.

The "economic unit" referred to in the SAS may be defined as "that unit engaged in an economic activity whether in industry, commerce, agriculture, real estate, etc., including public organisations and institutions, which is legally asked to prepare commercial balance sheets and income and expenditure accounts, even through it is not engaged directly in any of the indicated activities". The "economic unit" of the public sector may take one form or another of the following:

- A public organisation or institution
- A public company
- A co-operative or an establishment attached to a public organisation.

3. General Criteria Underlying the Formation of the System

a) Simplicity, clarity and flexibility

According to this criterion, the "accounts code" as a "store" of information has been supplemented by sufficiently detailed explanations and interpretations. Moreover, the SAS is mainly limited to financial accounting without deep confrontation into cost accounting. As to clarity, it is explained as the SAS gives much attention to detailed explanations to the accounts code which is considered as the basic storage of accounting data. As to flexibility in the sense that further classifications are allowed whenever such extensions are deemed necessary for one purpose or another.

b) Agreement with widely accepted accounting principles

The SAS has maintained those accounting principles, terms, concepts, and definitions which are widely accepted in current practice.

The adoption of this procedure is justified on the grounds that the introduction of substantial changes might cause undue confusion and distortion in existing practices.

c) Practicability

To allow SAS to be put forward into practice, the preparation of the SAS has allowed its testing against present and potential possibilities of the economic units on the one hand, and needs emerging from various bodies, including of course economic units, on the other. All those who have shown interest in the application and use of the SAS have participated in its formation.

d) Ability to meet demands for information emerging from both the economic units and other institutions.

4. Chart of Accounts

4.1. Underlying principles

The construction and application of the "chart of accounts" are guided by the following principles:

a) The extent of detail in the classification of accounts is governed by the possibilities available to the economic units on the one hand, and the needs for accounting data on the other. However, the classification included in the SAS is regarded as a minimum, in the sense that it can be expanded by sub-dividing the accounts.

- b) The classification provides necessary information for the construction of the traditional statements and accounts, i.e. the balance sheet, operating and trading account, profit and loss account, and surplus account. At the same time, the classification allows for the preparation of two useful statements which represent the link between micro-accounting and macro-accounting. Those are (a) statement of sources and uses of funds, and (b) current operations account. Moreover, the classification makes possible the derivation of information for building up a "cash flow statement".
- c) The design of the classification scheme provides a link between general (financial) accounts and cost accounts. This is a preliminary step in the direction of standardising cost systems, at the activity level.
- d) In adopting the classification of accounts, economic units must stick to the accounting terms, principles, concepts and definitions included in the SAS. They must also adhere to the notations which are used to identify accounts in the system.

4.2. Numerical Notations

Notations in the "Chart of Accounts" are made in terms of numbers (with the exception of zero). This notational system meets the requirements of economic units using mechanical processing of accounting data and provides a means whereby the classification can be expanded.

Accounts included in the chart are classified into three main categories, namely (i) balance sheet accounts, (ii) operating accounts, and (iii) control accounts. The balance sheet accounts are divided into

assets and liabilities; the operating accounts into uses and sources; and the control accounts into production, production services, administrative and financing services, and capital expenditure. Each of these divisions (called total account) is identified by two-digit numbers. The first digit to the left indicates the "total account" while the first and second digits taken together to identify the "general account". The process of sub-division continues until the stage of accounts denoted by six-digit numbers is reached. This system of notation is shown in the "frame of chart of accounts" Figure 31.

4.3. Detailed explanations and clarifications

In order to avoid potential confusion in adopting the classification, accounts are clearly described in sufficient detail.

5. Standard Accounting Principles, Terms, Concepts and Definitions

5.1. The Standards in Financial Accounts

After standardising the accounts frame according to the design shown in Figure 31. the SAS proceeds to the standardisation of accounting principles, terms, concepts and definitions. In the field of financial accounting, terms and definitions which vary in current practices have been standardised. Generally, standardisation has kept faithful to the principle of maintaining those terms and definitions which are most accepted in practice. A list of terms to which standard definitions have been given is shown in Figure 32.

Standard valuations principles have been pointed out in respect of land, maintenance expenses, movements of inventory of commodity inputs, finished production, unfinished production and work in progress and debtors balances.

Figure 31: Frame of the Chart of Accounts

Balance Sheet Accounts		Operating Accounts			Distribution of Uses by Control Centre of:				
Assets 1	Liabilities 2	Uses 3	Sources 4	Production 5	Production Services 6	Marketing Services 7	Administrative & Financing Services 8	Capital Expenditure 9	
11 Fixed Assets	21 Capital	31 Wages	41 Sales	531 Wages	631 Wages	731 Wages	831 Wages	931 Wages	
12 Projects under Construction	22 Reserves & Surplus	32 Commodity Inputs	42 Subsidies	532 Commodity Inputs	632 Commodity Inputs	732 Commodity Inputs	832 Commodity Inputs	932 Commodity Inputs	
13 Inventories & work in progress	23 Provisions	33 Non-commodity Inputs	43 Income of Securities	533 Non-commodity Inputs	633 Non-commodity Inputs	733 Non-commodity Inputs	833 Non-commodity Inputs	933 Non-commodity Inputs	
14 Long-term Debts	24 Long-term Liabilities	34 Purchases for Re-sale	44 Transfer Receipts	534 Purchases for Re-sale	634				
15 Financial Investment	25 Overdrafts & Facilities	35 Current Transfer Expenses	45 ---	535 Current Transfer Expenses	635 Current Transfer Expenses	735 Current Transfer Inputs	835 Current Transfer Expenses	935 Current Transfer Expenses	
16 Debtors	26 Creditors	36 Current Specified Transfers	46 ---				836 Current Specified Expenses		
17 Miscellaneous Debit Accounts	27 Miscellaneous Credit Accounts								
18 Cash in Hand and at Banks	28 Current Surplus or Deficit								
19 ----	---								

Figure 32:

List of General Accounting Terms

Serial	Term	Serial	Term
1	Fixed Assets	22	Value of Purchased Materials and Goods for re-sale
2	Direct Cost of Financing Fixed Assets	23	Value of Actual Sales
3	Equipment	24	Average Selling Price
4	Loose Tools	25	Returns of Previous Periods Purchases
5	Deferred Revenue Expenditures	26	Returns of Previous Periods Sales
6	Organisation Costs	27	Returns of Current Period Purchases
7	Projects in Progress	28	Returns of Current Period Sales
8	Uses of Investment Funds	29	Direct Subsidies (For Production and Exportation)
9	Gross Capital Formation	30	Rent
10	Capital Transfer	31	Imputed Rent
11	Self-financing	32	Imputed Interest
12	Capital	33	Production Programme
13	Invested Capital	34	Off-factory Operations
14	Gross Working Capital		
15	Replacement Value		
16	Service Life of Asset		
17	Depreciation		
18	Accidental Damage		
19	Finished Production		
20	Unfinished Production		
21	Value of Inventories at Sales (Market) Price		

In regard to depreciation bases, certain standards have also been indicated in the SAS. These include determination of depreciable assets, application of depreciation rates, accounting for the difference between book value and replacement cost, treatment of written-off capital assets which are idle during the whole accounting period, depreciation of tools etc.,

5.2. Uniform cost accounting systems

The SAS outlines briefly the general framework of uniform cost accounting systems which ought to be the next stage in the field of accounting standardisation. Firstly, the framework refers to the various cost concepts, emphasises the importance of costing for purposes of control, budgeting and decision-making and touches upon the organisational arrangements for establishing a unit, section or department for cost accounting. Secondly, that framework provides standard definitions of a number of cost terms which are shown on the list Figure 33. Thirdly, the general principles of determining cost centres have been indicated. Fourthly, the framework refers to the process of collecting and arranging cost data.

Figure 33: List of Terms Related to Cost Accounting

Serial	Term	Serial	Term
1	Direct Cost	23	Idle Time
2	Direct Materials	24	Projected Production
3	Direct wages	25	Actual Production
4	Direct Expenses	26	Production Unit
5	Maintenance Cost of Fixed Assets	27	Job Order
6	Pre-production Cost	28	Process
7	Indirect Cost (Overheads)	29	Activity Level
8	Marketing (Selling) Cost	30	Cost Centre
9	Administration Cost	31	Marginal Production
10	Financing Cost	32	Break-even Point
11	Fixed Cost	33	Production Centres
12	Variable Cost	34	Production Services Centres
13	Semi-variable Cost	35	Marketing Services Centres
14	Marginal Cost	36	Administrative and Financing Services Centres
15	Production Cost	37	Maximum capacity
16	Sales Cost	38	Available Capacity
17	Total Cost	39	Capacity of Production Programme
18	Actual Capacity of Production	40	Man-hours Requirements
19	Normal Waste of Production	41	Working Man-hours
20	Abnormal Waste of Production	42	Man-hours Actually Worked
21	Defective Production	43	Overtime
22	Working Time		

6. Final Statements and Accounts

6.1. Type of statements and accounts

Economic units must prepare the following statements and accounts:

- a. Balance Sheet.
- b. Statement of Sources and Uses of Funds.
- c. Current Operations Account.
- d. Production and Trading Account.
- e. Profit and Loss Account.
- f. Cash Statement.

Apart from the traditional types i.e. the Balance Sheet, Production and Trading Account, and Profit and Loss Account, the above statements and accounts include other types i.e. Statement of Sources and Uses of Funds, Current Operations Account, and Cash Statement, which are necessary for purposes of planning and control. These statements and accounts must be prepared in accordance with the pre-determined dates and the principles, concepts, terms, definitions, and depreciation rates included in the SAS. All accounting adjustments must be made in order to show the accruals and prepayments receipts and expenditures during the period to which the statements and accounts refer. Moreover, the balance sheet must be a true expression of the actual financial position, and, the profit and loss account must declare accurately the current surplus or deficit.

6.2. Standard forms

Forms of the above mentioned accounts and statements show the type of information to be incorporated therein, the way of presenting it

and the code of correspondence which correlates this information with the chart of accounts. Forms of statements and accounts are presented in detail in Appendix Two.

7. Planning Budget

7.1. Physical, financial and cash budgets

Economic units must prepare the following budgets,

- a) Physical Budget: which shows the production programme in relation to capacities; requirements of commodity and non-commodity inputs - including manpower - for the fulfilment of production targets.
- b) Financial Budget: which is the financial expression of the physical budget, and which reflects the financing plan of the economic unit.
- c) Cash Budget: which shows the projected cash inflows and outflows.

In preparing the above mentioned budgets, it is necessary:

- a) to distinguish between current and capital expenditures,
- b) to combine the budgets with cost accounts and to classify the cost centres into:
 - Production centres
 - Production services centres
 - Marketing services centres
 - Administrative and financing services centres.

- Capital expenditure centres.
- c) to present the budgets on monthly or quarterly basis as well as on annual basis and to classify these budgets by activity according to the "Arab Standard Classification of Economic Activities"
- d) to insert into the annual budgets a geographical distribution reflecting the share of the branches in the major activity in which the economic unit is engaged
- e) to adhere to the standard forms.

7.2. Standard forms

The forms indicated below must be used for purposes of planning and control:

1. Production Capacity and Production Programme
 - 1a. Production Capacity by Process, Operation or Cost Centre
 - 1b. Production Programme "Estimated"
 - 1c. Production Programme "Estimated versus Actual"
 - 1d. Utilisation of Capacity.

11. Statement of Sources and Uses of Products
 - 11a. Statement of Sources and Uses of Goods for Resale.

111. Production Inputs
 - 111a. Direct Inputs for Production Volume of Production
 - 111b. Indirect Commodity Inputs by Control Centres (Production Centres, Productive Services Centres, Marketing Services Centres, and Administrative and Financial Centres).
 - 111c. Non-commodity Inputs by Control Centres (Production Centres, Productive Services Centres, Marketing Services Centres,

and Administrative and Financial Centres.

111d. Commodity Inputs

111e. Non-commodity Inputs.

IV. Employees

1Va. Employees

Requirements of employees during the period by Control Centres

1Vb. Number and Wages (labour cost) of employees by grade.

V. Price Lists

Va. Selling Prices of Products

Vb. Prices of Purchased Inputs.

VI. Physical and Financial Analysis of Capital Uses

At the Investment Project Level

Vla. Time Distribution of Capital Uses Costs

VII. Production and Value Added

"Standard forms are presented in detail in Appendix 3".

8. Annexes to the Standardised Accounting System

To end this chapter, I would like to point out that important annexes were attached to the SAS which I found it worth mentioning something concerning them.

Annex (1) Depreciation Rates

Depreciation rates included in the SAS are those previously published by the Egyptian Ministry of Treasury. "Depreciation Rates of Fixed Assets in Various Industries, Cairo, 1962".

They are the outcome of a study undertaken by a group of experts (professional accountants, and technicians) under the supervision of the Ministry of Treasury at that time. It should be noted that the rates were determined on the basis of the following assumptions:

- a) The number of working days per annum are 300 days or less.
- b) The period of operation per day is one shift.
- c) The depreciable assets were new at the time of purchase by the economic unit.

According to these assumptions, the given rates are regarded as minima, in the sense that they must be raised proportionally with the increase in the number of working days per annum and/or the number of working hours per day. The given depreciation rates must also be doubled if the assets, at the time of the purchase, were secondhand.

In order to facilitate the application of depreciation rates, they are arranged in the SAS Annex by industry according to the "Arab Standard Classification of Economic Activities".

Since deferred expenses are treated in the SAS as fixed assets, they must be depreciated over a period of five years at an annual rate of 20 per cent as from the date of operation.

Annex (2) Rules of Financial Control

In order to adopt the SAS efficiently, economic units must issue detailed regulations which ensure proper financial control over their various activities, i.e. finances, purchases, stores and sales,

reference is made to general principles on which these detailed regulations are based.

In the field of finance, the general guiding rules refer to the prerogatives of the Board of Directors and Financial Manager; preparation of the planning budgets; construction of final accounts and statements, documentation and registration, and internal control.

As to purchases, the general rules refer to purchasing techniques, i.e. the various types of tenders, direct purchases, etc.,

As to storage, the general rules state that all inward and outward movements of commodities must take place through the unit's stores. The rules refer to the necessity of keeping optimal inventories, the periodic and perpetual inventory systems, the valuation basis of waste and losses, etc.,

In regard to sales, reference is made to the general rules for selling on credit, preparing and publishing price lists, regulating the offer of samples and the grant of discounts and commission.

Annex (3) Detailed and Periodic Information

In order to follow up implementation of their plans and evaluate performance, economic units issue periodic reports which should be based on a wide range of detailed information, since the data usually available in financial accounts and statements alone are not sufficient for this purpose. According to the SAS, financial accounts and statements must, therefore, be supplemented at least with the same amount of information included in the planning budget.

The supply of detailed information at the project level to the Central Accounting Organisation (CAO) for the follow up of plan implementation and evaluation of performance has been organised in the SAS through arrangements between the CAO and the concerned sector. These arrangements include, mutual agreements on the design of forms, the procurement of detailed information which is required by other bodies is also arranged on the same basis.

Annex (4) Special Registers

Special registers may be kept by the economic units for recording specific types of information which are usually required by the units themselves or by other institutions for purposes of planning and follow up of implementation. In this annex, several forms for these special registers (auxiliary journals and ledgers and statistical registers) are introduced as examples. Economic units have the liberty to change these designs or use other types of books and registers as long as demands for information are satisfied.

Annex (5) Standard Classification of Economic Activities, Commodities and Occupations.

Economic units must adhere to the following classifications which are considered part of the SAS.

- (i) The Arab Standard Classification of Economic Activities
- (ii) The Arab Standard Classification of Commodities, and
- (iii) The Arab Standard Classification of Occupation.

These three classifications are prepared by the Central Agency for Public Mobilisation and Statistics, Egypt. Numerical notations

are utilised to identify the component elements of the classifications. The first of these classifications is based mainly on the United Nations "International Standard Industrial Classification of All Economic Activities (ISIC)", with a few adaptations to meet national needs. The Arab Standard Classification of Commodities has been based on the United Nations "Standard International Trade Classification, (SITC)" and "The Arab Standard Classification of Occupations (ISCO)". Adaptations are also made of these international classifications in order to meet national requirements.

Chapter Ten

Financial Accounting - the end product

In the previous chapter a brief discussion about the Standardised Accounting System (SAS) was indicated. The objective was on the one hand to supply the reader with some knowledge about the accounting system imposed by the Egyptian Government upon the companies in the Public Sector. On the other hand the author hoped that this discussion about the (SAS) will carry some of the burden, so that when discussing the financial and cost accounting in Hadisolb a lot of definitions and principles will be clear and, therefore, the concentration will be on the role of financial and cost accounting in planning and control in Hadisolb.

As was mentioned before, the author conducted a questionnaire especially designed to examine inter alia - the role of accounting in planning and control in Hadisolb. So, interviews with line and staff accounting personnel were held, from which the author formed a clear picture of how financial and cost accounting are used as a tool for planning and control in Hadisolb at the present time.

Since the present stage in the thesis is merely concerned with a full description of the involvement of accounting in planning and control in Hadisolb, therefore, comments, criticism, and providing any possible improvements proposed by the author will cover the final part of the thesis. However, I found that the financial accounting sector in Hadisolb has no role whatsoever in the planning activities, rather the sector carries out the traditional functions of financial accounting which involve the day by day financial transactions:

in doing that the sector puts into practice the procedures and rules described by the Standardised Accounting System (SAS).

At the end of each financial year the Financial Accounting Sector prepares what is called "the Balance Sheet and Final Accounts Report" which embraces the following:

- a. Report of the Board of Directors.
- b. Economic and Financial Trends.
- c. The Balance Sheet.
- d. The current Operations Account.
- e. Production and Trading Account.
- f. Profit and Loss Account.
- g. Statement of Sources and Uses of Funds.
- h. Production and Value Added.
- i. Statement of Cash Flow.

In addition a report called "the Performance Evaluation" is issued by the financial sector - jointly prepared by the Financial and Cost Accounting Sectors. This report will be subject for discussion later on after the subject of cost accounting and budgetary control was highlighted.

It follows now to put some highlight on the Balance Sheet and Final Accounts Reports:

1. Report of the Board of Directors

The Financial Accounting sector prepares this report at the end

of each financial year as it is the sector which gets the final figures. Comparison between these reports, from my point of view, will be of no use, rather I prefer to quote what has been mentioned in the last report mainly that of the year ended 31st December 1978, as that of year 1979 was not available.

Messrs Shareholders,

The following is the data of the company's activities during year 1978.

- The total value of production was 98.7 million pounds whereas it was 87.4 million pounds in year 1977 which gives us an increase of 11.3 million pounds.
- The finished production available for sale from main products and by-products was 88.5 million pounds at local selling prices where it was 65.3 million pounds in year 1977.
- The total of actual sales during year 1978 was 84.00 MLE whereas it was 61.6 MLE in year 1977 which gives us an increase of 22.4 MLE (note that the increase in sales is due to the increase in prices since 25.12.1977).
- 54,832 tonnes of steel products have been exported, its sales value is 8 million pounds, whereas 20,961 tonnes were exported in year 1977 its sales value was 1.8 million pounds.
- It should be noted that the planning budgets for year 1978 were prepared with the assumption that the existing production units and those of the expansion units would be fully operated, in addition it was expected that experiments for the operation of the rest of the expansion units would be started to realise the sufficient

growth and development and to maximize the use of available resources. But, the rest of expansion units have not been put into operation because of technological difficulties, however, the management is doing its best to overcome these difficulties. so, the comparison between production and sales figures of year 1978 and the budgeted for the same year was done ignoring those of the fourth blast furnace.

- For manpower, the company still suffers from walking out of labour, the fully experienced ones in particular, who leave to foreign countries or open door companies where better working circumstances, so, 2395 workers left the work in year 1978, whereas those who were transferred and/or newly engaged in work amount to 2125. The labour cost in year 1978 amounted to 19.4 MLE compared with year 1977 which amounted to 17 MLE with an increase of 2.4 MLE which includes increase in wages, incentives, social security and the burdens of improving wages as demanded by the Government.

- In spite of improvements in the companies revenues during year 1978 because of the increase in sales prices, the company still suffers from the cash liquidity problem because of the inability of main customers and company's sisters to pay their debts because of them having liquidity shortages. This point is clearly apparent as customers' debt balances raised from 19 MLE at the end of year 1977 to 28 MLE at the end of year 1978. This had its effect on the overdraft at Alexandria Bank where the balance raised from 15 MLE as at 31.12.77 to 23 MLE as at 31.12.78.

- The deficit in year 1978 according to the current operations account was 9.7 MLE compared with 14.3 MLE at the end of year 1977 - decrease of 4.6 MLE. This decrease is due to improvement in selling prices and the reasons for losses is because of burdens of operating expansion units particularly those of the second phase.

2. Production Activity

The Financial Accounting Sector prepares a table which shows the growth in production quantities by processes. This table is prepared as a comparison between the actual production of last years and that of the past two years. To form an idea about the growth in production I am going to use the same technique used by the Financial Accounting Sector, the difference will be that the comparison will cover the years from 1975 till 1979 with year 1975 as a base (Table 15)

Table 15 Production Growth in Quantities

DESCRIPTION	ACTUAL PRODUCTION IN TONNES					PRODUCTION GROWTH				
	1975	1976	1977	1978	1979	1975	1976	1977	1978	1979
<u>Mines & Quarries</u>										
Total of iron ore from Aswan and Baharia Mines		1,239,542	1,398,157	1,200,742						
Total of stones from Riffai and Beni Khalid Quarries		590,707	663,870	696,041						
Total of Dolomite from Adabia Quarry		91,310	87,264	112,602						
<u>Production Units</u>										
Total of Pig Iron from Blast Furnaces	508,435	568,907	664,747	659,974		100	112	131	130	
Minus: Total of Pig Iron for sale	119,402	95,799	70,258	66,052		100	80	59	55	
Pig Iron available to produce steel	389,033	473,108	594,489	593,922		100	121	153	153	
Total of steel from Tomas, Elec, and Oxygen	341,050	429,092	511,623	515,854		100	129	150	151	
Total of production for sale	332,735	317,695	342,938	384,173		100	95	103	115	

3. Finished Products for Sale

The Financial Accounting sector also prepares a table which shows the actual finished products for the year, the budgeted finished products for the same year, and the actual finished products of past year both in quantities and values. What have been noticed is that this table does not show any comparison between the actual and budgeted finished products for the year nor does it show a comparison between the Actual finished products for the year and the year before. To help me criticise and propose any improvements later on, the following table "16" will cover the years from 1975 till 1979 and it will show the growth in the actual finished products both in quantities and values using year 1975 as a base.

D. By-products for year 1976 amounted to LE 587,959 in 1977 report, whereas it amounted to LE 1,608,895 in 1976 report with a difference of LE 1,020,936.

Table 16

DESCRIPTION	ACTUAL FINISHED PRODUCTS AVAILABLE FOR SALE											
	1975		1976		1977		1978		1979			
	Tonnes	Value	Tonnes	Value	Tonnes	Value	Tonnes	Value	Tonnes	Value		
<u>Main Products</u> <u>and By-Products</u>												
Factories Products	160,227	23,261,036	149,274	22,729,012	143,376	21,716,763	159,616	32,430,111				
Strip Products	171,222	32,505,612	151,342	27,873,522	167,273	31,257,859	181,014	40,922,290				
Expansion Products	120,688	9,692,907	112,892	9,580,454	102,546	9,176,002	109,595	12,940,924				
By-Products		789,007		466,847		487,477		530,766				
Total of Main and By-Products	452,137	66,248,562	413,508	60,649,835	413,195	62,638,101	450,225	86,824,091				
Receipts from work done to others		931,380		1,434,111		1,876,657		776,229				
Rendered Services		862,926		647,454		830,786		953,602				
	452,137	68,042,868	413,508	62,731,400	413,195	65,345,546	450,225	88,553,932				

Table 16 (Continued)

GROWTH IN ACTUAL FINISHED PRODUCTS									
1975		1976		1977		1978		1979	
T	V	T	V	T	V	T	V	T	V
100	100	93	98	89	93	99.6	139		
100	100	88	85.8	97.7	86	105.7	126		
100	100	93.5	98.8	85	94.7	90.8	133.5		
100	100	-	59	-	61.8	-	67		
100	100	91.5	91.5	91.4	94.6	99.6	131		
100	100	-	154	-	201.5	-	83		
100	100	-	75	-	92	-	110.5		
100	100	91.5	92	91.4	96	99.6	130		

4. Sales Activities

The Financial Accounting sector also prepares at the end of each financial year a table which shows the actual sales for the year, the budgeted sales for the year, and the actual sales for the previous year. The table does not show any deviations between actuals which I think that these were left to the reports which the cost Accounting and Budgetary Planning sector does (these will be discussed at a later stage). The following table shows growth in actual sales for the years 1975 till 1979.

Table 17

DESCRIPTION	ACTUAL SALES												
	1975		1976		1977		1978		1979				
	Tonnes	Value	Tonnes	Value	Tonnes	Value	Tonnes	Value	Tonnes	Value			
Sales from Main and By-Products													
Factories Products	156,557	22,352,298	141,175	21,219,941	137,557	20,687,662	149,059	29,802,691					
Strips Products	150,987	26,112,111	142,186	25,360,205	149,079	27,664,274	192,822	39,464,008					
Expansions Products	136,509	8,093,842	125,419	9,107,128	118,106	9,999,416	108,453	12,793,286					
By-Products		1,359,063		587,959				227,689					
Net Sales	444,053	57,214,500	408,780	56,275,233	404,742	58,886,136	450,334	82,287,674					
Work done to others		237,791		1,434,111		1,876,659		776,229					
Rendered Services		870,661		647,454		830,786		953,602					
	444,053	58,322,952	408,780	58,356,798	404,742	61,593,581	450,334	84,017,505					

Table 17 (Continued)

SALES GROWTH									
1975		1976		1977		1978		1979	
T	V	T	V	T	V	T	V	T	V
100	100	90	95	88	93	95	133		
100	100	94	97	99	106	128	151		
100	100	92	113	87	124	79	158		
	100		43		39		17		
100	100	92	98	91	103	101	144		
	100		603		789		326		
	100		74		95		110		
100	100	92	100	91	106	101	144		

5. Economic and Financial Trends

This is presented in a table which shows the actual and budgeted trends for the year compared with the actual trends for the previous year. The table does not show any deviations between the actual trends and the budget for the year, nor does it show any deviations between the actual trends for the year and the actual for the previous year.

To ease my future task to criticize those sort of economical and financial trends used by the Financial Accounting sector in Hadisolb, I found it much better to build this table including the years from 1975 to 1979, the budgeted trends were ignored as those will be included when discussing the Budgetary Control System in Hadisolb.

6. The Balance Sheet

There is no need to discuss and explain in detail how the Financial Accounting sector in Hadisolb prepares the balance sheet, rather I will concentrate on the way it is built up and the differences peculiar to its formation according to the SAS.

- The balance sheet is built up according to the traditional method with two sides to assets and liabilities.
- Fixed assets appear in the balance sheet at cost according to widely known accounting concepts and principles; the difference is that accumulated depreciation for different fixed assets appears in the liabilities side. In other words depreciation is not deducted

Table 18

The Economic and Financial Trends
The Years from 1975 to 1979

DESCRIPTION	UNIT OF MEASURE	1975	1976	1977	1978	1979
<u>Production</u>						
Total production available for sale	000's LE	68,709	62,731	65,346	88,554	
<u>Marketing</u>						
Total sales	000's LE	58,323	58,257	61,594	84,018	
Export sales	000's	9,129	5,370	2,202	8,306	
<u>Manpower</u>						
Average number of	No.	22,482	23,559	23,522	23,252	22,544
Total wages	000's LE	12,210	14,540	17,015	19,417	22,501
Average wage	1 LE	501	575	622	800	998
Worker's productivity	1 LE	3,043	3,068	3,620	4,140	
Pound Egyptian Productivity	1 LE	6.196	5.290	5.262	5.252	
<u>Value Added</u>						
Value added at Factor costs	000's LE	(3,533)	(8,985)	3,998	11,457	
<u>Inputs</u>						
Commodity inputs used	000's LE	59,763	60,497	62,005	63,236	82,260
Raw materials in stock	000's LE	2,963	2,955	4,114	5,279	
Inventory period raw materials	Month	4.3	13.1	14.4	21.2	
<u>Outputs</u>						
Work in progress in stock	000's LE	9,222	14,450	25,967	30,503	
Finished products at cost	000's LE		12,480	13,746	13,961	
Inventory period - finished products	Month	2.3	2.4	2.8	2.2	
<u>Investments</u>						
Replacement and renewal	000's LE	1,561	2,344	2,647	4,779	
Completion	000's LE	372	201	557	191	
New projects	000's LE	8,096	4,270	3,397	2,530	
<u>Sources of Finance'</u>						
Self-financing	000's LE		4,807	4,499	7,500	
Government Contribution	000's LE		2,008	2,102	-	
Deficit	000's LE		24,939	14,284		

from the cost of the fixed asset to show the net value of it, the philosophy behind that being to keep accumulated depreciation as an internal source of finance for the business.

- The difference between the historical cost of a fixed asset and its replacement value is considered as an expense and a new account is created; that is the Reserve for Replacement Value of Fixed Assets.
- A new account is included within the fixed assets called "Deferred Revenue Expenditures". This account includes all that is known in accounting practices as Nominal Assets such as Instalation Expenses, Research and Developments Expenses, for rights for inventions, and cost of Training, Internal and External scholarships.
- A new account for Projects in Progress is created which includes:
 - Fixed Assets under Creation.
 - Investment Expenditure.

7. Current Operations Account

The current operations account embraces all current expenses and revenues without allocating them to production centres, sales and distribution centres, and administrative centres.

Comments on the current operations account are out of the scope of this thesis; rather it is worth mentioning that this account is prepared in three stages so as to serve the national accounting and the traditional financial accounting objectives. The three stages of the current operations account include some newly used accounting terminology which the author finds that a brief discussion and definition of will be answering many questions which might come to

the mind of a reader of this thesis. These terminology will be used when embarking upon the cost accounting system in Hadisolb. Therefore, the following dicussion will define the three stages, and the new accounting terminology used.

Stage One

This stage shows current activities, revenues and the cost of production. Indirect taxes and duties are excluded from the cost of production commodities in a separate item so as to serve the preparation of national economic accounts and the determination of value added at the price of production factors cost. The balance of this stage shows the surplus or deficit on current activities.

Figure 34

Stage One

Usages

Resources

Code No.		Code No.	
31	Wages		
	<u>General Expenses</u>		
32	Commodity Inputs (1)	411	Net sales of finished production
33	Non-commodity Inputs (2)	412	Changes in Inventories of finished production at cost price (9)
34	Purchase for re-sale	413	Finished Production Revaluation Adjustment (difference between sales prices + cost price)
35	<u>Current Transfer Expenses</u> (3)	414	Changes in Inventories of unfinished production at cost price (10)
351	Commodity taxes + duties	415	Cost of Producing Capital Assets for own use
352	Depreciation	416	Receipt of work done to others
3528	Deferred Revenue + Expenditure (4)	417	<u>Goods for Re-sale</u>
353	Actual Rent	4181	Net sales
354	Rent Adjustment (5) (difference between actual and imputed rent)	4182	Changes in Inventories of Goods for re-sale at cost price (11)
	<u>Interest</u>	4183	Goods for re-sale Revaluation Adjustment (difference between sale price + cost price)
355	Domestic		<u>Subsidies</u>
356	Foreign	421	Subsidies (for Production)
375	Interest adjustment (difference between actual and imputed interest) (6)	422	Subsidies (for exportation)
358	Finished Production (7) Revaluation Adjustment		Current deficit
359	Goods for re-sale Revaluation Adjustment (8)		
	Current surplus		

7.1.1 Commodity Inputs

Commodity inputs embrace commodities which are produced in the company or purchased from others and to be used in production such as:

- Direct and Indirect Materials
- Fuel, Oil and Generating Power
- Spare Parts and Tools

- Packing Materials
- Scraps
- Stationery
- Water & Electricity

7.1.2 Non-Commodity Inputs

According to the Standardised Accounting System, non-commodity inputs are the cost of services purchased from others required for production, such as:

- Maintenance Expenses
- Operation Expenses at others
- Research & Expirement Expenses
- Publication & Advertisement Expenses
- Transportation Expenses
- Transportation Equipment Hire Expenses
- Cost of Services done by Government Agencies
- Miscellaneous Service Expenses

7.1.3 Current Transfer Expenses

Those are expenses other than commodities inputs, non-commodities inputs and wages which are in connection with the current activity in the company such as:

- Commodity Taxes & Duties
- Depreciation
- Actual Rent

- Rent Adjustment
- Domestic Interest
- Foreign Interest
- Interest Adjustment
- Finished Production Revaluation Adjustment
- Goods for Re-sale Revaluation Adjustment

7.1.4 Deferred Revenue Expenditure

Those are the expenses on services which will benefit some years to come and the depreciation of assets under installation. All of those are considered deferred revenue expenditure which will be depreciated in the future according to the rules imposed by the Standardised Accounting System (SAS).

7.1.5 Rent Adjustment

This account is created by the Standardised Accounting System to serve National Accounting. This account is debited with the difference between the rent value of buildings owned by the company as if they are rented from others, and the depreciation. The difference is not an actual cost, therefore, it is closed again as non-actual revenue in the third stage of the current operations account. The philosophy is to have a uniform basis of imputing production and trading costs in similar industries, to prevent differences in the cost of production from one enterprise and another as a result of owned or rented means of production.

7.1.6 Interest Adjustment

This account represents the difference between interest or invested capital according to the interest rate imposed by the treasury, and accrued interest on loans which are included in the capital invested. The philosophy is the same as that mentioned above about rent adjustment.

7.1.7 Finished Production Revaluation Adjustment

The Standardised Accounting System has replaced finished production at the start and the end of the year by a new account called changes in inventories of finished production at cost price. At the same time as changes in inventories of finished production are added to sales - as appears in Stage One of the current Operations Account - and to supply national accounting with production figures at market price, finished production revaluation adjustment is opened, debited or credited by the difference between sales and the cost price of finished production, and appears in the two sides of the current operations account to take out its accounting effect. The same can be said about goods for re-sale revaluation adjustment and unfinished goods.

Stage Two: this stage shows how the company dealt with the surplus generated from production, if any.

Figure 35

	Current Deficit B/F		Current Surplus B/F
36	<u>Current Ear-Marked Transfers*</u>	43	Receipts from Securities
361	Donations	44	Transfer Receipts
362	Subsidies	441	Credit Interest
363	Compensations & Fines	442	Credit Rent
364	Capital Losses	443	Capital Gains
365	Previous Years Expenses	444	Receipts of Previous Year
366	Dead Debts	445	Compensations and Fines
367	Provisions (other than Provisions for Depreciation)	446	Miscellaneous Receipts
368	Taxes on Real Estate	447	Rent Adjustment
369	Income Taxes	448	Interest Adjustment
	Distributive Surplus	2812	Current Deficit

* Current Ear-Marked Transfers are those indirect expenses which has no direct connection with current activity.

Stage Three

This stage shows how the company distributes its net profit between retained profit and cash distribution.

Figure 36

Code No.	Current Deficit	Code No.	Distributions Surplus
22	<u>Retained Surplus</u>		
221	Statutory Reserve		
222	Government Securities (1)		
223	Reserve for Financing Investment Projects, Renewals and Expansions		
224	General Reserve		
225	Reserve for Redeeming (2)		
226	Reserve for Replacement (3)		
227	Other Reserves		
	Surplus C/F		
	<u>Surplus Distributed to</u>		
2643	Employees		
2641	State		
2642	Shareholders		
2644	Others		

7.3.1 Government Securities Reserve Fund

All companies in the Public Sector have to keep apart 5 percent of their net profits for the purchase of Government Securities or pay this to the Central Bank of Egypt in a special account until the purchase of these securities; the objective is that companies in the public sector should participate in Government Borrowings.

7.3.2 Reserve for Redeeming Government Participation

This reserve is for the payment of the treasury participation in the public sector companies capital.

7.3.3 Reserve for Replacement Value of Assets

This reserve came into being by Administrative Decree No. 958 which demands keeping apart 5 percent of net profit to form a reserve for replacement value of fixed assets. The objective is to enable the companies to face the problem of the rising value of fixed assets prices when the need comes for replacement.

8. Production & Trading Account and Profit & Loss Account

These two accounts are prepared according to traditionally known financial accounting principles and concepts.

9. Statement of Sources and Uses of Funds

This statement embraces changes on the company's assets and liabilities. This requires a comparison between two balance sheets, at the start and the end of each financial year. The main objective of introducing such a statement is to serve National Accounting when tabulating the capital Account which

represents the capital formation at the national level. However, the statement is considered as a tool of management accounting to measure the changes which occurred in the financial structure of the company. The two sides of the statement contain the following changes in assets and liabilities.

(1) Sources of Funds

The sources embrace increases in liabilities and decreasing in assets.

a. Self Financing

- Increases in reserves
- Increases in provisions

b. Liquidity

- Cost of sold assets
- Decrease in inventories
- Decrease in long-term lending
- Decrease in investment in securities
- Decrease in debtors and cash

c. Loans and Participations

- Increase in long-term loans
- Increase in the Government's participation
- Increase in creditors and banks

(2) Uses of Funds

The uses contain decreases in liabilities and increases in assets in a way which shows two different types of uses; the

first type is investment uses which show the actual investments which are part of capital formation at the national level; the second type is capital transfers which are decreases in liabilities and increases in assets which do not generate an actual investment from the national level point of view.

a. Investment Uses

- Increase in new fixed assets
- Increase in inventory
- Increase in duties on increase in fixed assets and inventories

b. Capital Transfers

- Second hand assets
- Land (cost of purchasing)
- Increase in interest prior to operation start
- Increase in long-term lending
- Increase in investment in securities
- Increase in debtors and debited accounts
- Increase in cash
- Increase in deficit carried forward
- Decrease in long-term loans
- Decrease in banks overdraft
- Decrease in creditors and miscellaneous credited accounts
- Decrease in reserves and provisions

* Full form of statement of sources and uses of funds; Appendix No. 3

Form No. 2.

10. Production and Value added

Having prepared all previous accounts and statements, the Financial Accounting sector prepares a table which shows the actual items which determine the value added compared with the budget for the same year and the actual for the previous year. The following table shows actual figures for the years from 1975 to 1979.

Table 19

Code No.	DESCRIPTION	1975	1976	1977	1978	1979
	<u>Value of Gross Production at Market Price</u>					
411	1. <u>Production at Sales Price</u>					
412	a. Sales of Finished Production	57,214,500	56,275,233	58,886,136	82,287,675	106,732,984
	b. Changes in Inventories of Finished Production	675,171	1,593,911	1,265,599	215,212	4,728,517
413	at cost price					
	c. Inventories (Finished Production) Revaluation	194,052	(974,192)	1,160,456	(1,885,418)	(2,271,990)
414	Adjustment	731,975	5,009,142	11,517,189	4,536,006	4,884,721
415	2. Changes in unfinished Production at Cost Price	3,593,100	2,026,439	1,979,706	2,428,986	3,942,449
416	3. Cost of Producing Capital Assets for own use	237,791	1,434,111	1,876,659	776,229	1,284,302
417	4. Receipts of work done to others	870,661	647,454	830,786	953,602	1,653,321
419	5. Rendered Services	8,488,128	8,301,744	9,847,454	9,368,562	10,617,999
	6. Scraps					111,849
	7. Goods for Resale					
	Total	72,005,378	74,313,842	87,363,985	98,680,852	131,689,152
	Minus: Purchase for Resale	-	-	-	-	108,488
	Value of Gross Production at Market Price	72,005,378	74,313,842	87,363,985	98,680,852	131,580,664

Production + Value Added (Continued)

Code No.	DESCRIPTION	1975	1976	1977	1978	1979
	<u>Value of Gross Production at Factor Costs</u>					
	Value of Gross Production at Market Price	72,005,378	74,313,842	87,363,985	98,680,882	131,580,664
3511	Minus Custom Duties Production Tax + Others	(1,090,927) (78,424)	(865,217) (100,297)	(443,526) (97,512)	(391,594) (115,486)	(291,397) (152,435)
	Plus	-	-	-	1,776,000	-
421 422	Production Subsidies Export Subsidies	-	-	3,491,500		
	Value of Gross Production at Factors Costs	70,836,027	73,348,328	90,314,447	99,949,772	131,136,832
	<u>Value Added</u>					
	Value of Gross Production at Factors Costs	70,836,027	73,348,328	90,314,447	99,949,772	131,136,832
	Minus Commodity Inputs) Customs Non-Commodity Inputs) Duties Depreciation) Excluded	(59,763,455) (3,795,278) (10,810,547)	(60,497,333) (6,502,932) (15,332,612)	(62,005,463) (7,268,538) (17,042,802)	(63,235,757) (8,127,593) (17,129,777)	(82,074,366) (9,465,007) (19,626,779)
	Value Added	(3,533,253)	(8,984,550)	3,997,644	11,456,645	19,970,680

Production + Value Added (Continued)

Code No.	DESCRIPTION	1975	1976	1977	1978	1979
	<u>Value Added Distributions</u>					
	1. <u>Wages</u>					
311	a. In Cash	10,569,694	12,349,162	14,501,771	16,375,180	18,935,176
312	b. In Kind	496,006	582,312	621,336	841,644	982,361
313	c. Social Insurance	1,143,857	1,608,322	1,891,630	2,199,810	2,583,551
	Wages Total (1)	12,209,557	14,539,796	17,014,737	19,416,634	22,501,088
	2. <u>Rent</u>					
353	Actual Rent	33,010	36,898	34,374	34,456	38,340
354	Imputed Rent Adjustments	5,201,700	5,316,248	5,396,195	5,572,462	6,229,649
	Rent Total (2)	5,234,710	5,353,146	5,430,569	5,606,918	6,267,989
	3. <u>Interest</u>					
355	a. Domestic	1,975,193	2,446,876	2,370,491	2,645,148	3,091,255
356	b. Foreign	6,239	12,079	67,588	37,387	94,097
357	c. Imputed Interest Adjustment	6,202,553	4,543,273	5,518,256	5,473,186	5,671,088
	Interest Total	8,183,985	7,002,228	7,956,335	8,155,721	8,856,440

Production + Value Added (Continued)

Code No.	DESCRIPTION	1975	1976	1977	1978	1979
358	4. Changes in (Finished Production) Inventories Revaluation Adjustment	194,052	(974,192)	1,160,456	(1,885,418)	(2,271,989)
359	5. Changes in (Goods for Resale) Inventories Revaluation Adjustment	(29,355,557)	(34,905,527)	(27,564,453)	(19,837,210)	(15,382,846)
	6. Surplus of Current Operations	(3,533,253)	(8,984,550)	3,997,644	11,456,645	19,970,680
	Total 1 - 6					

11. Statement of Cash Flow

This statement is no more than a detailed cash account to show the various items of cash in-flows and out-flows during the financial year, that is on the one hand; on the other hand it shows the cash balance at the beginning and the end of the year. The detailed statement of cash flow is followed by a summary which I schedule below and cover the years from 1975 to 1979.

Table 20

DESCRIPTION	FOREIGN 000's										TOTAL 000's								
	DOMESTIC 000's					OTHER COUNTRIES					PAYMENT AGREEMENT COUNTRIES								
	1975	1976	1977	1978	1979	1975	1976	1977	1978	1979	1975	1976	1977	1978	1979				
Total Cash Receipts	66,688	67,666	79,183	74,417		2,113	3,947	1,960	7,840		3,910	1,858		13		72,711	73,471	81,143	82,270
Total Cash Payments	58,591	72,197	60,423	77,039		4,889	3,066	7,959	9,159		11,551	7,747	7,019	4,094		75,031	83,010	75,401	90,292
Surplus/Deficit	8,097		18,760	(2,622)		(2,776)		(5,999)	(1,319)		(7,641)		(7,019)	(4,081)		(2,320)	(9,539)	5,742	(8,022)
Cash Balance at the Beginning of the Period																			
Add Surplus or																			
Deduct Deficit																			

Summing up, this chapter was devoted to discuss the functions the Financial Accounting sector in Hadisob is doing at the end of each financial year which are called the end products. From this detailed discussion, one can say that those end products are mainly concerned with showing the result of operations carried out during the year which the production and trading account and the profit and loss account both show, on one hand the production and trading account shows the surplus or deficit in production and trading activities, and on the other hand the profit and loss account shows the net profit or otherwise the total loss at the end of each financial year. Having said that, one cannot pass through without referring to the current operations account which from the way it is built up and the principles and concepts used, it is obvious that this account is merely of great use to national accounting preparation, but it is not of great use from financial accounting point of view. This is a conclusion of a comparison done between the three accounts, mainly the production and trading account, the profit and loss account, and the current operations account. There are no connections or links between those accounts whatsoever, even the results which the current operations account shows as a balance of its three stages are not the same except the final balance of the current operations account which shows the net profit or loss at the end of the year which should be the same as the profit and loss account.

As to the balance sheet, it is built up as the very traditional form which is not of a great use to evaluate the financial position of the company at the end of each financial year.

Going on discussing both the production and trading account and the profit and loss account, I can not help thinking and have the feeling that introducing the Standardised Accounting System (SAS) to be carried out by the companies in the public sector was just to serve national accounting, the principles and concepts which were carried out before introducing the system were accurate and coincide with internationally known principles and concepts and were perfect and well organised by the companies act No. 26 of year 1954. So, the new terminology created by the system adapted from economic national accounts should only be used in preparing the current operations account which national accounting actually depends upon.

The Balance Sheet is built up in the very old traditional form which does not help in evaluating the financial position of the company at the end of each financial year, rather it looks like a heavily covered with figures sheet which from my own point of view is in some way difficult to some financial people, so, what about the none financial ones. There are no distinctions between each different group of assets and liabilities, the working capital one has to work it out in an outside sheet, even the total of the companies self finance capital is not well shown in it. Those criticisms one can describe them as merely drops in an ocean of criticisms which the scope of this thesis and its main objectives are far away from that and should be kept to the accounting role in planning and control, so I urge Egyptian students in particular, to carry out further researches in this matter. However, the author will present some of his views at the end of the thesis which might improve the system.

Return back to the summary of the chapter, three statements were discussed, mainly:

- Economic and Financial Trends
- Statement of Added Value
- Statement of Funds Flow

Briefly speaking about the statement of Economic and Financial Trends, on one hand this statement is incomplete as it presents very few trends which are merely figures summing up the company's activities during the financial year. On the other hand, this statement should be presented within the performance evaluation report which will be a subject for discussion later on.

The statement of Added Value as was indicated before, is mainly concerned with computing the added value to serve national accounting.

The statement of Funds Flow should also be kept within the Performance Evaluation Report as it is considered an important tool of management accounting to investigate the sources and uses of funds at the end of the financial year. However, it was presented as an end product of the Financial Accounting Sector. The statement is presented in a way which takes the form of an ordinary account of which the debit side includes increases in assets and decreases in liabilities, whereas, the credit side includes decreases in assets and increases in liabilities. The way this statement is built up and the step which should proceed it, will be presented in the improvements which the author will present at the end of the thesis.

The last end product discussed within the chapter, is what is wrongly called the Cash Budget by the Financial Accounting Sector in Hadisob imposed by the Standardised Accounting System (SAS). It is mainly a statement of cash flows during the financial year which contains in one side the in-flows and in the other the out-flows tailed by a summary shows the cash balance at the beginning and the end of the financial year.

Chapter Eleven:

Cost Accounting

Part Three of the thesis is to explain Accounting for Planning and Control in Hadisolb. It started by highlighting the Standardised Accounting System imposed by the Egyptian Government and to be employed by companies in the public sector. There was a brief discussion about the system. Then, Chapter Ten highlights the Financial Accounting System employed by the Egyptian Iron and Steel Company, Hadisolb.

As cost accounting has significance for the purpose of control, budgeting and decision making, the Standardised Accounting System outlines a general framework of uniform accounting systems which is a step in the field of accounting standardisation.

As to the importance of cost accounting in planning and control, this chapter will concentrate on the cost accounting systems employed by Hadisolb. A questionnaire was designed to examine and collect data about Hadisolb, part of which is about cost accounting, which was presented and discussed with accounting personnel in Hadisolb. The outcome of this discussion and the presentation of the cost accounting systems in Hadisolb are the main features of the following discussions. This chapter is divided into two sections:

Section One: highlights the cost accounting systems employed by Hadisolb and embraces the following:

1. The Expense Code
2. Cost Centres Structure and Cost Code

3. Cost Allocation
4. Cost Flow
5. Cost Reports
6. Final Product Costs.

Section Two: This section will be mainly concerned with the final statements of actual costs of "end products".

Section One

The cost accounting system employed by Hadisolb is an actual cost system, in which the following discussion outlines its major components.

1. The Expense Code (81)

Hadisolb employs a 6-digit expense code which identifies about 100 categories of expense. The first three digits of the code conform with the National Code of the Egyptian Standardised Accounting System (SAS). The last three digits define the expense items. There is a separate code for costs that are re-circulated within the system. The following are the wages expense codes.

311	<u>Wages</u>
311 100	Base wages
311 101	Expert wages
311 500	Bonus
311 510	Overtime
311 531	Incentive wages
311 600	Other allowances

311 665 Cost-of-living allowance.

2. Cost Centre Structure and Cost Centre Code (82)

Hadisolb's cost centre structure consists of 507 cost centres distributed as follows:

452 Cost centres for the steel plant

55 Cost centres for the ore mines, limestone, and dolomite quarries.

For cost collection purposes, the first digit of the cost centre code is significant:

5 = Producing cost centres

6 = Auxiliary and service cost centres

7 = Marketing and distribution cost centres.

8 = Administrative cost centres, and

9 = Projects cost centres.

To illustrate, I have chosen some of the cost centres for the steel plant.

Cost Centres for Workshops - Machine & Heat Treatment

Producing Cost Centres

5901 Raw Material Preparation Yard

5902 Heavy Machines

5905 Moderate Machines

5907 Light Machines

5910 Assemblies, Machines & Tools

A detailed Expense Code employed by Hadisolb is shown in Appendix 4.

A detailed Cost Centre Code employed by Hadisolb is shown in Appendix 5.

Auxiliary & Service Cost Centres

- 6904 Mechanical Maintenance
- 6906 Transportation Equipment Expense
- 6909 Overhead Expense
- 6919 Overhead Expense for Foundry
- 6921 Carpenter Workshop.

Marketing & Distribution Cost Centres

- 7522 Dispatch of Medium Section Products
- 7561 Finished Products Storage

Administrative Cost Centres

- 8901 Chairman of the Board of Directors
- 8903 Law Department
- 8905 Vice-Chairman for Production
- 8906 Vice-Chairman - Service
- 8907 Vice-Chairman - Finance
- 8921 Director Financial Affairs
- 8925 Financial Director
- 8930 Costing & Budget Director

Projects Cost Centres

- 9901 Project Administration
- 9910 Vice Chairman - Projects.

For cost statement purposes, cost centres are consolidated and
(sinter plant, blast furnace, etc.). To illustrate,

the following shows how cost centres are consolidated.

Figure 37:

Group/Process	Cost Centres	Cost Centres Code
Baharia Ore	Mechanical Drilling	5102
	Sand Removal	5103
	Explosion & Mining of Ore	5105
	Bulldozers	5106
	Lighting	6106
	Personnel Transportation	6127
	Administration	8100
	Research	9100
Sinter Plant (1)	Reception Bins	5201
	Coke Screening	5202
	Coke & Stone Preparation	5203
	Sinter Machine	5208
	Sinter Burden	5209
Service Cost Centre	Rolling Mill Roll Shop	6495
	Mechanical Workshop	6497
	Electrical Workshop	6498
	Overhead Expenses	6499
	Overhead of all Rolling Mills	6488

3. Cost Allocation

The following discussion indicates how Hadisolb identifies costs incurred by a specific expense code and a specific cost code, and also the various categories of cost allocation within Hadisolb's actual cost system.

a) Materials

The Production and Control Group (of Production Planning) records materials consumption and prepared detailed monthly statements by product produced which are forwarded to the Cost Accounting Sector by the sixth day after the month ending.

The Cost Accounting Sector prepares summarised statements of materials consumption by product and values materials consumed as follows:

- Purchased materials are valued at the moving average of invoice price.
- In-process materials removed from inventory are valued on the FIFO Method, current production is consumed first at current production costs before withdrawals are made from inventory.
- Current scrap prices, or equivalents, in the case of reverts.
- Actual production cost of the prior production unit becomes the charge for material cost for the next process.

b) Labour

The cost of labour is charged on an actual basis, as each cost centre prepares a monthly actual man-hours statement which is forwarded

to the Department of Wages and Incentives of the Financial Accounting Sector which prepares a monthly payroll by cost centres.

c) Fuels & Utilities

The Production Control Group of Production Planning prepares a statement at the end of each month of fuels and utilities produced and/or purchased during the month for each consuming cost centre. Statements are forwarded to the Cost Accounting Sector by the sixth day after the end of each month, which in turn forwards them to the Computer Centre for allocation to consuming centres. The computer programme initially prices the quantities allocated to individual consuming cost centres at the last year's computed prices, adjusted at the start of the year for known price increases. The total cost of fuel and utilities initially allocated is factored to balance with the actual costs incurred by the source cost centre for the month.

d) Maintenance Man-hours

Maintenance shop allocations are made to the ordering cost centres each month based upon the work performed. Allocations to the ordering cost centres are initially priced at the prior year's actual shop costs, which are adjusted at the start of the year for known labour rate increases. Estimated allocated maintenance costs are then factored and balanced with total actual costs incurred by the source cost centres for the month.

e) Maintenance Materials

Maintenance materials are of three types:

- those ordered from outside sources or withdrawn from stores by operating departments. These are charged to the ordering cost centre at invoice price plus transportation for outside materials or at stores value based on moving averages.
- those ordered by central shops for application on shop orders, the charge is based upon stores value.
- castings produced in central shops for use as maintenance materials are priced at their cost of production when charged to inventory, and charged on moving average rates when removed from inventory to the ordering cost centres.

f) Services

Service expense consists mainly of transportation and laboratory charges. The service expense is allocated to ordering cost centres according to locomotive time used and automotive and truck trip tickets for each month. The method used is the same as that used in fuel and utilities.

g) Supplies & Miscellaneous

Expense items are identified by expense code then, allocated to consuming cost centres.

h) Fixed Expenses

Depreciation and insurance are the only fixed type of expenses charged into cost centres. The cost each month by cost centre is determined based upon investment value, and depreciation allocated to cost centres accordingly. Insurance is allocated on the basis of depreciation.

Except for depreciation and insurance all other general plant costs such as taxes are not charged to cost centres.

The technical and administrative costs represented by corporate and plant staff cost centres are not charged to cost centres costs, but handled as sales, general and administrative expense.

4. Cost Flow

Interviews and questions presented to cost accounting personnel in Hadislob show that the flow of costs follows the conventional traditional patterns, but on an abbreviated basis. The following is evidence for this statement:

a) There is no interchange of costs among general plant maintenance cost centres, among general plant utility cost centres, or among general plant utility cost centres, or among general plant service and transportation cost centres.

As was explained by cost personnel in Hadislob, for general plant service and maintenance cost centres, this does not create any very serious errors in costing purposes, but on the contrary, by avoidance of repetition, saves a great deal of detailed work in monthly closings. However, serious errors in costing do occur in the allocation of utility cost among utility production cost centres.

b) There is also no interchange of costs among general plant maintenance, utility and service areas, or from these areas to corporate and plant administrative cost centres.

c) General plant cost centres (maintenance, utility and service) make charges to both producing and service cost centres within the production departments.

d) Auxiliary and service cost centres within production departments do not charge costs to each other or to end-point producing cost centres. Costs are consolidated, by cost incurrence code, on a horizontal basis to develop process operation totals.

e) Product costs are developed on a process basis, and charged to in-process inventory.

5 Cost Reports

The Cost Accounting Sector in Hadisob prepares monthly statements for each production department. These statements are based upon monthly reports forwarded to the Cost Accounting Sector from the Computer Centre. Also, based upon those reports, the incurred cost portion is forwarded to the Financial Accounting Sector where a voucher is issued for General Ledger purposes.

The monthly prepared cost statements issued by the Cost Accounting Sector are by process and represent a horizontal summation by cost code for producing cost centres and all service or auxiliary cost centres directly related to such producing cost centres. Costs are written down in total pounds by cost code and also in pounds per tonne.

The Cost Accounting Sector produces the following cost statement for each process each month:

- Sinter Plant 1
- Sinter Plant 2
- Blast Furnaces 1 and 2
- Blast Furnaces 3 and 4
- Pig Machine
- Thomas Convertors
- Electric Furnaces
- L D Shop
- Slab Caster
- Billet Caster
- Primary Mill and Soaking Pits
- Heavy Section Mill
- Medium Section Mill
- Light Section Mill
- Plate Mill
- Sheet Mill
- Hot Strip Mill
- Combination Shear Line
- Pickle Line
- Cold Reduction
- Annealing
- Temper Rolling
- Flying Shear
- Degreaser Line
- Hot Dip Galvanise Line
- Hot Dip Tinning Line
- Corrugating Line
- Coil Slitter
- Cold Forming

In issuing those statements, the objective of the management is to have them presented for each month by the 20th of the following month. This objective has never been reached and at the time of the investigation done by the author the delay is about six months. The cause for the delay is a bottleneck situation at the Computer Centre.

The Cost Accounting Sector, in an effort to ease the problem, prepares the monthly cost statements by process on what is called "The Quick Costs" or "Estimated Costs". The quick cost statement is based upon the actual usage of material and last year's cost expenses.

6. In-Process Product Costs

The Cost Accounting Sector in Hadisolb uses absorption costing for in-process product cost charges to inventory. In most cases one product cost is developed for each process except for:

- a) When products flow from different sources; for instance the flow of products in the primary and section mill's from Thomas convertors, electric furnaces, or LD Shop.
- b) Recognition in the primary mill of rolling methods.
- c) Recognition in cold reduction, annealing and temper rolling of sheet versus tin plate product.

7. Final Product Costs

The Cost Accounting Sector in Hadisolb computes each month the final product costs based upon cumulative costs from process to process.

Costs are computed each month for the following final products:

- Pig iron
- Thomas shop ingots
- Electric furnace ingots
- LD shop ingots
- Slabs
- Billets
- Heavy sections
- Medium sections
- Light sections
- Plate
- Sheet from plates
- Hot rolled sheets
 - unpickled
 - pickled
- Hot rolled coils
 - unpickled, mill width
 - unpickled, slit
 - pickled, mill width
 - pickled, slit
- Cold rolled sheets
- Cold rolled coils
 - full width
 - slit
- Galvanised sheets
 - plain
 - corrugated
- Black Plate

- Hot dip tin plate
- Cold formed sheets.

For product costing, raw materials and other outside purchased materials are priced at current acquisition costs. In-process costs are based upon current production costs except for net withdrawals from inventory, which are on a FIFO basis. Other cost items are evaluated as discussed before.

Section Two:

Cost Accounting "End Products"

It was indicated how the Cost Accounting Sector in Hadisolb develops its cost statements and reports each month. Also it has been pointed out the flow of costs for in-process products till inventory and final products. It was also indicated that the costing technique used by the Cost Accounting Sector in Hadisolb is absorption costing.

Now, I turn to discuss the final statements of actual cost which the Cost Accounting Sector in Hadisolb issues for each financial year.

The Cost Accounting Sector in Hadisolb after having all data needed from the Computer Centre, develops some 46 statements of actual costs which cover the 44 production processes in Hadisolb. The following shows each group of processes and/process which these statements cover.

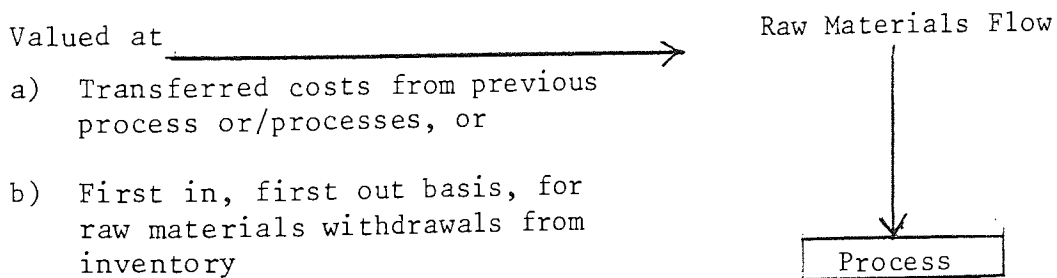
- 1 - Aswan Mines
- 2 - Baharia Mines
- 3 - Beni Khalid Quarry
- 4 - Refai Quarry
- 5 - Adabia Dolomite
- 6 - Sinter (1)
- 7 - Sinter (2)
- 8 - Blast Furnace (1) and (2)
- 9 - Blast Furnace (3)
- 10 - Blast Furnace (4)
- 11 - Pig Pouring Machine
- 12 - Old Mixer

- 13 - New Mixer
- 14 - Thomas Convertors
- 15 - Electric Furnace
- 16 - Oxygen Convertors
- 17 - Liquid Steel for Continuous Casting
- 18 - Continous Casting
- 19 - Blooming
- 20 - Heavy Sections
- 21 - Light Sections
- 22 - Rolled Plates
- 23 - Sheets
- 24 - Hot Production
- 25 - Pickling Line
- 26 - Reversing Line
- 27 - Soaking Line
- 28 - Temper Line
- 29 - Flying Shear
- 30 - Slitting Shear
- 31 - Combination Shear
- 32 - Galvanising
- 33 - Corrugation
- 34 - Cold Forming
- 35 - Fertiliser Grinding
- 36 - Limestone Burning
- 37 - Old Dolomite Burning
- 38 - Dolomite Mixing
- 39 - Dolomite Bricks
- 40 - Dolomite Bottom
- 41 - New Limestone Burning

- 42 - New Dolomite Burning
- 43 - New Dolomite Mixing
- 44 - New Dolomite Squeeze
- 45 - Degreasing Line
- 46 - Tinning

I must point out that the Cost Accounting Sector in Hadisob also develops cost statements for each product produced within each process, thus, the statements of actual costs by processes are the totals of all costs incurred by producing each single product within the process, to facilitate, the following summarises the main idea followed by actual cost statements by process for years from 1975-1979. (Full costs statements are provided in Appendix 6).

Figure 38:



Net raw materials

Operating Costs

- Wages
- Fuel and Energy
- Spares and Consumables
- Overheads

Minus

- Services sold
- Deferred expenses
- Operating costs "Totals"

Total Cost

Quantity Produced

Cost per Tonne

Product...	Product...	Product..	Total

Conclusion

To conclude, Hadisolb's actual cost accounting system is based upon absorption costing. The Cost Accounting Sector does not differentiate between variable and fixed costs. The main effort of the Sector is directed towards developing actual cost statements by processes, which at the end give the average cost per tonne for each process and the cost per tonne for each single product within each process. So, the cost per tonne for each product embraces factory fixed costs within it.

As far as Hadisolb is concerned, using the full costing system (or absorption costing) might be enough to fulfill its objectives, that is, the costing of its products. Cost accounting is not used only for product costing, but, as Dearden (33) points out,

"Product costs in manufacturing operation have four principle uses, (1) inventory valuation, (2) revenue decisions, (3) diagnosis, and (4) cost control."

For use in inventory valuation, it is necessary to know the cost of the products that are being manufactured to establish a value for inventories. Inventories are valued at their variable costs, so to do that, the cost accounting system should be based upon variable costing which Hadisolb does not do as inventories in Hadisolb are valued at their full costs which means that fixed costs are included in inventory valuation. From a management point of view, perhaps the most important use of cost information is in making revenue decisions. Revenue decisions can be divided into three general categories, pricing, product mix, and profit/volume.

As to pricing, product costs are used as a guide in pricing new products, as a guide to price differentials among different products, and to trigger a decision as to whether to lower or raise a price.

As to product mix, product costs are used for short term product mix decisions (e.g. which products to push) and long term mix decisions (e.g. on which products to increase or decrease capacity). As to profit-volume decisions, management uses product costs in decisions involving the interaction of revenue, costs and volume. This interaction cannot be known except in a cost system based upon a differentiation between variable and fixed costs.

For use in diagnosis, product costs are used by management as a means of diagnosing possible unsatisfactory conditions. For example, the analysis of products that are not earning a satisfactory profit may indicate either inefficiency, underpricing, or too costly design.

For use in cost control, product costs can be used to help control the level of costs. When product costs are increasing, it can be an indication to management that costs are getting out of line. So, a cost system based upon the knowledge of controllable and uncontrollable costs is needed for the purpose of cost control.

So, the absorption costing system used by Hadislob does not help managers in predicting the impact of their decisions on profits, and in formulating means of controlling the incurrence of cost.

It was indicated that Hadisolb employs an expense code which identifies about 100 items of expenses; at the same time the company's cost centre structure consists of some 507 cost centres which is somewhat numerous with regard to the problems of allocation. This number of cost centres causes difficulty to the Cost Accounting Sector and is the reason for delay in developing the monthly actual cost statements which are issued about 6 months in arrears. There is no doubt that this huge number of cost centres is the reason for the bottleneck in the Computer Centre in Hadisolb.

It is also obvious from the statements of actual costs (which are collected by the author for comparison, and cover the years from 1975 till 1979. Appendix 6), that the cost per tonne for each process, and even for each single product, does not follow an adequate pattern. The cost per tonne increases in one year and decreases in the other; it is very difficult to draw reasons for that. The author felt that expenses incurred might be wrongly allocated to cost centres, and this could be a deficiency of employing so many cost centres. To provide evidence for that, the reader might have noticed, from actual cost statements, that some elements of costs did not change according to changes in the volume produced, i.e. as volume has increased, total costs absorbed also have increased. What the author has noticed in some cases, is that while volume has increased, total costs have decreased, and vice versa. One obvious case is in the Blast Furnace No. 3 process where in 1975 the quantity produced was 317,292 tonnes and the wages paid were LE 235,357, whereas, in 1977, the quantity produced was 473,958 tonnes and the wages paid were LE 93,018 (Appendix 6)

One of the deficiencies in the cost accounting system in Hadisolb is that the work is centralised in the Cost Accounting Sector. This means that all expense vouchers are directed toward the Cost Accounting Sector for allocation to cost centres concerned. Mistakes in cost allocation are certainly numerous and this is another reason for the fluctuations in costs per tonne.

Chapter Twelve:

Accounting in Planning and Control

The last two chapters have concentrated on financial and cost accounting in Hadisolb. There has been no emphasis on their day by day function, rather concentration was given to their end-products, i.e. the final accounts and statements the Financial Accounting Sector develops every year, the cost accounting systems and cost statements which the Cost Accounting Sector develops every year. An evaluation of both systems has been presented, however, more will be discussed later on when suggested improvements for the system will be presented by the author at the end of the thesis.

As the main objective of this thesis is to evaluate accounting for planning and control in Hadisolb, it would have been difficult to deal with this without having pointed out the history of the company, the organisational and managerial structure, products and markets, and the end products of the Financial and Cost Accounting Sectors. So, the Author has reached the point where it is convenient to discuss accounting for planning and control in Hadisolb.

This chapter will be divided into the following main sections, using the same terminology used by Hadisolb:

Section One - The Planning Budget.

Section Two - Cost Estimations.

Section One:

Planning Budgets

Long-range planning is not in use in Egypt. So, at the end of the thesis within the improvements which will be presented to Hadisolb, the author will introduce long-range corporate planning to Hadisolb in particular and to the country as a whole as well as the management accounting requirements for this type of planning. As this is the case, this section will introduce the role of accounting in short-range planning in Hadisolb.

It was indicated before that the Financial Sector in Hadisolb embraces the Cost and Budgetary Planning Sector which is divided into two main sectors. The first is the Cost Accounting Sector which was the main subject of the last chapter. The other is the Budgetary Planning Sector which is responsible for the developing and presentation of the planning budgets in June each year for the following year.

Before embarking on the subject, I would like to point out that the planning budgets in Hadisolb are production oriented as Hadisolb production capacity, together with other steel manufacturers in the country, do not cover the home demand. So, Egypt still imports steel from foreign countries. Nevertheless, the Sales Sector prepares its sales budget both for home and export, after carrying out a study of its main customers' needs for the following year. So, the budgets developed by the Budgetary Planning Sector in Hadisolb can be described as sales and production mix oriented.

It is now necessary to discuss in some detail the preparation of the planning budgets in Hadisolb, which will embrace:

1. Forming the Production Policy
2. Initial Preparation of Budgets by Production Sectors
3. Initial Preparation of Budgets by Other Sectors.
4. Assembling the Budgets by the Budgetary Planning Sector.
5. Types of Budgets.
6. The Monthly Budgets.
7. Approval of the Budgets.

1. Forming the Production Policy

Recalling what has been mentioned before when discussing the planning aspects in Hadisolb, it was pointed out that the Metal Forming, Mines and Quarries Sectors are the main production sectors concerned with forming the production policy for the company. Moreover, the Financial, Planning and Projects, and Sales Sectors participate in forming that policy. When forming the policy the following factors are taken into consideration:

a) The instructions imposed upon the company from both Ministries of Finance and Industry which ask for increases in the value of production which has to be valued at last year's selling prices. The increase in the value of production takes the form of a percentage of last year's figures. Moreover, the Ministries' instructions link any increases in wages with the increase in the value of production.

b) The production capacity of all production sectors in tonnage. However, the author noticed that the operation sectors do not take into consideration available capacities. Rather, they form the production

policy in a very conservative way as they take into consideration the historical incidence of stoppages.

c) They also take into consideration when deciding upon the production target for the following year added capacity due to new projects under construction. However, this causes a lot of problems due to the fact that projects never start operations by the planned date, but delays always happen which sometimes reach two years. For instance, the Blast Furnace No. 4 was planned to start operation during 1977. Production policies for the year were formed on that basis; however, the furnace started operation in June 1979 and all plans for years 1977, '78, '79 were re-adjusted accordingly.

d) Researches and surveys done by Sales Sector for home and export sales are used not as a production quantity target, rather they are used to form the product-mix policy. However, it is not the intention of the committee forming the production policy to satisfy customers' needs bearing in mind that all that they produce will be sold.

2. Initial Preparation of Planning Budgets by the Production Centres

According to the production policy of Hadisob, each production centre prepares its own production budget, taking into consideration the flow of production from one process to the next. As each production centre embraces more than one process, the budgeted production of each centre is to be divided between all processes. In doing that, the production centre is preparing the initial budgets which are to be forwarded to the Planning Budget Committee for reviewal and preparing the corporate production budget. How the budget of each production centre

subject of the next section of this

3. Initial Preparation of Planning Budgets by Sectors other than Production.

All sectors other than production are requested to prepare "initial" budgets. The budgets are based upon current year-to-date actual costs, which have to be adjusted for known price changes and abnormalities.

4. Assembling the Budgets by the Budgetary Planning Sector

All initial budgets developed by all sectors in Hadisolb have to be presented to the Planning Budget Committee, which is formed from the following personnel:

- a) Deputy Chairman "Production"
- b) Deputy Chairman "Planning & Projects"
- c) Deputy Chairman "Finance"
- d) Deputy Chairman "Services & Utilities"
- e) Director of Finance
- f) Director of Financial Accounting Sector
- g) Director of Cost Accounting & Budgetary Planning Sector
- h) Manager of Budgetary Planning Department.

The Planning Budget Committee review the initial budgets developed by all sectors concerned to ascertain that they coincide with the objectives determined before, which fulfil the production policy of the company. Then, the Planning Budget Sector, working in collaboration with the Production Sectors and all other sectors concerned, assembles the budget for the company as a whole.

5. Types of Budgets

The types of budgets developed by the Planning Budgets Sector in Hadisolb differ according to the forms required by different ministries and government agencies. What actually falls within the scope of this study are those types of budgets which fulfil the accounting requirements for planning and control. So, the following types of budget are those selected from what the sector develops each year.

5.1. Production Budget

a) Production Programmes

The planning process in Hadisolb starts with the determination of the production policy for the following year. The production programmes are then supposed to translate the production policy of the company into action. The production programmes embrace the following:

i. Processes Production Programmes

These programmes decide upon the quantity of production in tonnes which the main production sectors have to produce to fulfil the production

policy of the company. The main operating sectors included in these programmes are:

- Mines and Quarries
- Sinter & Pig Iron
- Steel
- Forming.

ii. Production for Sales Programmes

These programmes decide upon the production quantity of finished products ready for sale for the following year. They include the main products without breaking them down to different sizes.

b) The Production Budget

The Planning Budget Sector uses the production for sales programmes as a basic to prepare the production budget which embraces the following details:

- The maximum production capacity for each main product
- The available production capacity for each main product
- The production target of each main product priced at home sales prices imposed by the Government.

c) Production Inputs

According to the budgeted production quantities, the Planning Budget Sector develops two statements which show inputs for production.

The first is called Commodity Inputs and contains the following items:

- Coke
- Raw materials
- Energy
- Spares and consumables
- Packing, stationery, water, and lighting.

The second is called non-commodity inputs and contains the following items:

- Maintenance
- Expenses of operations done by others
- Research and experiments
- Publications, advertisements, and printing
- Transportation (includes that from Mines & Quarries to the plant in Helwan)
- Equipment and transportation leasing
- Miscellaneous.

5.2. The Sales Budget

which embraces,

- a. Total sales in quantity and value.
- b. Home sales in quantity, price per tonne for each product, and value.
- c. Export sales in quantity, price per tonne for product, and value.
- d. By-products in values only.
- e. A comparison between the budgeted sales for the following year, the actual sales of last year, and the budgeted sales of current year. The comparison is done in percentage terms in order

to compute growth in sales.

5.3. Capital Budget

This budget is prepared to show Hadisob's investment in new projects and capital transfers and how they will be financed. The budget shows totals only. However, attached to it there is a statement which embraces all the details upon which the budget is prepared. To highlight the point, the following is the capital budget for year 1980.

Table 21: Capital Budget
Year 1980
in 000's LE

Capital Uses		Capital Revenues	
<u>Investment Uses</u>		<u>Financing Investment Uses</u>	
Replacement & Renewals (1)	15,738	(1) <u>Capital Revenues</u> Self-financing	22,095
Renewal & Developing old plant	20,000	(2) Increase in Stock	8,398
New projects (2)	4,639	(3) <u>Loans & Credit Facilities</u>	
Projects under construction	5,000	Loans from deposits and Social Security funds	567
Projects under study	245	Credit facilities	14,562
Investment Uses Total	45,622	Financing Investment Uses Total	45,622
<u>Capital Transfer Uses</u>		<u>Capital Transfer Financing</u>	
Local long-term loans payments	25,806	Loans from deposits and Social Security funds	37,749
Foreign long-term loans payments	345		
Increase in Stock	8,398		
Current Activity Deficit	3,200		
Capital Transfers Total	37,749	Capital Transfers Financing Total	37,749
Capital Uses Total	83,371	Capital Revenues Total	83,371

(1) No details are given to the replacement and renewals items, however, the author was informed that the total figure of this item, which is divided into local and foreign currency, reflects the replacement costs of depreciated assets at local and foreign markets current prices.

(2) For new projects the Ministry of Finance issues a special form which is called "Booklet of Economic Studies of New Projects". So the Planning and Projects Sector fills a form for each proposed project

showing the following:

- a. Estimated total cost of the project.
- b. Plan of construction.
- c. Estimated increase in revenues due to the project.
- d. Estimated increase in expenses due to added capacity.
- e. Projected profit or/deficit due to the project.

An interview between the author and the Director of Planning and Projects Sector in Hadisob took place. The segment of the questionnaire particularly designed to discuss capital budgeting was discussed. From the discussion, the author formed the following conclusion:

1. When considering the purchase of fixed assets the Planning and Projects Sector estimates the expected increase in sales, purchase price, and all elements of running costs.
2. Estimates cover both long and short term periods in an integral manner.
3. No considerations are given to the problem of cash flow.
4. No comparison is done between cash receipts and payments before making a capital expenditure decision.
5. The rate of return on investment is used to appraise capital investment proposals.
6. Non-financial criteria are not used to assess capital investment proposals.
7. When a project is completed and is in operation no analysis is

carried out to compare the actual with estimated profitability of the project.

8. Financing capital uses depend on three main sources:

a. Self-financing

which in the case of Hadisolb is mainly provision for depreciation and deferred revenues as the company did not realise any profits from the date it started till the year 1979.

b. Credit Facilities

which are mainly foreign to finance new projects.

c. Loans

from deposits and Social Security funds to finance capital transfers.

d. Governmental Subsidies

to finance the company's cash deficit.

5.4. Wages Budget

The Planning Budget Sector prepares the wages budget in collaboration with the Industrial Relations Sector. So, the segment of the questionnaire particularly designed to discuss the labour element was dicussed with managers of the two sectors, which generated the following information about the wages budget:

- a) Estimation of the number of workers for the following year is carried out according to:
- i. Volume of activity which has been agreed upon.
 - ii. Number of workers who already are in work until the end of the current year.

- iii. Number of workers who are leaving at the end of current year.
- iv. The determination of workers to be employed to start in the New Year.

b) Methods of Wages Calculation

The gross payroll consists of payment for hours worked including:

- i. Basic salary on a time related basis.
- ii. Incentive earnings.
- iii. Overtime.
- iv. Special allowances.
- v. Award payments.
- vi. Cost of living adjustments.

c) The following have to be taken into consideration when preparing the wages budget:

- i. Number of the work force in the New Year according to the level of activity agreed upon.
- ii. Promotions according to Government laws.
- iii. Annual increases according to the wages policy of the Government.
- iv. Increase in wages in the budget should not be more than 10% of current year, providing that volume of production has to be increased by the same percentage priced at current year's prices.

d) Methods of labour cost allocation were discussed previously when discussing cost accounting; however, for the purpose of clarifying the

subject, the author adds that the Planning Budget Sector in collaboration with the Industrial Relations Sector allocate budgeted wages to the five main cost centres according to personnel records kept by the latter and according to wages reconciliations and top management instructions. The following table shows budgeted wages and their allocation to cost centres for years 1975 - 1980.

Table 22:

Year	Budgeted Wages 000's	Allocations to Cost Centres									
		Producing Centres		Auxiliary		Marketing		Admin.		Projects	
1975	12,210	5,030	41.2%	6,013	49.2%	222	1.8%	914	7.5%	31	0.3%
1976	13,044	5,587	42.8%	6,523	50%	106	0.8%	805	6.2%	23	0.2%
1977	17,015	7,222	42.4%	8,855	52%	150	0.9%	760	4.5%	28	0.2%
1978	15,930	6,579	41.3%	7,837	49.2%	287	1.8%	1,195	7.5%	32	0.2%
1979	21,148	8,980	42.4%	11,036	52.2%	186	0.9%	908	4.3%	38	0.2%
1980	23,300	9,625	41.3%	11,463	49.2%	419	1.8%	1,747	7.5%	46	0.2%

5.5. Budgeted Current Operations Account

As a highlight for all budgets prepared for revenues and expenses, a budgeted current operations account is developed which at the end shows the budgeted surplus or deficit. A detailed description of the current operations account was discussed previously under the financial accounting subject.

5.6. Cash Budget

A cash statement is prepared containing budgeted cash inflows and outflows according to the different budgets discussed previously. The statement of cash inflows embraces all detailed budgeted cash receipts in the following year:

a) Receipts of Current Activity

- Receipts of finished production home and export, and goods for re-sale
- Subsidies
- Receipts of securities

b) Transfer Receipts

- Credit interest
- Credit rent
- Compensations
- Miscellaneous receipts
- Previous year's receipts
- Sales of fixed assets
- Amortization of Government bonds
- Sales of securities
- Sales of other investments
- Government participation (to be redeemed)

c) Other Receipts

The statement of cash outflows embraces all detailed budgeted cash payments in the following year.

- a. Wages
- b. Raw materials

- c. Spares and consumables
- d. Invisible expenses (foreign payments)
- e. Purchase for re-sale
- f. Current transfer expenses
- g. Current ear-marked transfers
- h. Other payments.

From the expected balance of cash at the end of current year and budgeted cash inflows and outflows of the following year, the balance of cash at the end of the following year is obtained. The Planning Budget Sector has to prepare the cash budget showing cash payments and receipts according to the Standardised Accounting System (SAS) as follows:

- a. Domestic payments or receipts:
 - Public sector (administrative and enterprises separately)
 - Private sector
- b. Payments and receipts of Agreements' Countries
- c. Other countries.

5.7. Current Expenses Budget

The current expenses budget embraces the following:

- a. General expenses
 - i. commodity inputs
 - ii. non-commodity inputs
 - iii. purchase for re-sale
- b. Current transfer expenses

c. Current ear-marked expenses.

Terminologies were discussed previously when discussing the current operations account. Also, when discussing Planning and Control in Hadisolb a detailed description about the role of each sector in the company in planning and control was indicated. Also, the reader will recall that each sector in Hadisolb submits its own budget which is prepared in the highlight of the production objective of the company as a whole, the historical rate of consumption of fuel and energy, and raw materials yields according to laboratories report. So, the current expenses budget is the total of all current expenses included in all sectors budgets after revision by the Planning Budget Committee. Analysis of general expenses allocation to cost centres for years 1975-1980 shows that it is carried out according to fixed percentages as follows:

Table 23:

Description	Producing Centres	Auxiliary Centres	Marketing Centres	Admin. Centres	Projects Centres
Commodity	83.48%	14.93%	0.29%	1.3%	--
Non-commodity	87.77%	5.93%	0.46%	6.4%	--
Current transfer	33.35%	17.79%	0.08%	48.78%	--

5.8. Commodity Purchase Budget

The Purchase Sector, having collected all sectors' requirements for the following year, develops a commodity purchase budget after the

determination of the requirements of each commodity item as follows:

Commodity requirements for next year	XXX
Plus commodity in stock at the end of next year	<u>XXX</u>
	XXX
Minus commodity in stock at the end of current year	<u>XXX</u>
Commodity purchases for next year	<u>XXX</u>

The Purchase Sector divides commodity purchase into two main segments as follows:

- a. Commodities which can be purchased from local suppliers in quantities, and valued at current year's prices updated for known or anticipated changes.
- b. Commodities which have to be supplied from foreign markets in quantities, and valued as follows:
 - Basic purchase prices of current year updated for known or anticipated changes
 - Freight and insurance
 - Duties
 - Miscellaneous expenses

5.9. Budgeted Balance Sheet

The Planning Budget Sector does not prepare a budgeted trading account nor a budgeted profit and loss account. In doing that, it is obvious that the sector does depend, in reaching the budgeted profit

or loss, on the Current Operations Account which is prepared to fulfil requirements of the Standardised Accounting System (SAS), so, there is no problem in developing the budgeted balance sheet. This is prepared, as indicated before, when discussing the forms requested by the Standardised Accounting System. The only difference between the actual and budgeted balance sheet is that in developing the latter, no comparative figures of previous years are included.

5.10. Budgeted Statement of Sources and Uses of Funds

The Planning Budget Sector develops a budgeted statement of sources and uses of funds which shows the changes between budgeted balance sheets at beginning and end of the year. However, the reader will recall from the previous paragraph that the budgeted balance sheet does not show any comparative figures. The author also noticed that the sector does not prepare what is called the Statement of Changes of Funds which is easily used to develop the statement of sources and uses of funds. The following summarises the budgeted statement of sources and uses of funds for year 1980.

Table 24: Statement of Sources and Uses of Funds (Year 1980 000's LE)

Sources of Funds

Provision for depreciation	22,095	
Increase in creditors	8,398	
Increase in long-term local loans	38,316	
Increase in long-term foreign facilities	<u>14,562</u>	
		83,371

Uses of Funds

Increase in buildings and constructions	10,997
Increase in machinery and equipment	28,787
Increase in transport	5,738
Increase in spares and consumables	100
Decrease in long-term local loans	25,806
Decrease in long-term foreign loans	345
Increase in stock	8,207
Changes in DR & CR Balances	191
Current losses	<u>3,200</u>

5.11. Mines and Quarries Budget

This budget is prepared by Mines and Quarries themselves according to the production objective of each Mine and Quarry. The budgets prepared by the Mines and Quarries are revised by the Planning Budget Committee, then, they are passed after possible amendments, to the Planning Budget Sector to develop one budget for all Mines and Quarries which embraces detailed figures for the following expenses:

- wages
- commodity inputs
- non-commodity inputs
- current transfer expenses

5.12. Annexes to the Budget

The Planning Budget Sector prepares annexes to the budget including separate statements to show how each of the following items is calculated:

- a. Custom and duties on uses as in the current operations account.
- b. Imputed rent.
- c. Imputed interest.
- d. Total capital employed.
- e. Operating capital.
- f. Mines and Quarries production transport.
- g. Market expenses for budgeted export sales.

Each of the above mentioned items appears in the following tables.

a) Budgeted Custom & Duties Year 1980 000's LE

Table 25:

Description	Sub- Total	Total
<u>Direct & Indirect Materials</u>		
Ferro Manganese 75%	124	
Zinc	42	
Anthracite	2	
Shpegal Iron	2	
Flore-spar	53	
Ferro-Chrome	4	
Tin	3	
Molybdenum	<u>5</u>	
Direct & Indirect Materials Total		235
<u>Spares & Consumables</u>		
Spares	1,590	
Thermal Insulators	437	
Rollings	130	
Graphite Electrodes	118	
Workshops Equipment	<u>99</u>	
Spares & Consumables Total		<u>2,374</u>
Budgeted Custom & Duties Total		<u>2,609</u>

b) Imputed Rent Year 1980 000's LE

Table 26:

Land	7,323
Buildings and constructions	<u>115,124</u>
Total	122,447
Multiplied by 5% "the fixed rate by Ministry of Finance"	<u>x 5%</u>
Imputed Rent	<u>6,122</u>

c) Imputed Interest for Year 1980 000's LE

Table 27:

Total Capital Employed		437,657
<u>Minus</u>		
Land	7,323	
Building and Constructions	<u>115,124</u>	
		<u>122,447</u>
		315,210
Multiplied by 4.5% "The fixed rate of interest by the Ministry of Finance"		x <u>4.5%</u>
Imputed Interest		<u>14,184</u>

d) Total Capital Employed Year 1980 000's LE

Table 28:

Owned Capital	261,231	
Government Participation	<u>70,376</u>	331,607
<u>Minus</u>		
Accumulated Deficit		<u>51,640</u>
		279,967
<u>Plus</u>		
Reservations	2,760	
Provisions for Depreciation	138,749	
Long-term loans	<u>16,181</u>	
		<u>157,690</u>
<u>Total Capital Employed</u>		437,657
<u>Represented by</u>		
Fixed Assets	382,621	
Projects under Construction	5,899	
Net Operating Capital	<u>49,137</u>	
		<u>437,657</u>

e) Working Capital for Year 1980 000's LE

Table 29:

<u>Current Assets</u>		
Stock	146,339	
Investments	201	
Debtors	29,526	
Misc. DR Accounts	38,917	
Cash	625	
		215,608
<u>Current Liabilities</u>		
Provisions other than depreciation	4,338	
Banks (Overdrafts)	23,343	
Creditors	53,238	
Misc. Creditors	68,712	
		149,631
Working Capital		65,977

f) Raw Materials Transport from Mines and Quarries Year 1980 000's LE

Table 30:

Baharia Ore	= 2,250,000 tonnes x 3.457	= 7,778
Adabia Dolomite	= 120,000 tonnes x 3.500	= 420
Refai Limestone	= 300,000 tonnes x 1.250	= 375
Beni Khalid Limestone	= 470,000 tonnes x 1.500	= 705
		9,278

g) Marketing Expenses for Export Sales for Year 1980 000's LE

Table 31:

Export of Main Products	128,000 tonne
" " By-products	15,000 tonne
	<hr/>
Total	143,000 tonne
	<hr/>
Budget Marketing Expenses per tonne	7.692 LE
	<hr/>
Budgeted Marketing Expenses for Export Sales	1,100 LE
	<hr/>

6. The Monthly Budget

Budgeted production quantities, forecasted material consumption and related costs are divided by twelve to obtain what is called in Hadisob the monthly budget, which in fact is monthly averages. The objective of the Planning Budget Sector is to have monthly parameters which are used to compare with the monthly quick cost statements which the Cost Accounting Sector prepares manually. The reader will recall that it was previously indicated that the monthly quick cost statements have to be completed by the 20th of the following month. However, this objective is hit very badly, as there is a six months delay in preparing such statements. So, the monthly budget does not fulfil its objective, which is the measurement of the operating sectors performance each month to correct any deviations from the monthly plan.

7. Approval of the Budget

The Annual Budget is reviewed and approved by the Chairman of the Board; then, the Board has to submit the budget to the company's General Assembly. After having the approval of the General Assembly, the budget is to be submitted to the High Council for the Sector. After discussion and possible amendments, it is then submitted to the Ministry of Industry departments responsible for production and finance. After further discussion on levels of production and requirements of foreign currency and possible amendments, the budget is passed up to the Ministries of Planning and Finance. The approved budget is returned to the company by the same route.

Section Two:

Cost Estimation

It was indicated that Hadisolb's budget is a mix of both production and sales orientation. On one hand, Hadisolb's capacity of production does not satisfy home markets needs which has to be fulfilled by importation from foreign markets. On the other hand, surveys are carried out by the Sales Sector to develop a list containing large customers' needs, which is used to determine production mix. Furthermore, it was indicated in the previous section that the preparation of Hadisolb's budget starts with the determination of the company's production policy for the following year; then, based on it, the preparation of the production budget takes place, which has to be segmented into production programmes.

So, the two plans the preparation of Hadisolb's budget starts with are:-

1. "Production Plan" for all processes which determines tonnage each production centre is to produce.
The reader will recall that all production centres and the flow of planned production from process to another were indicated in Chapter Nine (Materials and Processes Flow Chart).
2. "Production for Sales" plan, which determines the end products for selling. This plan is used to draw the sales budget at a later stage.

The following shows the production and production for sales plans for year 1980 which was drawn in June 1979.

Production & Production for Sales Plans for Year 1980 (000's)

Table 32:

Production Plan		Production for Sales Plan	
Description	Tonnes	Description	Tonnes
<u>Mines & Quarries</u>			
Baharia Mines	2,250	Pig Iron Bricks	120
Aswan Mines	-	Continuous Casting	72
Refai & Benai Khalid		Blooms Half Formed	-
Quarries	815	Heavy Sections	66
Adabia Quarries	110	Light Sections	72
		Medium Sections	72
		Plates	54
		Sheets	6
		Hot Production	170
		Cold Production	180
		Cold Forming	6
<u>Sinter & Pig Iron</u>			
Sinter 1	480		
Sinter 2	1,584		
Blast Furnaces 1 & 2	240		
Blast Furnace 3	364		
Blast Furnace 4	456		
Pig Iron	120		
<u>Steel</u>			
Thomas Convertors	90		
Electric Furnaces	48		
Oxygen Convertors	798		
Continuous Casting	738		
<u>Forming</u>			
Blooming	144		
Heavy Sections	66		
Light Sections	72		
Medium Sections	72		
Plates	60		
Sheets	6		
Hot Production	396		
Hot Rolling	180		
Cold Rolling	180		
Cold Forming	6		

The Cost Accounting Sector in Hadisolb is responsible for translating quantitative budgets developed by different operating and service centres into monetary terms. In doing that, the Cost Accounting Sector is carrying out what is called in Hadisolb cost estimations. Cost estimation starts out with the production quantities each producing centre is to produce as well as budgeted services and utilities. Cost estimation is carried out on the following basis:

1. Raw materials are costed at most recent prices paid, updated for known or anticipated changes. Imported raw materials are priced at the free value of foreign currency.
2. All other cost items are costed at actual costs incurred per tonne of product in the current year to-date adjusted for known changes.
3. Each producing process is charged the estimated total costs of production flowing into it.

For the purpose of showing how the Cost Accounting Sector in Hadisolb develops cost estimations together with how the Sector charges each process with incurred costs in previous processes, the following tables show cost estimations for Baharia Mines and Sinter 1 for years 1977 - 1979.

Table 33:

Cost Estimations Baharia Mines
Years 1977 - 1979

Quantity:

Cost per tonne:

Description	1977			1978			1979		
	Value	Cost per tonne		Value	Cost per tonne		Value	Cost per tonne	
<u>Labour</u>									
Experts wages	36,000	-	018	36,000	-	015	9,000	-	004
Basic wages	223,000	-	112	260,000	-	108	279,000	-	116
Production									
Incentive	100,000	-	050	122,000	-	051	115,000	-	048
Overtime	18,000	-	009	60,000	-	025	70,000	-	029
Other incentives	15,000	-	008	3,180	-	001	3,000	-	001
Special bonus	6,000	-	003	4,780	-	002	3,000	-	001
Food allowance							2,000	-	001
Hard work allowance	45,000	-	023	62,000	-	026	48,000	-	020
Other allowances	35,000	-	017	5,000	-	002	49,500	-	030
National Insurance	51,000	-	026	84,300	-	035	86,000	-	036
Cost of living allowance				32,000	-	009	28,000	-	012
Medical treatment	132,000	-	066	48,000	-	020	15,000	-	006
Experts incentives				11,900	-	005			
Total	661,000	-	332	719,160	-	299	707,500	-	295
<u>Commodity & Non-commodity Requirements</u>									
Benzind	47,000	-	023	42,000	-	018	60,000	-	025
Oil & lubricants	50,000	-	025	47,300	-	019	70,000	-	029
Operating Elect.	25,000	-	012	32,000	-	013	40,000	-	017

	1977			1978			1979		
	Value	Cost per tonne		Value	Cost per tonne		Value	Cost per tonne	
Lighting	40,000	-	020	37,000	-	015	42,000	-	017
Spares and consumables	206,000	-	103	165,000	-	069	250,000	-	104
Explosives	50,000	-	025	50,000	-	021	100,000	-	043
Stationery	4,000	-	002	2,350	-	001	6,000	-	002
Maintenance materials	12,000	-	006	4,050	-	002	4,000	-	002
Personnel transportation	10,000	-	005				33,000	-	014
Transportation	10,000	-	005						
Insurance	10,000	-	005	30,230	-	013	30,000	-	013
Publications & advertising	28,000	-	014				1,000	-	-
Postage & telephone	1,000	-	001				5,000	-	002
Miscellaneous	2,000	-	001				37,000	-	015
Refractories				54,200	-	023	65,000	-	027
Portable Water				18,000	-	007	20,000	-	008
Water							2,000	-	001
Training							10,000	-	004
	496,000	-	248	482,130	-	201	140,000	-	058
<u>Current Transfers</u>									
Car tax	5,000	-	002	6,100	-	003	8,000	-	003
Depreciation	800,000	-	400	840,000	-	350	1,000,000	-	417
Rent & usage duties	10,000	-	005	8,850	-	004	16,000	-	006
Customs	25,000	-	012	100,000	-	042	10,000	-	004
Rent							12,000	-	005
Research & experiments							50,000	-	021
Foreign interest							16,000	-	007
Total of Current Transfers	840,000	-	419	955,920	-	399	1,112,000	-	463
Total Cost	1,997,000	-	419	2,157,210	-	899	2,594,500	1	081
Quantity of Production	2,000,000	-		2,400,000	-		2,400,000		

Key to Table

(1) Price: represents the price of each unit of raw materials, fuel and energy as follows:

a. Transfer cost per tonne of Baharia iron ore plus transportation cost per tonne according to the following table:

	Transfer cost per tonne L.E.	Transportation per tonne L.E.	Total cost per tonne L.E.
1977	0.999	2.773	3.772
1978	0.899	3.457	4.356
1979	1.081	3.457	4.358

b. Transfer cost per tonne of Adabia Dolomite plus transportation cost per tonne as follows:

	Transfer cost per tonne L.E.	Transportation per tonne L.E.	Total cost per tonne L.E.
1977	1.098	1.965	3.063

c. Transfer cost per tonne of gas dust generated from blast furnaces at L.E. 0.700 per tonne

d. Transfer cost per tonne of iron oxide generated from blast furnaces at L.E. 5.500 per tonne.

e. Transfer cost per tonne of Refai Limestone plus transportation cost per tonne as follows:

	Transfer cost per tonne L.E.	Transportation per tonne L.E.	Total cost per tonne L.E.
1977	1.153	0.272	1.425
1978	1.171	0.200	2.371
1979	1.770	0.689	2.459

f. Coke is mainly obtained from Al Nasr Coke Works which is operated as an independent company, the Al Nasr Company for Coke and Chemicals. The coke plant is included in Hadisolb's Plant at Helwan survey because it is Hadisolb's sole domestic source of metallurgical coke. In addition, the two plants are interrelated in that Al Nasr's excess coke oven gas is a source of energy for Helwan and the coke batteries are a potential customer of Helwan blast furnaces' gas. As the cost of coke represents about 50% of the total costs per tonne, the Ministerial decree No. 32 of year 1976 determines the price per tonne at LE 50. The difference between the actual cost per tonne and the price determined by that decree is paid to Al Nasr Coke as subsidy. The Government aims to keep the cost per tonne of steel as low as possible.

g. The price of fuel and energy on the following basis

- a) The price of 1000 kw electricity.
- b) The price of 1000 tripled meter of water.
- c) The price of one tonne of steam.
- d) The price of one tonne of mazout.

2. Quantity per tonne produced

This column represents estimated consumption of raw materials, fuel and energy to produce one tonne of sinter.

Conclusion

Whatever one can say about the benefits a company may gain from the use of budgetary control as a means for short term planning and control, top management and accounting personnel in Hadisolb are very knowledgeable of all of those. However, the use of planning budgets as they are called and employed in Hadisolb and all companies in the public sector in Egypt, is to fulfil government requirements which are the submission of certain forms already designed by different government agencies from which the Central Accounting Agency is the dominant one.

Budgetary control as it is carried out in Hadisolb has the following shortfalls:

1. There are no links between short-term tactical planning "Budgetary Control" and long-term corporate planning. The reason, of course, is that long-term planning has not been employed in the public sector in Egypt, neither has it been employed in the private sector. The result is that companies have no long-term objectives to achieve which can be divided into short-term annual objectives for budgets to achieve.
2. There is no clear target which the planning budgets, as called by Hadisolb, decide upon; rather, the planning budgets determine the quantities of production each production sector has to produce. However, the budgeted quantities are far less than the available capacity for each production centre. The latter is, in turn, far less than the maximum capacity as described before in the existing

facilities at Hadisalb. On the other hand, the budgeted quantities and product mix do not take into consideration the needs of the local market which badly needs iron and steel products; neither do they take into consideration the needs of the Arab and Middle East countries. What the author found in the years which his investigations cover, is that instead of having a clear profit target which has to be achieved at the end of the year, all the budgets are carefully developed to achieve heavy losses, but this is another point to discuss at a later stage.

3. In the design and development of the budgets, each producing centre is supposed to submit its initial budget before the Planning Budget Committee, which then collects all the budgets of all producing and utilisation centres and, after possible amendments, develops a consolidated budget to the company as a whole. In fact, the actual procedures are not like that. All producing centres submit a quantitative production plan from which the Planning Budget Sector develops a budget for each centre. Bearing in mind that the cost centres in Hadisalb total some 507, this means that both the Cost Accounting Sector and the Planning Budget Sector have a heavy load in developing the cost estimations and the budget for each centre. This great burden on both sectors leads to the cost estimations and budgets being miscalculated. The huge deviations between budgeted and actual performance are the main proof that budgets are not carefully tailored. This is not a suggestion that there must not be deviations between budgeted and actual performance, but,

these should be kept within reasonable limits.

4. Budgets are mainly prepared on the basis of what was done last year, adjusted for any changes in conditions anticipated for the coming year. This is a mistake as the conditions which the managers of the production and utilisation centres and the Planning Budget Committee take into consideration are certain historical circumstances, such as "stoppages" which amounted in 1979 to 43%* of the total hours worked. Budgets should be designed to satisfy the market needs accompanied with an action plan to overcome any stoppages which affect the achievements of the plans. Overcoming stoppages and the full use of available capacity could increase Hadisolb's finished production to satisfy the market needs. The full use of available capacity will reduce plans for expansion, which would not be fully utilised unless idle capacity due to stoppages is overcome.
5. Budgets are wrongly developed, taking into consideration added capacity due to projects under construction, ignoring the fact that new projects always face delays which sometimes reach two years (the case of Blast Furnace No. 4). The result is that figures in the budget will not be reached, and unreasonable deviations between actual and budgeted performance always result.
6. In developing the production budget, surveys which are carried out by the Sales Sector are not fully utilised except for product mix. Instead of using those surveys to plan for expansion to

satisfy the home market, the Arab League, Middle East countries, and some African countries.

7. The Planning Budget Committee, which is responsible for developing initial budgets which are forwarded from different production and utilisation sectors in Hadisob, ignores the Director of the Sales Sector. This means that the Sales Director has no say in forming the production policy, nor has he a say in planning for capital expenditure.
8. Planning for capital expenditure is carried out in an improper way as:
 - a) No consideration is given to the problem of cash flows.
 - b) No comparison is done between cash receipts and payments before making a capital expenditure decision.
 - c) The Director of Projects Sector did not show how exactly the Sector estimates the expected revenues and expenses due to added capacity of new projects. Rather, those estimates are to fulfil the Ministry of Finance requirements which is to fill a special booklet of Economic Studies of New Projects.
 - d) The booklet mentioned does not show that the rate of return on total capital employed is used to assess capital investment proposals as it is mentioned by the Director of Projects.
 - e) No careful consideration is given as to how the company finances its capital uses which are investment uses and capital transfer uses included in the capital budget. The

company depends for the financing of investments on self-financing, as a result of depreciation, internal and external loans, whereas it depends for financing capital transfers which are long-term foreign loans and current activity on internal loans.

f) The company also depends for the financing of its new projects on subsidies from the Government, plans being drawn accordingly. However, the Government does not give the company all the foreign currency needed for the new projects. As a result, delays always occur in new project construction damaging all the company's plans and programmes of production.

9. The wages budget is prepared mainly on a time basis; even incentives which are offered to production workers for achieving the production target for the month, become fixed. This means that production workers pick up their wages and production incentives whether the production target is achieved or not. The result is rising costs of products and unreasonable deviations between actual and budgeted wages, also unreasonable deviations between the actual and budgeted unit costs of production.
10. The Cost Accounting Sector develops cost estimations which should be the budgeted cost of a product before it is manufactured. However, those estimations are not prepared on an accurate basis, which has led to unreasonable deviations between actual and budgeted costs of production. Budgetary control should be backed with a standard cost system, a technique of cost accounting which compares the standard cost of each product or service with the

actual cost, but, there is no standards setting.

11. The cash budget shows over the year a deficit, which means that cash payments are more than cash receipts; however, the budget does not show how the company will finance the cash deficit.
12. The sales budget shows that selling prices are far less than the total cost per unit, which leaves some products with a margin of loss instead of a margin of profit. This is because of Government intervention in price determination, trying to keep steel prices down. Because of the rising cost, Hadisolb has no right to increase selling prices without having Government approval, which sometimes takes two years to obtain.
13. The monthly programmes developed by the Planning Budget Sector are merely the budgeted production for the year divided by twelve months. The result is that production centres have equal monthly production programmes despite the fact that the days of each month are not equal; in addition these monthly programmes do not take into consideration stoppages due to overall maintenance of equipment, which stop production in some production centres for more than a month every year.
14. Government ministries and government agencies intervene excessively in the forming and approval of the budget.

Chapter Thirteen

Performance Appraisal

Performance appraisal in Hadisolb is developed by two different sectors within the Financial Sector:

1. The Cost Accounting Sector starts its report of actual cost statements by carrying out a comparison between actual and estimated costs, so, the first section of this chapter will concentrate on "Variance Analysis in Hadisolb".
2. The Financial Accounting Sector develops a report called "The Annual Unified Report to Follow Up Plan Implementation and Performance Evaluation". So, the second section of this chapter will be devoted to discuss "Performance Analysis in Hadisolb".

Section One

Variance Analysis

The objective of the Author is to present a detailed description of how the Cost Accounting Sector in Hadisolb prepares a Variance Analysis Statement at the end of each year, comments and critiques will be clarified at the end of the chapter. So, the following are Variance Analysis Statements which the Cost Accounting Sector in Hadisolb prepares each year.

1. Actual and budgeted profit of production for sales.
2. Actual and budgeted selling prices.
3. Actual and budgeted quantity of production for sales.

4. Actual and budgeted processes costs.
5. Actual and budgeted costs per tonne.
6. Actual and budgeted prices of inputs.
7. Actual and budgeted yields of raw-materials.
8. Actual and budgeted quantity of production for each process.
9. Stoppages and total and actual hours of operations.
10. Actual stoppages.
11. Actual sales compared with production for sales and budgeted sales.

To show how the Cost Accounting Sector in Hadisolb develops the above mentioned variance analysis statements, the following are the variance analysis statements for year 1977 together with remarks and explanations. These are at the end of some of those statements by the Cost Accounting Sector in Hadisolb. Justifications for choosing the year 1977 in particular are:

1. No changes on selling prices occurred, so, variances have not been affected by selling prices.
2. The following years budgets have been developed including increased capacity due to bring about the Blast Furnace No. 4 in operation, however, the furnace did not start operating till July 1979, so, variances due to the late start of operating the Blast Furnace are significant.
3. Also, what has been noticed by the Author, is that adjustments have not been done to the figures included in the budgets because of the delay in putting the Blast Furnace 4 in operation.

Table 34 [1] Actual and Budgeted Margin Profit of Finished Products Year 1977

DESCRIPTION	BUDGETED PROFIT	ACTUAL PROFIT	VARIANCE TOTAL	VARIANCE ANALYSIS			COST
				PRICE	QUANTITY	MIX	
Pig Bricks "Export"	(528,923)	(342,285)	186,638	2,638,961	(2,866,213)		413,890
Pig Bricks "Local"	-	298,419	298,419	-	298,419		-
Continuous Casting Squares	(905,983)	170,012	1,075,995	646	418,451		656,898
Blooms Half Formed	-	(952,384)	(952,384)	-	(952,384)		-
Heavy Sections "Export"	(575,467)	-	575,467	-	575,467		-
Heavy Sections "Local"	(3,737,095)	(4,036,616)	(299,521)	332,015	788,794	(215,164)	(1,205,166)
Light Sections "Export"	(218,311)	-	218,311	-	218,311		-
Light Sections "Local"	(4,656,940)	(5,019,016)	(362,076)	508,925	883,925	413,741	(2,168,023)
Plates	694,169	501,325	(192,844)	(3,565)	(169,498)		(19,781)
Sheets	(238,910)	190,861	429,771	95,984	114,582	64,343	154,862
Hot Production "Export"	(1,236,458)	-	1,236,458	-	1,236,458		-
Hot Production "Local"	2,047,179	2,523,340	476,161	47,039	(547,320)	661,665	314,777
Cold Production "Export"	(2,769,724)	73,065	2,842,789	1,165,058	835,417	913,011	(70,697)
Cold Production "Local"	3,216,357	1,802,102	(1,414,255)	556,122	(909,441)	(259,648)	(801,288)
	(8,910,106)	(4,791,177)	4,118,929	5,340,541	(75,032)	1,577,948	(2,724,528)

From the previous table it is obvious that there are improvements in actual profit from finished products compared with budget. Improvements are due to the following reasons:

1. The rise in average selling price due to reduction in actual exports than the budgeted. This led to favourable variances in price amounting to LE 5,340,541.
2. The increase in the production of unprofitable products led to an unfavourable variance of LE 2,713,126.
3. The increase in producing those products which are profitable, led to a favourable variance of LE 2,895,057.
4. The decrease in producing unprofitable products led to a favourable variance of LE 5,393,617.
5. The increase in producing profitable products which led to a favourable variance of LE 139,543.
6. The change in the actual product mix from that budgeted led to a favourable variance of LE 1,577,948.
7. Due to factors which are to be discussed, the cost of production increased which led to an unfavourable variance of LE 2,724,528.

After the determination of the total variance between actual and budgeted profits of finished products, the Cost Accounting Sector in Hadisob carries out the following variance analysis.

To verify the efficiency of the technique adopted by the Cost Accounting Sector in Hadisob for variance analysis, the Author chose cold production for export. The following are the findings:

Table 35

Cold Production for Export "Year 1977"

	COST OF PRODUCTION	VOLUME OF PRODUCTION	COST PER TONNE	SELLING PRICE	MARGIN
Budgeted	6,526,244	40,000	163.156	93.913	(69.243)
Actual	2,477,210	14,750	167.947	172.900	4.953
Variances	4,049,034	(25,250)	(4.791)	78.987	74.196

a. Cost Variance = Actual Quantity Produced
x Cost Variance Per Tonne
= 14,750 x (4.791) = (70,667)

b. Volume Variance = Quantity Variance x
Budgeted Margin Per Tonne
(25,250) x (69.243) = 1,748,391

c. Selling Price Variance = Actual Quantity Produced
x Selling Price Variance Per Tonne
= 14,750 x 78.987 = 1,165,058

Table 36

Prepared with the budget Year 19.

Comparative table between Variance Analysis carried out by the Cost Accounting Sector and the Author:

VARIANCES	COST ACCOUNTING SECTOR	AUTHOR
Cost Variance	(70,697)	(70,667)
Volume Variance	835,417	1,748,391
Selling Price Variance	1,165,058	1,165,058
Product Mix Variance	913,011	-
Profit Margin Variance	2,842,789	2,842,789

According to the Author's findings it appears that:

- a. the techniques used are not correct in some aspects, for instance there is a huge difference between the Author's findings and those of the Cost Accounting Sector on volume variance
- b. the technique used by the Cost Accounting Sector to compute product Mix Variance appears to be incorrect
- c. other criticisms will be made at the end of this chapter.

Table 37

(2) Actual Selling Prices Compared with the budget "Year 1977"

DESCRIPTION	BUDGETED SELLING PRICE	ACTUAL SELLING PRICE	VARIANCE
Pig Bricks "Local"	80.000	80.055	0.055
Pig Bricks "Export"	35.880	52.004	16.124
Half Formed Blooms		102.742	-
Continuous Casting Squares	110.000	110.020	0.020
Heavy Sections "Local"	144.440	146.804	2.364
Heavy Sections "Export"	62.610	-	-
Light Sections "Local"	127.260	144.856	17.596
Light Sections "Export"	97.830	-	-
Plates	172.710	169.753	(2.957)
Sheets	183.100	196.558	13.458
Hot Production "Local"	167.950	166.748	(1.202)
Hot Production "Export"	78.260	-	-
Cold Production "Local"	204.700	200.690	(4.010)
Cold Production "Export"	93.910	172.900	78.990
Average Selling Price	136.786	168.688	31.902

The Cost Accounting Sector remarks on the above table:

- a. There was a rise in the actual average selling price compared with that budgeted for all sections, except, those of hot and cold strips. Percentages of increase in selling price per tonne between 1.6% and 13.8%.
- b. Increase in average selling price of exports between 45% and 84%. This led to a large improvement in actual profit margin compared with budget.
- c. Decrease in actual average selling price of plates and strips production by 2%.

- d. Increase in actual selling prices in general by 23% compared with budget.

[3] Actual volume of Finished Goods Compared with the Budget for Year 1977.

Table 38

DESCRIPTION	BUDGETED QUANTITIES	ACTUAL QUANTITIES	PERCENTAGE
Pig Bricks	12,000	70,000	583%
Continuous Casting Squares	60,000	32,000	53%
Half Formed Blooms	-	8,000	
Heavy Sections	72,000	55,000	76%
Light Sections	60,000	47,000	78%
Plates	36,000	27,000	75%
Sheets	17,000	7,000	52%
Hot Production	90,000	72,000	80%
Cold Production	150,000	95,000	63%
Total	493,000	413,000	84%

The Cost Accounting Sector remarks on the above table.

- a. Percentage of actual finished production to budget is 84%.
- b. Actual production of pig bricks increased because of the reduction on that budgeted due to Blast Furnace 4 not having been operated.
- c. Reduction in the actual production of continuous casting squares than budget, due to using heavy and light sections to substitute reduction in Thomas Convertors production of steel by 38%.

[4] Processes Cost Variance for Year 1977. *Computed with*

Table 39

PROCESS	PRICE VARIANCE	QUANTITY VARIANCE	OPERATING EXPENSES VARIANCE	TOTAL VARIANCE
Mines	(1,403,666)	-	(116,328)	(1,519,994)
Sintering	756,997	(377,775)	(609,361)	(230,119)
Blast Furnaces	(738,893)	2,463,816	423,834	2,148,757
Pig Casting	-	(9,324)	7,926	(1,398)
Steel	78,602	(1,040,127)	(625,780)	(1,587,305)
Blooms		(228,786)	(288,579)	(517,365)
Heavy Sections		(183,918)	(280,142)	(464,060)
Light Sections		73,787	(356,085)	(282,298)
Plates		148,991	(214,758)	(65,767)
Sheets		46,934	(44,808)	2,126
Hot Production	14,263	(19,982)	(424,237)	(429,956)
Hot Finishing		(541,920)	(177,128)	(719,048)
Cold Finishing	44,544	(448,194)	(1,540,857)	(1,944,507)
	(1,248,153)	(116,478)	(4,246,303)	(5,610,934)

The Cost Accounting Sector remarks on the above table are:

- a. Changes in actual prices of inputs than the budget led to a favourable variance of LE 155,513.
- b. Increase in actual price of transportation of new materials, led to an unfavourable variance of LE 1,403,666.
- c. Decrease in actual raw material yields led to an unfavourable variance of LE 116,478.
- d. Decrease in actual production than budget led to an unfavourable variance in operating expenses of LE 4,246,303.

[5] Actual Costs Per Tonne for Each Process Compared with Budget for Year 1977.

Table 40

PROCESSES	BUDGETED COST PER TONNE	ACTUAL COST PER TONNE	PERCENTAGE OF VARIANCE
Aswan Mines	13.142	11.609	12
Baharia Mines	3.772	4.516	(20)
Sintering	12.523	16.543	(24)
Blast Furnaces Pig Iron	80.457	78.655	2
Blast Furnaces Nos. 1 & 2	85.992	103.217	(20)
Blast Furnace 3	77.383	70.459	9
Steel	120.741	122.072	(1)
Thomas Covertors	138.946	184.795	(33)
Electric Furnaces	91.539	86.692	5
Continuous Casting	116.276	106.950	8
Hot Production	127.216	123.591	3

The Cost Accounting Sector remarks on the above table:

- a. Increase in the actual cost per tonne of Baharia mines than budget by 20%, due to decrease in actual quantity produced of 35%.
- b. Increase in the actual cost per tonne of sinter than the budget by 24% due to:
 - Increase in the actual cost per tonne of iron ore of Baharia mines.
 - Decrease in the actual quantity produced from sinter than the budget by 12% (Table 43).
 - Decrease in the actual raw materials yield by 3% (Table 42).

c. Increase in the actual cost per tonne of Blast Furnaces Nos. 1 & 2 Pig Iron than the budget by 20% due to:

- The increase in the actual cost of sinter.
- The decrease in the actual volume of production by 34% compared with budget.

d. Increase in the actual cost per tonne of Thomas steel by 33% due to:

- Increase in actual cost per tonne of sinter than budget.
- Decrease in the actual volume produced of Thomas steel by 38% than budget.
- Decrease in the actual raw materials yield by 5%.

[6] Actual Prices of Purchased Inputs compared with Budget for Year 1977

Table 41

DESCRIPTION	BUDGETED PRICES OF INPUTS	ACTUAL PRICES OF INPUTS	QUANTITY USED	PRICE VARIANCE
Local Coke	50.000	50.623	634,270	(395,150)
Imported Coke	48.000	59.365	27,030	(307,196)
Aluminium	1702.000	633.282	195	208,745
Ferro Manganise 75%	170.000	167.125	4,670	13,426
Ferro Silicon 45%	259.000	211.136	2,765	132,364
Metalic Phosphate	7.725	15.448	51,124	394,831
Russian Plates	87.000	78.535	3,194	14,263
Tin Bricks	3867.000	5318.000	44	(63,588)
Zinc Bricks	567.000	402.174	656	108,132
Miscellaneous Metals				49,686
Total				155,513

The Cost Accounting Sector remarks on the above table are:

- a. The increase in the actual prices of some inputs led to an unfavourable variance of LE 765,934.
- b. The decrease in the actual prices of the other inputs led to a favourable variance of LE 921,447.
- c. The net variance of the prices of inputs is LE 155,513 favourable, which contributed to total costs reduction.

[7] Actual Raw Materials Yields Compared with Budget for Year 1977 and the effects of variances on Quantity Variance for each Process.

Table 42

DESCRIPTION	BUDGETED YIELDS %	ACTUAL YIELDS %	VARIANCE %	VALUE OF VARIANCE
Sintering	71.400	69.300	(2.900)	(377,755)
Blast Furnaces "Coal"	0.813	-809	0.004	125,385
Blast Furnaces Sinter & Misc	2.054	1.910	0.144	2,338,431
Steel	80.500	78.200	(2.300)	(1,040,127)
Blooms	83.300	82.200	(1.100)	(228,786)
Heavy Sections	82.000	80.300	(1.700)	(183,918)
Light Sections	81.100	81.900	0.800	73,787
Plates Rolling	72.200	75.700	3.500	148,991
Sheets Rolling	78.800	82.900	4.100	46,934
Hot Rolling	94.500	94.400	(0.100)	(19,982)
Hot Finishing	95.200	94.500	(0.700)	(541,920)
Cold Finishing	94.200	92.100	(2.100)	(448,194)

The Cost Accounting Sector remarks on the above table are:

- a. Decrease in raw materials yield for sintering by 4%.

- b. Decrease in raw materials yield for steel by 3%.
- c. Decrease in raw materials yield for heavy sections by 2%.
- d. Decrease in raw materials yield for cold finishing by 2%.
- e. Improvements in raw materials yield for plates and sheets by 5%.

[8] Actual Quantities Produced compared with the Budget for Year 1977 "000's tonnes".

Table 43

DESCRIPTION	BUDGETED QUANTITIES	ACTUAL QUANTITIES	PERCENTAGE
<u>Mines</u>			
Aswan	80	94	118%
Baharia	2,000	1,304	65%
Mines Total	2,080	1,398	67%
<u>Sintering</u>			
Sinter (1)	480	335	70%
Sinter (2)	900	873	97%
Sintering Total	1,380	1,208	88%
<u>Blast Furnaces</u>			
1 & 2	240	158	66%
3	432	474	110%
Blast Furnaces Total	672	632	94%
<u>Steel Convertors & Furnaces</u>			
Thomas Convertors	180	111	62%
Electric Furnaces	48	46	95%
Continous Casting	420	355	85%
Steel Total	648	512	79%
Hot Rolling	276	200	72%

The Cost Accounting Sector remarks on the above table are:

- a. Decrease in the actual production of mines than the budget by 33%.
- b. Decrease in the actual production of sintering than the budget by 12%.
- c. Decrease in the actual production of Blast Furnaces than the budget by 6%.
- d. Decrease in the actual production of steel from budget by 21%.
- e. Decrease in the actual production of hot rolling than the budget by 28%.
- f. The decrease in the actual production from budget has contributed to the increase in the cost of production.

(9) Actual Production for Inspection and Percentage of Scrap for Year 1977.

Table 44.

DESCRIPTION	ACTUAL PRODUCTION FOR INSPECTION	SCRAP	PERCENTAGE
<u>Old Plant</u>			
Heavy Sections	55,341	3,193	5.8%
Light Sections	46,730	829	1.8%
Plates	30,919	401	1.3%
Sheets	5,416	13	0.2%
Old Plant Total	138,406	4,435	3.2%
<u>Strips "Expansions"</u>			
Hot Production	75,928		
Cold Sheets	89,134	441	0.5%
Galvanised Sheets	5,996	244	4.1%
Corrugated Sheets	977		
Rims	6,194		
Tined Sheets	1,629	17	1.0%
Strips Total	179,758	702	0.4%
Total	318,164	5,138	1.6%

The Cost Accounting Sector remarks on the above table are:

- a. The percentage of scrap from inspected production of the old plant amounted between 0.2% and 5.8% with a total percentage of 3.2%.
- b. The percentage of scrap from inspected production of strips "expansions" amounted to between 0.5% and 4.1% with a total percentage of 0.4%.
- c. The average percentage of scrap is 1.6% and the gross loss due to scrapped production amounted to LE 681,000.

[10] Actual Sales Compared with the Budget and Finished Production for Year 1977 "000's Tonne".

Table 45

DESCRIPTION	BUDGETED SALES	FINISHED PRODUCTION WITHIN THE YEAR	ACTUAL SALES	PERCENTAGE OF ACTUAL SALES TO	
				BUDGETED	FINISHED PRODUCTION
Pig Bricks	12	70	86	717%	123%
Continuous Casting Squares	60	32	32	53%	100%
Half Formed Blooms		8	8		100%
Heavy Sections	72	55	50	69%	91%
Light Sections	60	47	48	80%	102%
Plates	36	27	26	72%	96%
Sheets	13	7	7	54%	100%
Hot Production	90	72	61	68%	85%
Cold Production	150	95	87	58%	92%
	493	413	405	82%	98%

The Cost Accounting Sector remarks on the above table are:

- a. Increase in the actual sales of pig bricks by 717% than the budget. The reason is the reduction in the budgeted sales of pig bricks to 12,000 tonnes due to Blast Furnace 4 not having been operated.
- b. Decrease in actual sales of all sections than the budget; the percentages of decrease amounted to between 20% and 47%.
- c. The unfavourable variances of actual sales of heavy sections, plates, hot and cold strips compared with finished production led to increases in stock.

Section Two

Ratio Analysis and Rates of Growth

The first section of this chapter was devoted to discussing cost variance analysis as it is carried out by the Cost Accounting Sector in Hadisob. Apart from Cost Variance analysis, some other variances which the Cost Accounting Sector examines have been discussed. Having said that, evaluation of the system adopted has not been done, leaving it to the discussion at the end of the chapter. So, it remains now to discuss the second section of this chapter, which is devoted to performance analysis in Hadisob.

The Financial Accounting Sector in Hadisob has all Cost Accounting statements of actual cost and variance analysis, and the budgets and final accounts at the end of the year, and develops a report called "The Report of Performance Evaluation". This report embraces the following forms:

- [1] Basic trends
- [2] Analitical trends
- [3] Production Forms:
 - a. Finished Products
 - b. Production at fixed prices
 - c. Processes production
 - d. Production capacity according to processes, operations, and cost centres
 - e. Capacity utilisation
 - f. Quality control analysis
 - g. Quality control for production activities centres.

[4] Sales Forms:

- a. Total of actual sales
- b. Actual exports
- c. Actual home sales
- d. Finished products movement
- e. Actual costs per tonne compared with selling prices

[5] Manpower Forms:

- a. Manpower and wages
- b. Permanent Manpower growth
- c. Net available working days
- d. Absence for abnormal reasons

[6] Purchases Forms:

- a. Purchases and inputs and their purchase price
- b. Inputs used and stock movement
- c. Analysis of changes in purchase price for raw materials used

[7] Foreign Currency Forms:

Cash provisions for inputs and investments

[8] Cost and Profit Forms:

- a. Cost of unit analysis
- b. Marginal Profit of sales
- c. Statement of operations surplus and its annexes

[9] Production and Value Added Form

[10] Financial Analysis for the Sources and Uses of Funds Forms

- a. Comparison statement for long term sources and uses of funds
- b. Detailed statement for long term sources of funds
- c. Comparison statement for fixed uses "Fixed assets"
- d. Detailed comparison for current assets
- e. Detailed statement of current liabilities

[11] Investments Follow-up Forms:

- a. Situation of costs for projects under construction
- b. Situation of costs for projects under construction within the financial year ended
- c. Expenditure position
- d. Sources and uses of funds for projects under construction
- e. Situation of the implementation of factories equipments completion project.

[12] Miscellaneous Forms:

- a. Statement of sources and uses of funds
- b. Statement of cash flow

From the above list, it is apparent that the Financial Accounting Sector in Hadisob is asked to develop a huge number of forms which form the Report of Performance Evaluation". All these forms are imposed by the Standardised Accounting System (SAS). It is apparent also that most of these forms do not serve the performance analysis objective. Having said that, the Author will concentrate upon those forms which, from his point of view, are useful for the purpose of performance analysis in Hadisob, the subject of this section of

the current chapter. Having said that, it does not mean that the forms chosen for discussion are perfect. Evaluation of the system used for performance analysis in Hadisolb will be presented at the end of the cha

[1] Basic Trends:

These trends cover production valued at selling price, sales both home and export, profit or loss, and value added at production factors cost. The trends are mainly a comparison between actual and budgeted trends for last year and actual trends of the year before.

The following table embraces the basic trends for year 1977 "000's LE".

Table 46

DESCRIPTION	BUDGETED FOR YEAR 1977	ACTUAL FOR YEAR 1977	ACTUAL FOR YEAR 1976	PERCENTAGE OF OBJECTIVES REALIS- ATION	PERCENTAGE OF GROWTH
[1] <u>Production</u>					
- Value of Production at Market Price	85,570	87,364	74,314	102%	118%
- Finished Production at Current Price	-	65,345	-	-	-
- Finished Production at Estimated Price	81,713	64,029	-	78%	-
- Finished Production at Last Year's Prices	-	63,563	62,731	101%	-
[2] <u>Sales</u>					
Total sales	74,334	61,594	58,357	83%	106%
Export sales	6,268	2,202	5,370	35%	41%
[3] Total loss	(14,220)	(14,284)	(24,939)	101%	57%
[4] Value Added at Production Factors Costs	3,701	3,998	(8,985)	108%	144%

[2] Analytical Trends:

This is mainly a ratio analysis process which embraces ratios of the year just ended compared with those of the year before.

The following table shows the actual ratios for year 1977 compared with year 1976.

Table 47

DESCRIPTION	1976	1977	GROWTH
<u>(1) Rate of Return</u>			
- Net profit of current activities/ total capital employed without projects under construction	(8.1)%	(5.0)%	3.1%
- Net profit of current year's activities/ total capital employed without projects under construction	(8.4)%	(4.8)%	3.6%
- Surplus/ total capital employed without projects under construction	(8.0)%	(4.3)%	3.7%
<u>(2) Profitability</u>			
Gross profit/sales	(29.4)%	(12.3)%	17.1%
Net profit of current activities/sales	(42.9)%	(27.0)%	15.9%
<u>(3) Stock Efficiency</u>			
- Storage period of finished products at selling price (closing balance is taken into account)	2.4 month	2.8 month	0.4 month
- Storage period of purchased raw materials (closing balance is taken into account)	13.1 month	14.4 month	1.3 month
<u>(4) Productivity</u>			
- Capacity utilisation of production lines*	LE 3,068	LE 3,630	LE 562
- Manpower Productivity	LE 5,290	LE 5,262	LE (0.028)
- Pound Egypton Productivity	8.1%	5.4%	LE 2.7%
- Absence for abnormal reasons			

Ratio Analysis (Continued)

DESCRIPTION	1976	1977	GROWTH
<u>(5) Financial Ratios</u>			
- Long term financial resources/fixed assets	98.2%	102.8%	4.6%
- Current ratio	93%	109.0%	16%
- Liquidity	(23%)	(14.8)%	8.2%
- Quick Liquidity (Cash)	(23%)	(14.8)%	(23.6) day
- Average of collection period	89.4 day	113 day	(23.6) day
- Average of credit period	82.8 day	104 day	21.2 day

It follows now to discuss terminologies used in the above table and to explain how the Financial Accounting Sector in Hadisob develops the financial ratios:

1. Net profit without taking into consideration imputed revenue and expenses, or revenues and expenses which do not relate to current activities.
2. Net profit of current year activities is net profit before tax.
3. Surplus/deficit: is net profit or loss after tax.
4. Total capital employed is computed as follows for year 1977

(LE 000's)

Fixed assets (deferred operating expenses and projects under construction are included)	298,913
Minimum stock of spares	29,244
Net working capital	9,074
	<hr/>
	337,231
- Projects under construction	5,401
	<hr/>
Total capital employed	331,830
	<hr/>

5. Storage period of finished products
= Finished products in stock at the end of the year
at selling price \div monthly average sales.

6. Storage period of purchased raw materials:
= Raw materials in stock at the end of the year priced
at moving average price \div monthly average uses

7. Capacity utilisation of production lines: a table will
be presented later (Table 49).

8. Manpower Productivity
= $\frac{\text{Value of production at production factors costs}}{\text{Average of work force}}$

9. Pound Egyptian wages productivity
= $\frac{\text{Value of production at production factors costs}}{\text{Average labour costs}}$

10. Absence Ratio for abnormal reasons

$$= \frac{\text{Absence days for abnormal reasons}}{\text{Net working days available}}$$

11. Quick liquidity

$$= \frac{\text{Cash in hand + cash at banks}}{\text{Current liabilities}}$$

[3] Capacity Utilisation of Production Lines: this represent in detail capacity utilisation within the year which the Author pointed out in the analitical trends. The following table shows capacity utilisation of production lines for the period from 1.1.77 till 31.12.77.

Table 48

PROCESSES	1976 TRENDS %	1977 TRENDS %	GROWTH
Sinter 1 Machine 1	56.8	61.9	(5.1)
Sinter 1 Machine 2	62.3	65.2	2.9
Sinter 2 Machine 1	81.1	34.9	(46.2)
Sinter 2 Machine 2	78.6	51.6	(27.0)
Sinter 2 Machine 3	-	50.6	50.6
Sinter 2 Machine 4	-	52.0	52.0
Blast Furnace No. 1	56.8	84.7	27.9
Blast Furnace No. 2	68.9	60.0	(8.9)
Blast Furnace No. 3	91.7	88.3	(3.4)
Thomas Convertors	16.1	60.1	44.0
Electric Furnaces	52.4	54.4	2.0
Oxygen Convertors & Continous Casting	41.7	52.1	10.4
Blooms Rolling	45.4	44.3	(1.1)
Heavy Sections	41.1	49.7	8.6
Light Sections	45.5	49.0	3.5
Plates Rolling	51.4	38.8	(12.6)
Sheets Rolling	55.5	39.9	(15.6)
Hot Strips Rolling	40.6	44.9	4.3
Cold Strips Rolling	58.9	55.6	(3.3)

* The previous table is computed according to utilisation of machines capacity in hours for production lines, and it is prepared according to the following table which shows in detail available capacity in hours, budgeted hours for production, actual worked hours, and the stopages and its causes.

Table 49 CAPACITY UTILISATIONS FOR YEAR 1977

Processes	IDLE CAPACITY IN HOURS														Actual capacity used: Available	Actual capacity used: Budgeted	Budgeted capacity: Available
	Available Capacity	Budgeted Capacity	Actual Capacity Used	Actual Stoppages	Maintenance Electrical Hy	Running out of Raw Materials	Additions of Furnaces	Unavailable Inputs	Unavailable Workers	Utilities Stoppages	Steel + Blast Stoppages	Movement Stoppages	Coke Gas Cut Off	Furnaces Gas Cut Off			
Sinter 1 Machine 1	8,760	6,964	5,422	3,338	1,311	559	1,317		45	49			57		62	77.8	79.5
Sinter 1 Machine 2	8,760	6,964	5,714	3,046	1,124	538	1,217		44	62			61		65	82	79.5
Sinter 2 Machine 1	8,760	6,964	3,055	5,705	4,928	223	529			25					34	44	79.5
Sinter 2 Machine 2	8,760	6,964	4,519	4,241	2,229	316	1,640			55			1		51.5	65	79.5
Sinter 2 Machine 3	8,016	6,373	4,055	3,961	2,646	234	1,036			45					50.5	63.5	79.5
Sinter 2 Machine 4	2,808	2,232	1,461	1,347	502	64	770			11					52	65.5	79.5
Blast Furnace 1	8,760	8,147	7,416	1,344	311	465	24			4					84.5	91	93
Blast Furnace 2	8,760	8,147	5,259	3,501	1,081	334	1,266								60	81.6	93
Blast Furnace 3	8,760	8,147	7,738	1,022	365	151	251		67	4					88	95	93
Thomas Convertors	8,760	8,760	5,265	3,495	994	1,303	1,011		37	5			85		60	60	100%
Electric Furnaces	17,520	12,229	9,528	7,992	2,897	4,019	781		68						54	78	69.8
Oxygen Convertors & Continuous Cat.	8,760	8,760	4,561	4,199	744	2,434	56		80	175			43		52	52	100
Blooms Rolling	8,760	5,387	3,882	4,878	3,343	1,510				25					44	72	61.5
Heavy Sections	7,680	5,225	3,814	3,866	1,472	2,360				34					49.5	73	68
Light Section	8,712	4,835	4,267	4,445	2,595	1,782	26			37					49	88	55.5
Plates Rolling	8,736	6,421	3,388	5,348	4,041	1,222				72					39	53	73.5
Sheets Rolling	8,280	6,914	3,303	4,977	4,043	374	265			13					40	48	83.5
Hot Strips Rolling	4,433	4,437	1,990	2,443	663	1,139			47	24					45	45	100
Cold Strips	6,536	6,541	3,632	2,904	1,571	1,266			31	36					55.5	55.5	100
	160,321	130,411	88,269	72,052	36,860	20,293	10,189		419	672		1,548	247	922			
Percentage to Available Capacity	-	81	55	45	23	12.7	6.4										
Percentage to Budgeted Capacity		-	67.7	55	28	15.6	7.8										
Percentage to Total Stoppages					51	28	14	1.2	.8	.9	2	0.4	1.3				

[4] Finished Production

The Financial Accounting Sector develops this table which shows a comparison between budgeted and actual production of the year and between actual production for the year and last year. It also shows the percentage of objective achievement and the percentage of growth in finished production.

Table 50

DESCRIPTION	BUDGETED PRODUCTION 1977	ACTUAL PRODUCTION 1977	ACTUAL PRODUCTION 1976	OBJECTIVE ACHIEVEMENTS %	GROWTH %
<u>Production of Finished Products</u>					
- Net Sales	73,204,000	58,886,136	56,275,233	80	105
- Change in Inventories of Finished Production at Cost	-	1,265,599	1,593,911		
- Finished Production Re-valuation Adjustments* (1)	-	1,160,456	(974,192)		
Total (1)	73,204,000	61,312,191	56,894,952	84	108
Receipts of work done to others	250,000	1,876,659	1,434,111	751	130
Sales of Services	880,000	830,787	647,454	94	128
Total (2)	1,130,000	2,707,446	2,081,565	240	130
Total (3) = (1) + (2)	74,334,000	64,019,637	58,976,517	86	109
- Difference between export selling price and home price	6,829,000	444,525	2,763,368	7	16
- Misc. sales expenses* (2)	550,000	305,445	184,332	56	166

Table 50 (Continued)

DESCRIPTION	BUDGETED PRODUCTION 1977	ACTUAL PRODUCTION 1977	ACTUAL PRODUCTION 1976	OBJECTIVE ACHIEVEMENTS %	GROWTH %
- Taken by Departments and Repairs at selling price	-))) 575,939)))))) 807,183)))	-	71
- Re-operated at selling price	-))		
- Misc.	-))		
Total 4		1,325,909	3,754,883	-	35
Total 5 = 3 + 4	81,713,000	65,345,546	62,731,400	80	104

1. Finished Production Revaluation Adjustment (difference between selling price and cost price).

2. Sales expenses include LE 64,811 returns.

[5] Finished Production at Home Selling Prices

These are comparisons between the actual finished products for the year both quantities and values with:

- a. The budgeted finished products for the same year, both quantities and values.
- b. The actual finished products for the previous year, both quantities and values.

The variances between actual and budgeted finished products for the year appear in a separate column called "Percentage of Objective Realisation"; the variances between actual finished production for the year compared with the previous year appear in a separate column called "Percentage of Growth".

The following table illustrates what the Financial Accounting Sector does for finished production performance evaluation. The table compares the actual finished products for year 1977 compared with:

- a. The budgeted finished products for year 1977.
- b. The actual finished products for year 1976.

The table also shows:

- a. Percentage of objective realisation for year 1977.
- b. Percentage of growth for year 1977.

Table 51

[5] Finished Production at Fixed Prices (Finished Production at Home Selling Price).

PRODUCTION	BUDGETED PRODUCTION 1977		ACTUAL PRODUCTION 1977				ACTUAL PRODUCTION 1976		OBJECTIVE ACHIEVEMENT		GROWTH	
	QUANTITY	VALUE	QUANTITY	VALUE			QUANTITY	VALUE	Q	V	Q	V
	TONNE	L.E	TONNE	BUDGETED PRICE	CURRENT PRICE	1976 PRICE	TONNE	L.E.	%	%	%	%
a. Old Plant Main Products												
Blooms Half Formed			7,511	1,074,093	771,709	655,272	5,737	561,857	-	0	131	117
Heavy Sections	72,000	10,393,000	55,364	7,811,007	8,136,507	7,591,269	51,947	8,042,166	77	75	107	94
Light Sections	60,000	7,675,000	46,730	6,174,109	6,781,789	6,266,117	45,169	6,037,385	78	80	103	104
Plates	36,000	6,218,000	27,210	4,700,469	4,696,024	4,711,471	37,026	6,356,265	76	76	73	74
Sheets	12,600	2,307,000	6,561	1,239,656	1,330,734	1,249,633	9,395	1,731,339	52	54	70	73
Total	180,600	26,593,000	143,376	20,999,334	21,716,763	20,473,762	149,274	22,729,012	79	79	96	90
b. Strips Main Products												
Hot Strips	90,000	15,384,000	71,863	12,219,359	12,172,035	12,182,815	61,612	10,538,772	80	79	117	116
Cold Strips	150,000	30,017,000	95,410	18,412,030	19,085,824	18,508,498	89,730	17,334,750	64	61	106	107
Total	240,000	45,401,000	167,273	30,631,389	31,257,859	30,691,313	151,342	27,873,522	70	67	111	110
c. By Products												
Fertiliser	30,000	300,000	30,087	274,534	244,310	209,176	26,570	187,106	100	92	113	112
Blast Furnaces Gas	3,000	23,000	2,858	24,139	24,139	24,139	2,526	18,946	95	105	113	127
Scrap	344,000	206,000	323,304	193,982	193,658	193,982	292,680	175,625	94	94	110	110
Sundries	-	500,000		25,370	25,370	25,370	-	85,170		5		30
Total		1,029,000	356,249	518,025	487,477	452,667	321,776	466,847		50		97
d. Work done for others		250,000		1,876,659	1,876,659	1,876,659		1,434,111		751	-	131
e. Sales of Services		880,000		830,786	830,786	830,786		647,454		94	-	128
Total "Old Plant"		74,153,000		54,856,193	56,169,544	54,325,187		53,150,946		74	-	102
f. Expansions Main Products												
Pig Iron	12,000	960,000	70,258	5,620,640	5,623,673	5,621,764	95,799	7,665,452	585	585	73	73
Continuous Casting Slabs	60,000	6,600,000	32,288	3,551,683	3,552,329	3,615,517	17,079	1,912,412	54	54	189	189
							14	2,590				
Total "Expansions"	72,000	7,560,000	102,546	9,172,323	9,176,002	9,237,281	112,892	9,580,454	142	121	91	96
Total Production		81,713,000		64,028,516	65,345,546	63,562,468		62,731,400		78		101

[6] Sales Evaluation

This embraces comparisons between actual sales of the year both quantities and values with:

- a. Budgeted sales for the same year both quantities and values.
- b. Actual sales of the previous year both quantities and values.

The comparison between the actual and budgeted sales of the year is called "Percentage of Objective Realisation, and the comparison between the actual sales of the year and the previous year is called "Growth Percentage".

In addition to the comparisons mentioned above, the Financial Accounting Sector also develops the following:

- a. A comparison between actual and budgeted home sales for the year, and between actual home sales for the year and the previous year.
- b. A comparison between actual and budgeted export sales for the year, and actual export sales for the year and the previous year.

The tables for sales evaluation are developed on the same basis which the previous form for finished products evaluation takes, and the Author find no justification for repeatness.

[7] Actual Total costs per Tonne compared with selling prices

The objective of developing such Form is to compare the actual total cost per tonne of each main product with selling prices. The actual total cost per tonne as computed by the Cost Accounting Sector in Hadisolb.

= Costs of production per tonne

+ Marketing, Administrative and Financial Expenses per tonne

Table 52

Actual Total Costs per Tonne Compared with Selling Prices for Years 1976 and 1977.

PRODUCTS	ACTUAL FIGURES FOR YEAR 1977										ACTUAL FIGURES FOR YEAR 1976									
	TOTAL COSTS PER TONNE					AVERAGE SELLING PRICE					TOTAL COSTS PER TONNE					AVERAGE SELLING PRICE				
	COST OF PRODUCTION	MARKETING ADMIN ISTRATIVE & FINANCIAL				TOTAL	HOME	EXPORT WITHOUT SUBSIDIES			COST OF PRODUCTION	MARKETING ADMIN ISTRATIVE & FINANCIAL				TOTAL	HOME	EXPORTS WITHOUT SUBSIDIES		
		FREE	AGREEMENT	FREE	AGREEMENT			FREE	AGREEMENT											
Main Factories Products																				
Square Blooms ½mm	229	538	33	742	263	280	102	742												
Heavy Sections	219	875	32	222	252	197	146	804	214	879	26	860	241	739	151	361	146	387		
Light Sections	252	530	37	122	289	652	144	856	281	040	35	130	316	170	134	195				
Plates	154	158	22	661	176	819	169	753	148	756	18	595	167	351	160	388				
Sheets	173	747	25	541	199	288	196	556	192	509	24	064	216	573	185	315				
Strips Main Products																				
Hot Strips	135	427	19	908	155	335	162	177	136	479	17	060	153	539	162	702	164	500		
Hot Sheets & Plates	132	753	19	515	152	268	177	185	135	477	16	935	152	412	176	840	134	131		
Plates	132	777	19	518	152	295	251	440												
Cold Sheets	167	947	24	688	192	635	190	667	168	131	24	715	192	846	188	030	159	979	50	132
Rims	177	697	26	121	203	818	212	230	186	659	23	332	209	991	211	829	199	506		
Tin Plate	443	312	65	167	508	479	348	779	622	709	77	839	700	548	339	023				
Galvanised Tin	240	144	35	301	275	445	272	339	279	080	34	885	313	965	215	657				
Corrugation Tin	228	327	33	564	261	891	203	-	264	164	33	021	297	185	240	200				
By Products																				
Fertiliser	6	665			6	665	12	-	8	916			8	916	7	-	16	069		
Expansions Products																				
Pig Bricks	74	643	10	973	85	616	80	055	94	199	11	775	105	971	80	-	70	661	39	784
Squares	104	755	15	399	120	154	110	020												

The form also shows the actual total costs per tonne for each main product for the previous year. However, the form does not show the profit or loss per tonne for each product, nor does it show any comparison between the two successive years. Table 52 shows a comparison between the actual total costs per tonne and selling price for each main products for year 1976 and 1977.

[8] Net Available Working Days

This form shows the total available working days within the year, deducted from them the total of absence days for normal reasons, to show the net available working days within the year. The form also shows some details for the previous year for comparison. The following table shows the net available working days for year 1977 compared with year 1976.

Table 53

DESCRIPTION	1977 WORKER/DAY	1976 WORKER/DAY	% GROWTH
<u>Total Available Working Days</u>	8,521,880	8,515,222	100
<u>Absence Days for Normal Reasons</u>			
Bank Holidays	313,297	300,701	104
Weekends and day offs	1,159,272	1,116,664	104
Yearly Holidays	521,198	521,106	100
Studying & Training	2,146	2,172	99
National Duties	228,130	364,648	63
Miscellaneous	39,763	16,002	248
Normal Absence	2,263,806	2,321,293	97
Net Available Working Days	6,258,074	6,193,929	101

[9] Absence for Abnormal Reasons

This form shows absence for abnormal reasons within the year, compared with the previous year. It also shows the percentage of each reason for absence related to net available working days.

The following table shows absence for abnormal reasons for year 1977 compared with year 1976.

Table 54

DESCRIPTION	1977 DAY/ WORKER	1976 DAY/ WORKER	PERCENTAGE TO NET AVAILABLE WORKING DAYS	
			1977	1976
Sickness	249,787	228,571	4.0	3.7
Work Accidents	27,914	22,281	0.4	0.4
Absence without permission	8,188	124,129	0.1	2.0
Absence with permission	58,991	124,106	0.9	2.0
Total Absence for Abnormal Reasons	418,573	499,087	5.4	8.1

[10] Analysis of Changes in Prices of used Raw-Materials Purchased

This analysis is carried out as follows:

- a. Calculation of the quantity used of each raw material purchased within the year.
- b. Pricing the raw materials used at year ended prices and at last year's prices.

- c. Finding out the changes in purchase value by carrying out a comparison between the two purchase values.
- d. Finding out the net changes in purchase value of used raw materials.

[11] Analysis of Changes in Profit Margin of Finished Products Sales

This analysis is carried out to find out the variances in profit margins for each product. The comparison is done between the profit margin of the year ended and the previous year. Then an analysis of the variances is carried out to determine the causes of variances as follows:

- a. Variance due to the average selling price.
- b. Variance due to the average cost per tonne.
- c. Variance due to the volume and product mix.

The method employed to determine the type of variance is the same as indicated when discussing actual and budgeted profit margin of finished products.

[12] Surplus of Operation Results

This statement embraces a comparison between actual and budgeted surplus of operation results for the year, and a comparison between actuals for the year and the previous year.

To form an opinion of how this statement is built up and its contents, the following is the surplus of operations results of year

1977 compared with the budget for the same year and the actual for year 1976 in LE 000's.

Table 55

DESCRIPTION	BUDGETED 1977	ACTUAL 1977	ACTUAL 1976
[1] Changes in inventory of unfinished products at cost	(7,535)	(11,517)	(5,009)
<u>Wages</u>			
Production Wages	5,552	6,847	5,653
Production Services Wages	6,614	8,495	6,884
Commodity Inputs	62,253	61,070	59,669
Non-Commodity Inputs	6,323	7,098	5,813
Current Transfer Expenses	16,377	11,456	11,723
Cost of Production	89,684	83,449	84,733
Minus: Scrap	-	(9,847)	(8,302)
Net Cost of Finished Production	89,684	73,602	76,431
Minus: Changes in Inventory of Finished Production at cost	-	(1,266)	(1,594)
Production Cost of Sales (1)	89,684	72,336	74,837
<u>Revenues of Current Activity</u>			
Net Sales	73,204	58,886	56,275
Work done for others	250	1,877	1,434
Sales of Services	880	831	647
Cost of Producing Capital Assets for own use	3,701	-	-
Subsidies for Production	-	3,492	-
Total (2)	78,035	65,085	58,357
Gross Profit of Production Activity	(11,649)	(7,251)	(16,480)
Profit of Goods for re-sale	-	-	-

Surplus of Operations Results (Continued)

DESCRIPTION	BUDGETED 1977	ACTUAL 1977	ACTUAL 1976
[2] Total Deficit	11,649	7,251	16,480
Costs of Marketing Services	242	299	650
Total Deficit of Production & Trading	11,891	7,550	17,130
[3] <u>Profit & Loss Account</u>			
Total Deficit of Production & Trading	(11,891)	(7,550)	(17,130)
Costs of Administrative & Financing Services	(1,035)	(9,100)	(7,916)
Net Deficit of Current Activity	(12,926)	(16,650)	(25,046)
<u>Revenues & Expenses do not relate to current activity</u>			
Current Ear Marked Transfers (Previous Years Expenses and capital losses are not included)	(1,476)	(196)	(1,872)
Receipts from Securities	18	10	3
Transfer Receipts	166	964	916
Net Profit/Loss for Current Year	(14,218)	(15,872)	(26,000)
Reconciliations concerning previous years, capital gains and losses	-	1,592	1,062
Surplus/Deficit before income taxes	(14,218)	(14,280)	(24,938)
Income taxes	(2)	(4)	(1)
Surplus/Deficit	(14,220)	(14,284)	(24,939)

[13] Sources and Uses of Long Term Finance

The Financial Accounting Sector develops such a form which shows the long term sources of finance and the long term uses. A comparison is done between sources and uses for two successive years to form the changes in the structure of both long term sources and uses.

The following table shows the statement of comparison of long term sources, invested capital, and long term uses.

In addition to the above mentioned statement, another detailed one is developed to show in detail all long term sources and uses of finance.

Long term Sources & Uses of Finance (LE 000's)

Table 56

DESCRIPTION	BALANCE AT 31.12.77			BALANCE AT 31.12.76			CHANGES
	SUB-TOTAL	TOTAL	%	SUB-TOTAL	TOTAL	%	
<u>[1] Long Term Sources</u>							
<u>Internal Sources</u>							
Owned Capital	19,999			19,000			
Government Contribution (after 30.6.76)	230,764			205,457			
Reservations	2,303			2,004			
Surplus C/F (Deficit)	(38,753)	213,314	63	(24,469)	201,992	64	11,322
Equity Capital		80,196	24		63,410	20	16,786
Provisions for Depreciation							
Total of Internal Sources (1)		293,510	87		265,402	84	28,108
<u>External Sources</u>							
Government Contribution							
(to be paid) before 30.6.67	5,525			5,525			
Local long term loans	37,154			42,543			
Foreign long term loans	1,041			994			
Total of External Sources (2)		43,720	13		49,062	16	(5,342)
Total of long term sources (1 + 2)		337,230	100		314,464	100	22,766
Total Capital Employed		337,230	100		314,464	100	22,766

Table 56 (Continued)

DESCRIPTION	BALANCE AT 31.12.77		BALANCE AT 31.12.76		CHANGES
	SUB-TOTAL	TOTAL	SUB-TOTAL	TOTAL	
		%		%	
[2] <u>Long term uses</u>					
Fixed Assets (Deferred Expenses Included)	293,511	87	287,632	92	5,879
Projects under construction	5,401	2	3,725	1	1,676
		298,912		291,357	7,555
<u>Investments</u>					
Minimum Limit of Inventory in Spare Parts	29,244	8	28,995	9	2,491
+ Net Working Capital	9,074	3	(5,888)	(2)	14,961
		38,318		23,107	
		337,230		314,464	22,766
		100			

[14] Comparative Statement of Current Assets and Current Liabilities

This statement is developed to show in detail current assets and current liabilities at the end of the financial year compared with last year's figures. So, the statement shows changes in both current asset and liabilities with their effect on working capital.

The following is the comparative statement of current assets and current liabilities for year's 1976 and 1977 (LE 000's).

Table 57

DESCRIPTION	BALANCE AT 31.12.77		BALANCE AT 31.12.76		CHANGES	
	SUB-TOTAL	TOTAL	%	SUB-TOTAL		TOTAL
<u>Current Assets</u>						
Inventory	79,517		73	57,774		71
Securities	140			61		79
Debtors	20,530		19	15,998		19
Miscellaneous Debtors	7,257		7	5,253		6
Cash	712		1	3,638		4
Total of Current Assets		108,156	100		82,724	100
<u>Current Liabilities</u>						
Provisions	4,831		5	5,772		7
Bank Overdrafts	15,356		15	24,030		27
Creditors	43,654		44	23,775		26
Miscellaneous Creditors	35,691		36	35,034		40
		99,082	100		88,611	100
Working Capital		9,074			(5,887)	
						14,961

CONCLUSION

Actual performance is compared with budget to find out any deviations from the budget. The objective is to benefit from any favourable deviations and to take corrective action upon unfavourable ones. The starting point in carrying out variance analysis is to find out the total variance, which is the difference between budgeted and actual income. Then, the total variance has to be analysed into its types to find out how much each type of variance attributes to the total variance.

Variance analysis as it is carried out in Hadisob has the same objectives, however, the following shortfalls are identified.

1. Variance analysis does not at present concern line managers, for variance analysis to be effective, line managers and supervisors must involve themselves or must be involved in tracing the reasons for variances, in order to take any necessary action to prevent variances occurring in the future.
2. There is no personal contact between the planning budget staff and line managers.
3. There is no degree at which the variances should be regarded as serious, and the stage at which action should be taken.
4. Controllable and non controllable variances are not recognised in order that responsibilities of controllable variances can be identified.

5. The variance analysis is carried out six months after the year-end, which means that any corrective action will be applied two years in arrears, if at all.
6. No consideration is given to the profit variance which is the result of a comparison between actual and budgeted profit. Rather, a profit margin variance on finished products is identified which is considered as a total variance and analysed to the following elements:
- a. Price Variance
= Actual Quantity Produced x Price Variance per Tonne
 - b. Quantity Variance
= Quantity Variance in Tonnes x Budgeted Margin Profit per Tonne
 - c. Cost Variance
= Actual Quantity Produced x Cost Variance per Tonne
(Budgeted Cost per Tonne - Actual Cost per Tonne)
 - d. Product Mix Variance
= Total Variance - (Price Variance + Quantity Variance + Cost Variance)

My comments on those procedures are:

- a. Total variance should be the result of a comparison between budgeted and actual profits.
- b. No one can dispute that Hadisob is wrong in considering the profit margin on finished products as actual. Actual profit is the profit achieved from products sold.

- c. To consider the profit on finished products, it means that profit included in products inventoried is taken into consideration, and this differs from world wide accounting principles and practices.
- d. As the total variance as calculated in Hadisolb is wrong, it follows that its elements are wrong. An optimal variance analysis will be presented as a possible improvement at the end of the thesis.
7. Carrying out a comparison between actual volume of finished goods with the budget has no meaning. As a means of controlling production centres, the comparison should be between actual and budgeted volume of production. In addition, variances should be reported instead of having the rate of growth which is the percentage of actual production to the budget.
8. Sales price variance is carried out properly except that the list which the Cost Accounting Sector in Hadisolb develops shows the sales variance per tonne of each product. This should be multiplied by the actual quantity sold of each product to obtain the selling price variance for each product, then the total will be the selling price variance for all products.
9. Sales volume variance is carried out incorrectly, as the actual quantity of goods sold is compared with the budgeted for the same year to obtain what is called objective achievement. Then the actual quantity of goods sold in the year is compared with that of the previous year to obtain what is called the rate of

growth. Sales volume variance to be effective for controlling marketing activities, should be calculated as follows:

Sales volume variance:

$$\begin{aligned}
 & [\text{Actual Quantity sold} \times \text{standard selling price}] \\
 & - [\text{Budgeted quantity} \times \text{standard selling price}]
 \end{aligned}$$

10. A test is carried out to examine the accuracy of processes cost variance as carried out by Hadisolb. The Heavy Section Process for year 1977 is chosen. The findings and comments follows:

Table 58

	BUDGETED	ACTUAL	VARIANCE
Quantity	72,000	55,364	16,636 U
Raw Materials Transferred	191.290	210.029	18.739 U
Scrap	7.420	10.002	2.582 F
Net Raw Materials	183.870	200.027	16.157 U
<u>Operating Costs:</u>			
Wages	2.432	2.210	0.222 F
Fuel & Energy	1.629	2.271	0.642 U
Spares & Consumables	2.410	3.729	1.319 U
Workshops Services	1.291	1.284	0.007 F
Overheads	7.026	10.354	3.328 U
Total Operating Costs	14.788	19.848	5.060 U
Total Cost	198.658	219.875	21.217 U
Raw Materials Yields	82.2%	80.3%	1.9% U

Cost Variance Analysis According to the Author's findings
Total Variance = Actual Quantity Produced x Cost Variance
per Tonne

$$= 55,364 \times (21.217) = (1,174,658)$$

The total variance is analysed in the following:

a. Raw Materials Variance:

$$\begin{aligned} & \text{Actual quantity produced} \\ & \quad \times \text{Net transferred Cost per Tonne Variance} \\ & = 55,364 \times (16.157) = 894,516 \text{ U} \end{aligned}$$

Raw Materials Variance is due to two factors:

i. Raw Material usage:

$$\begin{aligned} & \text{Actual Raw Materials consumed} - (\text{Standard Raw Material} \\ & \text{Usage per Tonne} \times \text{Actual Quantity Produced}) \\ & \quad \times \text{Average Transfer Cost Per Tonne} \\ & = 68918 - (1.219 \times 55,364) \times 168.722 \\ & \quad \quad \quad = 241,278 \text{ U} \end{aligned}$$

ii. Transferred Cost of Raw Materials

$$\begin{aligned} & = \text{Transferred Cost of Raw Materials per Tonne Variance} \\ & \quad \times \text{Actual Quantity Produced} \\ & = (14.381) \times 55,364 = 796,188 \text{ U} \end{aligned}$$

iii. Sales Value of Scrap Variance

$$= \text{Share of Tonne Produced on Sales}$$

$$\begin{aligned} & \text{Value of Scrap Variance} \times \text{Actual Quantity Produced} \\ & = 2.582 \times 55,364 = 142,950 \text{ F} \end{aligned}$$

From the above calculations factors affecting Raw Materials
Variance are as follows:

Raw Materials Usage Variance	=	241,278 U
Transferred Cost Variance	=	796,188 U
Scrap Value Variance	=	<u>142,950 F</u>
Net Value of Raw Materials Variance		<u>894,516</u>

b. Operating Expenses Variance:

Actual Quantity Produced x Operating Expenses
Variance Per Tonne

$$= 55,364 \times (5.600) = 280,142 \text{ U}$$

Heavy Section Process Cost Variance:

Raw Materials Variance	=	894,516 U
Operating Expenses Variance	=	<u>280,142 U</u>
		<u>1,174.658 U</u>

Heavy Section Cost Variance Analysis according to Hadisolb
(Table 39)

Total Variance	=	464,060 U
Quantity Variance	=	183,918 U
Operating Expenses Variance	=	280,142 U

The following shortfalls are recognised in Hadisolb's Cost Variance
Analysis:

- a. Many variances are not carried out correctly.
- b. No consideration is given to the analysis of raw materials
variance into its elements, to identify responsibilities;
for instance, the quantity variance due to Heavy Section Cost

Variance is incorrect, but also the shared nature of the responsibilities is not made clear. According to the author's findings, these shared responsibilities can be identified as follows:

- i. Raw Materials Usage Variance:
The Manager of Heavy Section Sector.
- ii. Transferred Cost Variance:
The Manager/s of previous process/processes.
- iii. Scrap Value Variance:
The Manager of the Sales Sector.

Hadisolb carries out the processes of cost variance analysis incorrectly. This means that corrective action, if any, will not be directed in the right direction, which leads to the conclusion that there is no point in Hadisolb carrying out variance analysis.

11. The cost variance per tonne is not analysed into its elements (Table 40) as to whether it is due to:
 - a. Purchased inputs variance.
 - b. Transferred costs from previous process/processes variance.
 - c. Wages variance.
 - d. Fuel and energy variance.
 - e. Spares and consumables variance.
 - f. Workshops service variance.
 - g. Overheads variance.

It is very important to analyse the cost variance per tonne into its elements, as each variance needs separate corrective action.

12. The comparison between actual and budgeted costs does not show the cost variance per tonne. Rather, it shows the percentage of variance. It might be meaningful to have the variance as a percentage, but the table ought to show the variance first, then, the variance percentage.
13. The comparison between actual prices of purchased inputs and the budget (Table 40), is carried out properly, as it takes into consideration the actual quantities of inputs used. However, the large deviations between actual prices of inputs and the budget prove that, there is no consideration given to the prices of inputs when developing the budget.
14. The Planning Budget Sector does not report deviations from the budget to responsible personnel, nor does top management in Hadisolb. However, line and staff personnel in Hadisolb are not interested in variance analysis for the very simple reason that they are not accountable for achieving the budget.
15. Variance analysis is carried out to fulfil Government and Government Agencies requirements. In particular, the forms imposed by the Standardised Accounting System (SAS) on companies in the public sector. Variance analysis is not carried out to control the business or for taking corrective action for the future.

Part Four:

Recommendations and Possible
Improvements as to the Role
of Accounting in Planning
and Control in Hadisob

Introduction

There is no need to repeat what has been said regarding the deficiencies in both planning and control in Hadisolb, and the role of accounting in this. The Author will, in this part, present his recommendations and the improvements in the systems employed.

The recommendations and improvements will cover the following:

Chapter fourteen: Planning: the three levels of

Section One: Introducing long-term corporate planning.

Section Two: Short-term planning:

1. Short-term Tactical and Operational Planning.
2. Co-ordinating the three levels of Planning.

Section Three: Planning and Organisation Structure in Hadisolb:

1. The Planning Structure.
2. Suggested improvement in Hadisolb organisation structure for the achievement of proper planning and control.

Chapter fifteen: Control and Performance Reporting Systems

Section One: Improvements in the Control Systems in Hadisolb.

1. Physical Control
 - a. Physical Reporting.
 - b. Structure of Physical Reporting.
2. Financial Control
 - a. Cost Control Reporting.
 - b. Cost Control Structure.
 - c. Cost Control Forms.

Section Two: Improvements in Hadisolb's Analyses of Variances.

Chapter Fourteen

Planning

The purpose of this chapter is mainly to introduce long range corporate planning to Hadisolb, but also to suggest improvements to the systems employed for short range planning.

Section One

Long Range

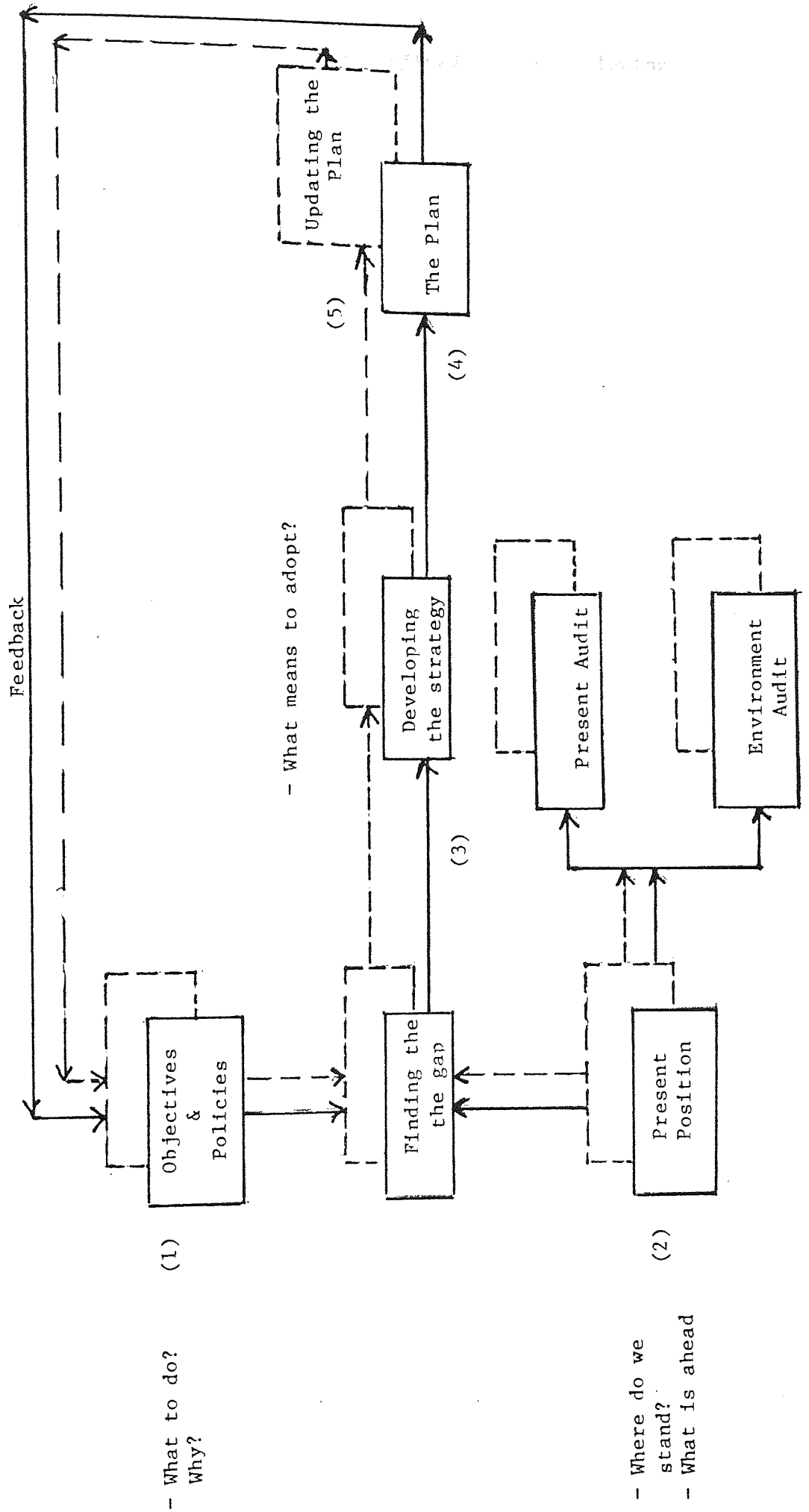
Corporate Planning

Definitions of all levels of planning including long range planning were the subject of the first part of this thesis, essentially a theoretical survey. Concentration will now be on how Hadisolb should apply this sort of planning. (Figure 59 shows diagrammatically the successive stages in long range planning). The definitions and methods of carrying out those stages were the subject of the first part of the thesis; nevertheless, brief definitions and methods of applications are presented in the following).

(1) The Determination of Objectives and Policies:

Clearly defined and agreed upon objectives and policies are needed at Hadisolb and will provide a frame of reference within which to plan and operate. Objectives and policies will summarise the intentions of the Egyptian Government and therefore the tax payer who has financed the heavy losses which the company has incurred until now; and also of top management. So, objectives and policies will express a common orientation and purpose.

Figure 39: Stages in Long Range Planning



Objectives and policies are defined in the following:

a. Overall Objectives:

As Hadisolb is a publicly owned company; its overall objectives might be thought to be different from those of a privately owned company. However, as Argenti(23) concludes his test of all objectives might a company set out:

"The only objective of a company is to make profit. There is no other objective whatever, in spite of the fact that most companies apparently think there are. Companies do not have several objectives, they have one, and only one".

The Author on the other hand; sees that a company may have several objectives, not only one as Argenti states. However, in my opinion, there should be one main target to achieve. This target should be to realise profit at the end of each financial year. Without having such a target, a company might be unable to survive at all.

In the case of Hadisolb, since it started there has been no formal profit objective to achieve. The Egyptian Government's objective in establishing Hadisolb was to have a steel industry in Egypt, which is essential to start a heavy industrial programme. So, Hadisolb has a social objective set by the Egyptian Government which is mainly to supply what are called "The Sister Companies", which are companies in the public sector requiring steel, as well as companies in the private sector, and craftsmen. To keep the price of steel as

low as possible, the Egyptian Government intervenes and approves any increases in Hadisolb's prices; which are well below the total costs per unit; but also well below the prices of imported steel (Appendix 7); "A Comparison between Hadisolb's prices and other countries"). The procedure adopted by the Egyptian Government led Hadisolb to achieve very heavy losses from the start. In addition the Government does not finance the losses achieved at the end of each year by a form of subsidy. Subsidies to Hadisolb are offered as a lump sum which are not offered each year. This has led to a shortage of cash, inability to self-finance, heavy loans of capital and overdrafts. The Author suggests the following alternatives to improve the situation:

- i. Hadisolb has to decide on profit as the main objective to achieve at the end of a long-term planning period, profit which satisfies both the Government and shareholders, and retained profit to be invested in the business as a form of internal finance. The profit objective requires Hadisolb to determine sub-objectives which will lead to achieving the profit target. Overall objectives, then, express the demands of the Egyptian Government and shareholders, in terms of the long-term performance and return expected.
- ii. If the Egyptian Government is willing to keep the price of certain products of steel as low as possible, together with the will not to affect Hadisolb's profitability, the Egyptian Government has to establish a co-operative society for steel distribution. The suggested co-operative society is to buy steel from Hadisolb at the prices determined by Hadisolb which satisfy its profit target, and to sell it at the Governments

prices. So, the Egyptian Government will be charged the losses between the purchase and selling prices of the co-operative society.

Hadisob then can decide on its overall objective as follows:

- The achievement of a return (before interest and tax) on total capital employed of 20% at the end of the planned period (1985-1990) or,
- The achieving of a return (before interest and tax) on total capital employed which will at no time fall below 16%, and will average no less than 20% over the period 1985-1990.

(b) Policies

These should cover both Government and Board of Directors policies. The Government policies are passed to the company through ministries and Government Agencies, and the Board of Directors will take those policies into consideration when forming the Board's policies. The following are guides as to whether the policies might be:

- The closing down of Aswan Mines, as all iron ore needed for the Helwan Plant is now shipped from Baharia Mines.
- Reaching an agreement with the Egyptian Rail to double the line between Baharia Mines and Helwan Plant to prevent bottlenecks which affect the availability of iron ore for processing.
- Full use of the available capacity.
- New investments for expansion to achieve the sales figure which leads to the achievement of the profit target.

- Satisfying the need of the home market for steel together with Arab League and Middle East Market.
- Reaching an agreement with the Egyptian Government not to intervene in the determination of selling prices which must be well above total costs to ensure the achievement of the profit target.
- Improving methods of recruiting and training, and of conditions of employment.
- Adopting a wages policy free of Government constraints to encourage workers, especially those with high skills, to continue working for the company. Persuasion from Arab countries and companies due to the open door economic policy newly adopted in Egypt has to be firmly faced by a convincing wages policy.
- Adopting a redundancy policy to get rid of those workers of whom the company is not in need, noting that the increase in labour cost per unit is due to overmanning.
- Adopting decentralisation as the future policy for managing the business, giving full responsibility to heads of each sector to form the sectors management, including a department of finance and accounting responsible for developing the sector's plans and budgets in line with the corporate objectives, developing a system of standard costing, and exercising full control to ensure the achievement of objectives. (A full description will be presented within the proposed organisation structure).

(2) The Present Position

The object of this stage in the planning process is for Hadisob's management to ask themselves:

- a. Where they have got to?
- b. Where are they going?

The first question aims to assess the present position of the company, to recognise strengths and weaknesses inside the company, and opportunities and threats in the environment in which Hadisolb has to survive.

The second question aims to find the gap between the target profit "or any other target Hadisolb decides upon"; and the present position; which is to be fulfilled to achieve the target - whatever. So, the present position stage in the planning process embraces the following:

- a. The Present Position Audit.
- b. The Environment Audit.
- c. Action plan.
- d. Current projections.

The following figure shows diagrammatically the different stages in the present position stage in the planning process; followed by brief explanations and diagrams for each stage.

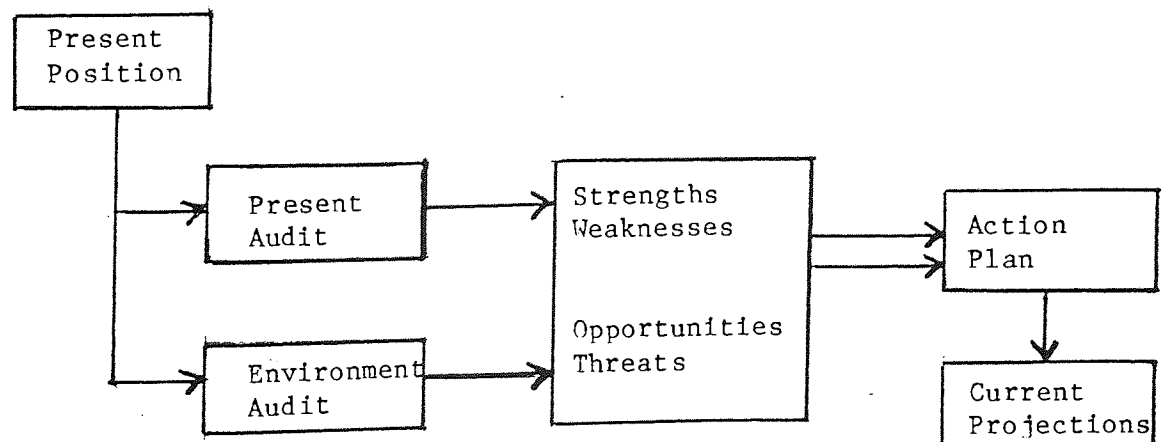


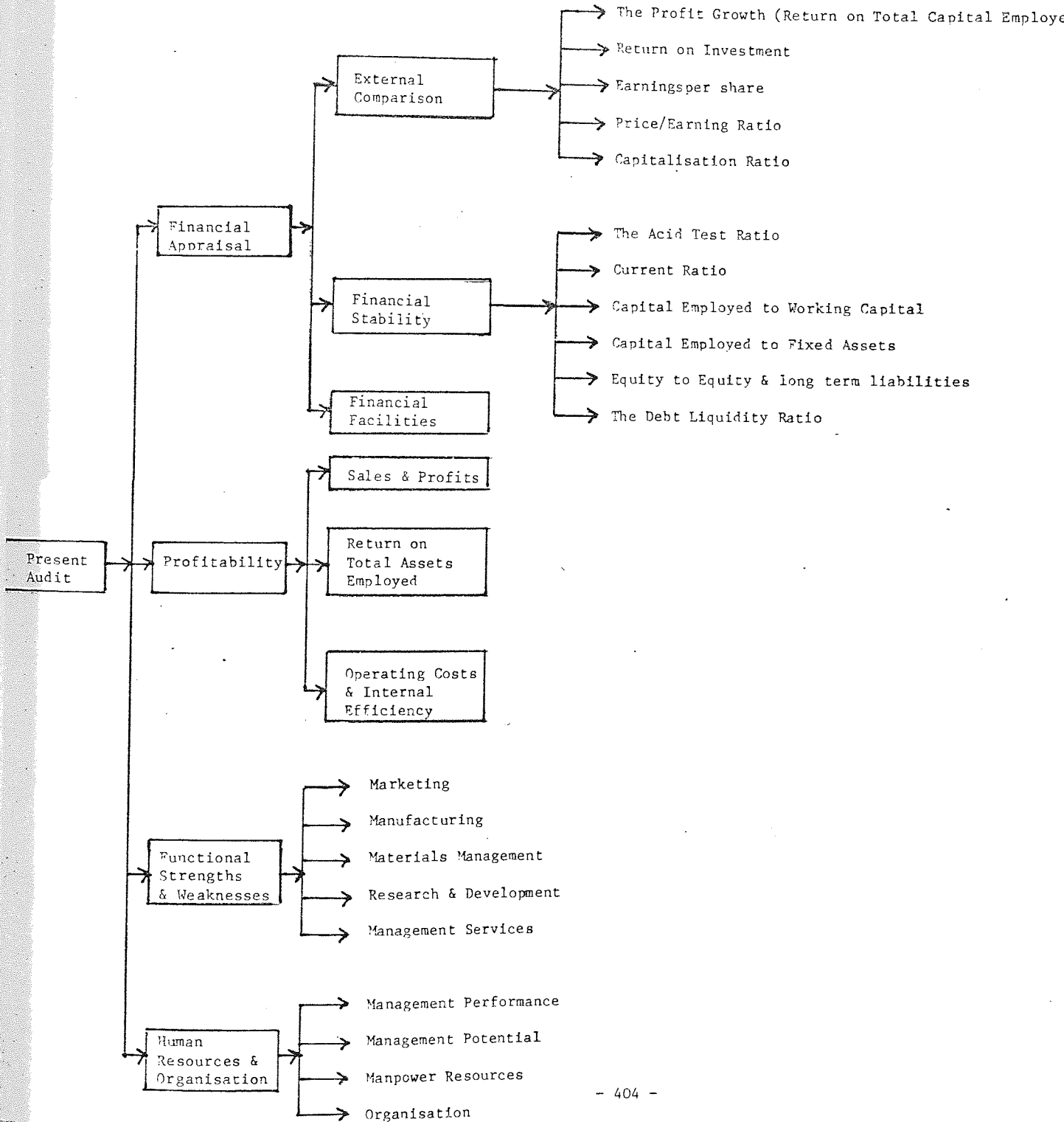
Figure 40

2.1 The Present Audit

This stage would aim to assess Hadisob's performance in the last few years, to form a firm opinion as to what are its weaknesses and strengths. Historical accounting information derived from the financial accounting records and summarised in the profit and loss accounts and balance sheets is used to do the present audit. (The figures should be at least those of the last full financial year and of the current year). Information on performance over five years would give a good base for examining trends, but it may be more practical to start from a two-year base and build up this body of information gradually.

(Figure 41 summarises what Hadisob should do to carry out the present audit. Full explanations were provided in the first part of the thesis).

Figure 41: The Present Audit



Hadislob; by carrying out this "present position" audit, would have formed a clear idea about its internal position; provided that the deficiencies in the calculation of its net profit and total capital employed as listed below have been amended:

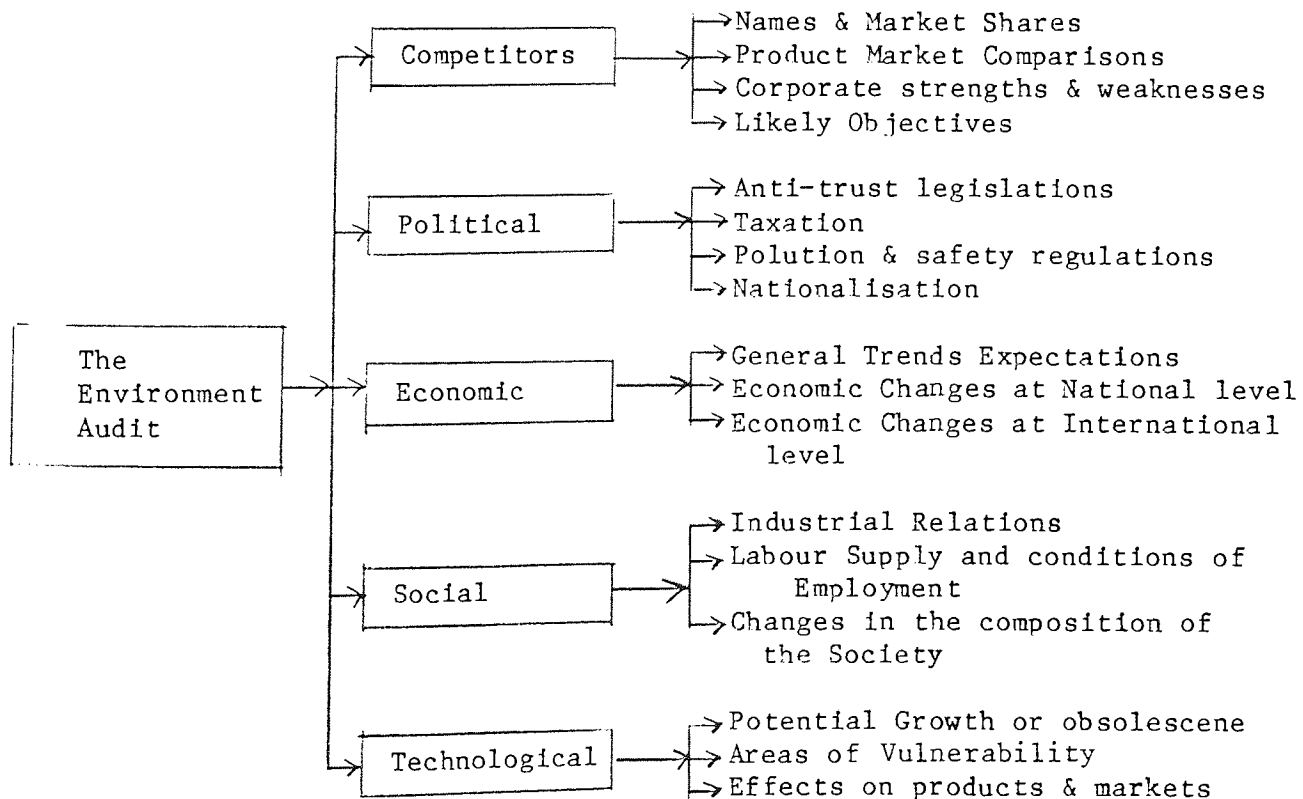
- The use of a variable costing system, which excludes fixed expenses from inventories.
- Net profit used for the calculation of financial ratios, is the figure before tax and interest.
- Abolishing what is called deferred expenses; which are capitalised research and development expenses. Charging the trading and manufacturing account and/or profit and loss account with the specified amount for the year.
- The alteration of the "reserve for the increases in fixed assets prices" to be a provision for the increases in fixed assets prices. This suggestion means that the trading and manufacturing account will be charged with the provision for the year, which becomes a cost element, instead of the system now in operation in Hadislob; which considers the reserve for the increases in fixed assets prices as profit appropriation.
- The replacement value of fixed assets must be taken into consideration in the calculations of depreciation charges for the year.
- If the suggestion not to form a separate account for the deferred expenses is not acceptable, then the deferred expenses at least should be considered as current assets. This suggestion will correct the calculation of the working capital, and, indeed, the calculation of current and liquidity ratios.
- Total capital employed should include projects under construction, as they are investments in fixed assets.

- Stock in spares should be considered as a current asset, as they are consumables, rather than the system now in operation in Hadisolb which considers a minimum part of stock in spares as a fixed asset, and the rest as a current asset.

2.2 The Environment Audit

This stage aims to assess the environment in which Hadisolb aims to survive and prosper, in order to form an opinion as to what are the opportunities and threats in the environment.

Figure 42 shows five areas of search which have to be considered for Hadisolb to carry out the environment audit.



A detailed description of the above five key areas of the environment audit was presented in part one of this thesis. Hadisob's management should ensure that once the object of the environment audit is fully understood, a methodical approach is applied to the relevant factors mentioned above.

2.3 The Strengths and Weaknesses & Opportunities and Threats Analysis

Because this analysis was discussed in detail in part one of this thesis, only definitions and a suggested check list for analysis are discussed in the following.

This analysis takes into account the findings of both the present position audit and the environment audit.

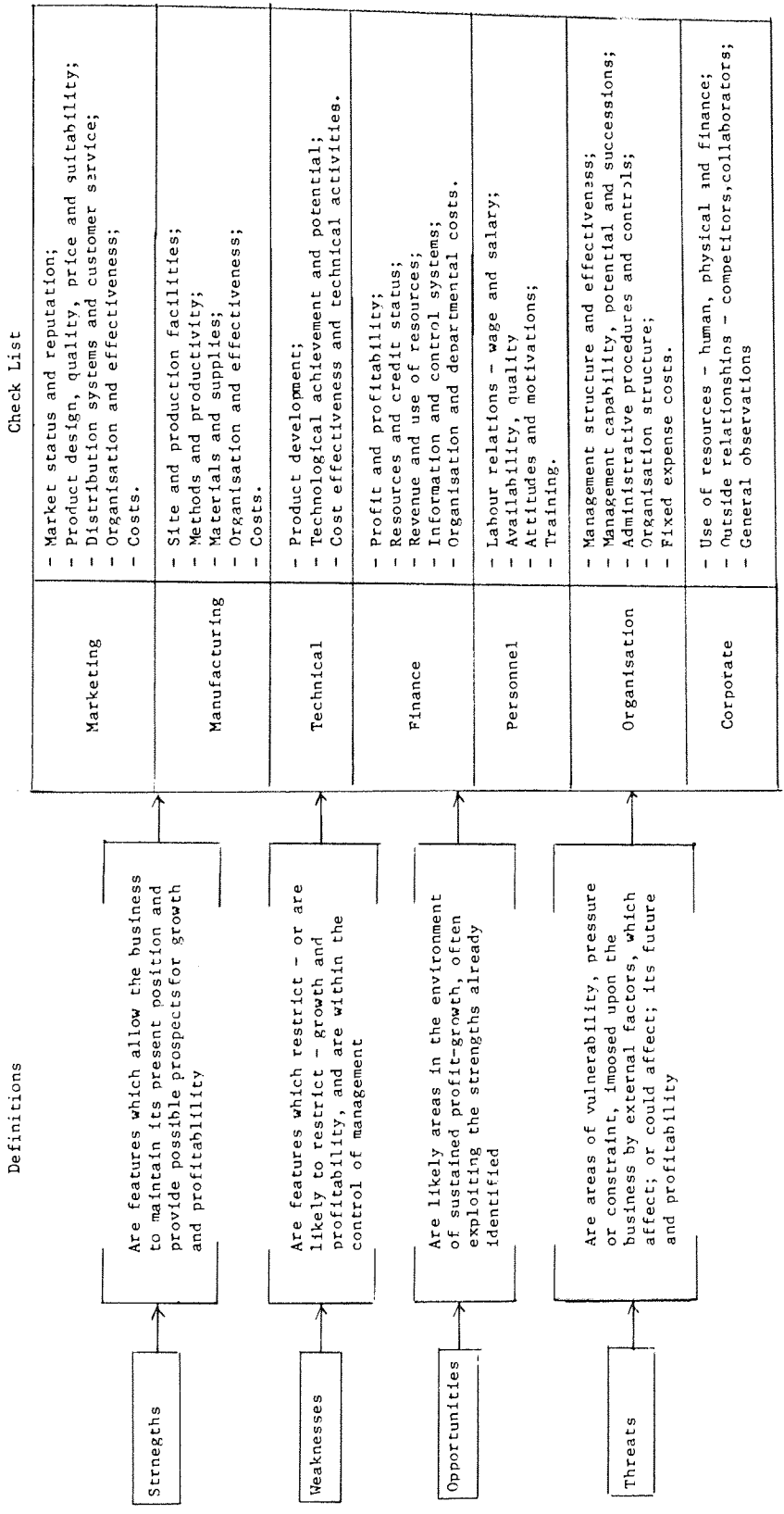


Figure 43: Strengths and Weaknesses & Opportunities and Threats Analysis

2.4 Action Plan

When Hadisolb has defined its principal strengths, weaknesses, opportunities and threats; one can say that, it has learned something about itself. However, this knowledge cannot be an end in itself; it should be followed by an action plan, which, as its name implies, must lead to actions aimed at:

- Maintaining or enhancing strengths;
- Correcting or minimising threats;
- Evaluating or implementing opportunities;

Therefore, the action plan should be a precise document which includes the procedures summarised in the following Figure.

Figure 44

ACTION PLAN			
Definition of the course of action to be taken	Allocation of managerial responsibilities for this action	Establishment of final and intermediate goals	A timetable for completion

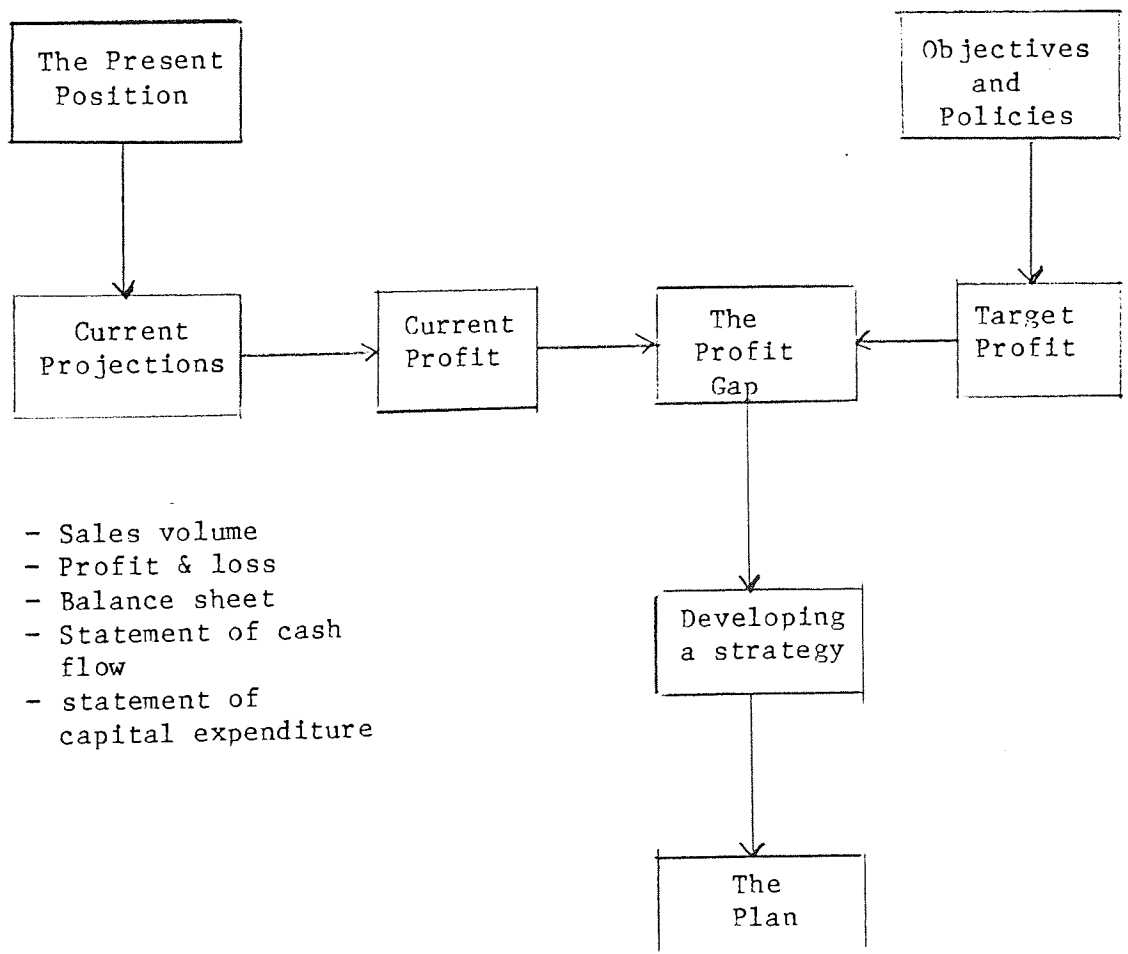
Hadisolb, having appraised its present position; identified its strengths, weaknesses, opportunities, and threats; developed an action plan to identify the course of action to be taken; allocated the managerial responsibilities for this action and the timetable for completion, should then proceed with the planning process by carrying out the following stages:

- a. Developing the current projections;

- b. Finding out the profit gap between the profit recognised from the current projections and the target profit which the company's objectives and policies aim at;
- c. Developing a strategy to fulfil the profit gap;
- d. Developing the plan.

Since all these stages were discussed in detail in part one of this thesis, they are merely summarised in the following diagram.

Figure 45: Developing the Plan



3. The Current Projections

This provides a disciplined projection of the future of the business consistent with current policies. It will tell Hadisolb, in numerical terms, where the company is headed and what will happen if no major changes occur beyond those already projected. The projection should cover the current year plus a further five or ten years, and should be carried out in three stages by determining:

- a. Sales volume.
- b. Profit and loss items.
- c. Balance sheet items.

From the financial statements the following may be derived:

- a. Total capital employed.
- b. Statement of sources and uses of funds.
- c. Statement of cash flow (to record the cash requirements during the period).
- d. Anticipated levels of capital expenditure.

Methods of preparation of these accounts and statements were discussed in detail within the accounting projections in Chapter Four of this thesis. So, concentration will be given to what Hadisolb has to consider when preparing its current projections in order to overcome its deficiencies (as listed when discussing accounting for planning and control in Hadisolb).

3.1 Projections of Sales - ... for expansion to meet the demand.

The current projections must be built upon the projected sales for the current year and the following five or ten years, rather than the system now in operation in Hadisolb, which develops the planning budgets on the basis of the capacity which can be used. The capacity which can be used is taken as the available capacity minus stoppages which totalled more than 40% of the available capacity. For Hadisolb, using the action plan is the only means to overcome stoppages and fully use its available capacity.

The following recommendations to Hadisolb are concerned with projections of sales:

- a. Sales volume from each product/market segment of the business should be derived from the environmental and performance analysis (present position).
- b. Projections of sales should cover the current year and the following five or ten years.
- c. Sales volume should not be derived from capacity utilisation (as is the system now in operation in Hadisolb).
- d. Action plans should be used to overcome the stoppages, to enable Hadisolb to fully use its available capacity.
- d. As the case might be at the present time for Hadisolb, that the projected sales volume is far more than the available capacity:

- Hadisolb has to start planning for expansion to meet the demand.
- At the same time, Hadisolb, has to decide on the best product mix which ensures the full use of the available capacity, and, the achievement of its objectives including the target profit.

3.2 Profit and Loss

Having determined the expected sales, volume, it is then necessary to project:

3.2.1 The likely income which the expected sales volume will produce:

In this respect, Hadisolb has to price its products according to one or a mix of the following two methods of pricing.

a. Profit Margin Pricing

To use this method of pricing, Hadisolb, should have decided on the target profit, whatever it is, a return on the total capital employed, a return on the shareholders' capital including the Government participation, or earnings per share. Then the determination of the profit margin for each product, which with other products' profit margin will form the target profit.

The selling price for each product is determined according to the following:

- a. In departments which produce more than one product, the selling

price of each product is determined according to the following equation:

$$\begin{aligned} & \text{Selling price of product A} \\ & = \frac{\text{Direct Costs} + \text{Allocated costs to product A} + \text{Profit Margin of Product A}}{\text{Quantity produced from product A}} \end{aligned}$$

- b. In departments which produce one product, Hadisolb will not face the problem of costs allocation, so the selling price is determined according to the following equation.

$$\begin{aligned} & \text{Selling price of product B} \\ & = \frac{\text{Total Costs} + \text{Profit Margin of product B}}{\text{Quantity produced from product B}} \end{aligned}$$

b. Contribution Margin Pricing

For Hadisolb to use this method of pricing, variable costing should be put in operation, instead of the total, absorption costing system at present in operation. To use this method in pricing Hadisolb should identify its variable costs, as the selling price is determined as follows:

$$\begin{aligned} & \text{Selling Price for product C} \\ & = \text{Variable Costs for product C} \\ & \quad + \text{Contribution Margin for product C} \end{aligned}$$

The contribution margin for the product should cover its fixed costs and contribute to net profit.

The author offers the following suggestions to suit Hadisolb's case as previous analyses dictate :

- i. Hadisolb produces some very successful products which face high demands in local market. Those products should be priced using the profit margin pricing, which results in achieving a considerable net profit.
- ii. Those products with low demand, but which Hadisolb is obliged to produce because of Government pressure, e.g. reinforced needed for building and construction; or because of customers demands together with profitable products, or by products. Hadisolb should employ a contribution margin pricing approach to ensure that at least the variable costs of these products are covered.

3.2.2 The likely costs which will be incurred to supply the expected sales volume:

In this respect, Hadisolb should take the following into consideration to overcome the deficiencies listed:

- a. Employing a variable costing system which recognises those variable costs which are linked with the volume of production, and the fixed costs which are linked with time.
- b. Each producing centre in Hadisolb has to develop its own cost estimations according to the production quantities each has to produce.

- c. Developing a standard costing system; in this respect; the present position audit which should have been carried out would be of great assistance to develop such a system, as historical costs incurred are analysed, and the weaknesses and strengths in the cost accounting system employed should be recognised.

Cost is not the only aspect which Hadisob has to consider to determine its selling prices; there are also market aspects of pricing to be considered. As Goudekot (111) points out a firm cannot always make its own price. It has to accept the market price, or to follow a lead given by some other firm. A firm can set its own price only if its market is less than perfectly competitive and, if given market imperfection, it has some freedom of manoeuvre vis-a-vis rival firms.

Goudekot continues by saying that:

"In a competitive market, price is set by marginal cost. Given the market price, each firm finds it profitable to produce whose marginal cost equals price; and given the demand, the market process determines a price such that the marginal firm finds it just worthwhile to remain in the particular line of business".

Goudekot also points out that:

"In a non-competitive market, price is not tied in the same way to marginal cost, usually marginal cost sets a lower limit to price, but even this is not necessarily so. Sometimes a firm will sell below marginal cost, temporarily, as for example in order to retain important customers during an economic blizzard, or permanently, in order to promote the sale of some other product

which yields a more than compensation profit, or; as in the case of public utilities, because of law or custom requires that certain unremunerative services be maintained. More usually the firm will charge something more than managerial cost, according to the quantities it thinks it can sell at different prices. In many cases, if market conditions permit, the firm will let prices at which it considers to be a "fair" level. Fair, both to itself and to its customers".

At the same time; Chambers (112) points out that, in an industry in which demand is fair in excess of supply (the case of Hadisolb), in which for other reasons there is no great price competition, price will be more closely related to what the consumer is prepared to pay than to cost, however cost is determined. On the other hand, Chambers states that in industries in which there is keen competition, price, however determined, will be much closer to cost, and the meaning of cost becomes much more important for the individual firm. The general level of prices in a given industry then, will be related to the system of cost computation used.

3.3 Balance Sheet and Attached Statements

From the projected profit and loss calculations, the associated Capital Employed and sources of funds statements may be derived. This also should include simple funds flow analysis to record the demand for (or surplus of) funds during the projected period. Anticipations of capital expenditure levels should be recorded, so that future planning and decision making can distinguish easily between capital expenditure which is "inevitable" and that which is incrementally incurred by a future decision.

In this respect, Hadisolb should consider the following in order to overcome the deficiencies listed before concerning the preparation of the Balance Sheet and attached statements.

- a. Fixed assets should not include the minimum stock in spares.
- b. Projects under construction should be included in fixed assets.
- c. Fixed assets should appear in the Balance Sheet at cost minus depreciation to show the book value of each fixed asset instead of the system now in operation which includes provisions for depreciation in liabilities.

4. Strategy Analysis

Once Hadisolb has developed its current projection, the move will be to analyse its strategy to establish the means by which the profit gap could be fulfilled. This stage in the planning process identifies the possible strategies and tactics which the company may adopt to fulfil the profit gap.

The process of strategic analysis consists of the following cycle.

- a. Identify the need.
- b. Define the strategy to meet the need.
- c. Define the possible tactics.
- d. Quantify the tactics.
- e. Select the best tactics and so quantify the strategy.
- f. Compare the quantified strategy with need.
- g. Revise the strategy or the need.

The following diagram summarises the different stages in the strategic analysis.

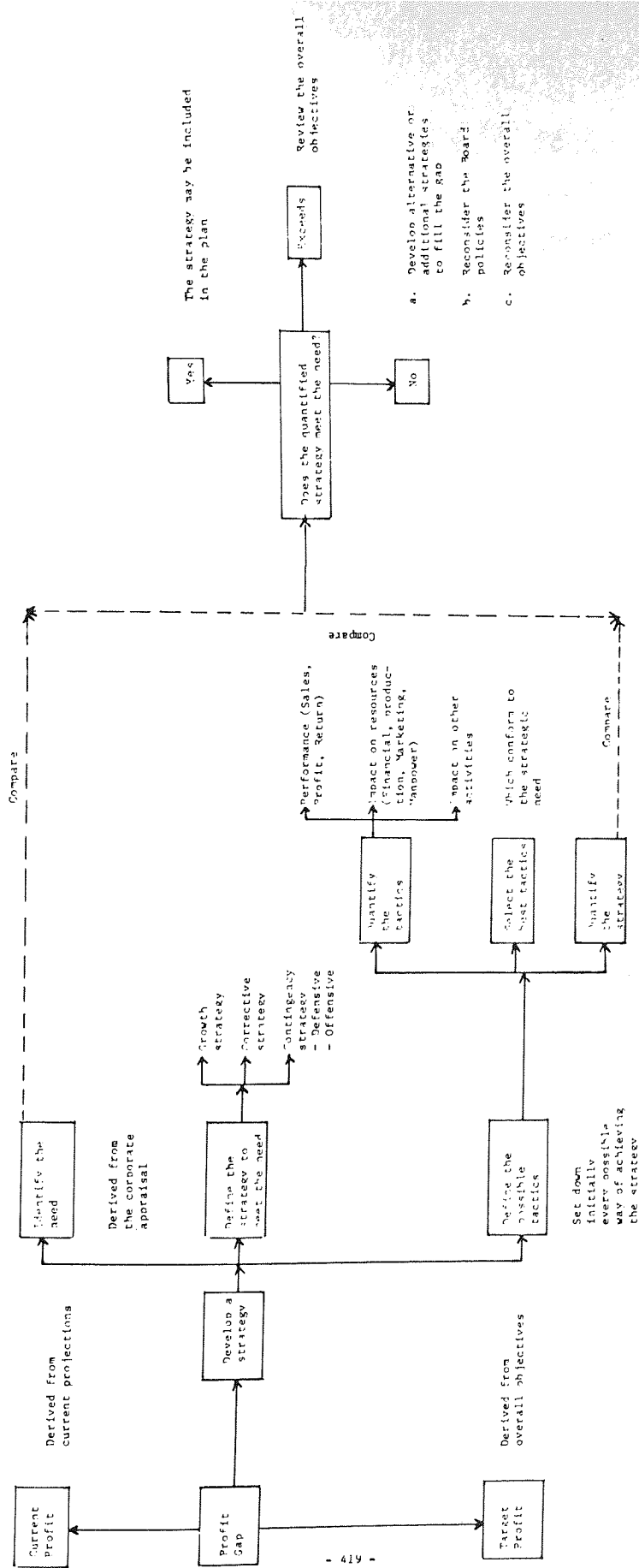


Figure 46: The Strategic Analysis

5. Presentation

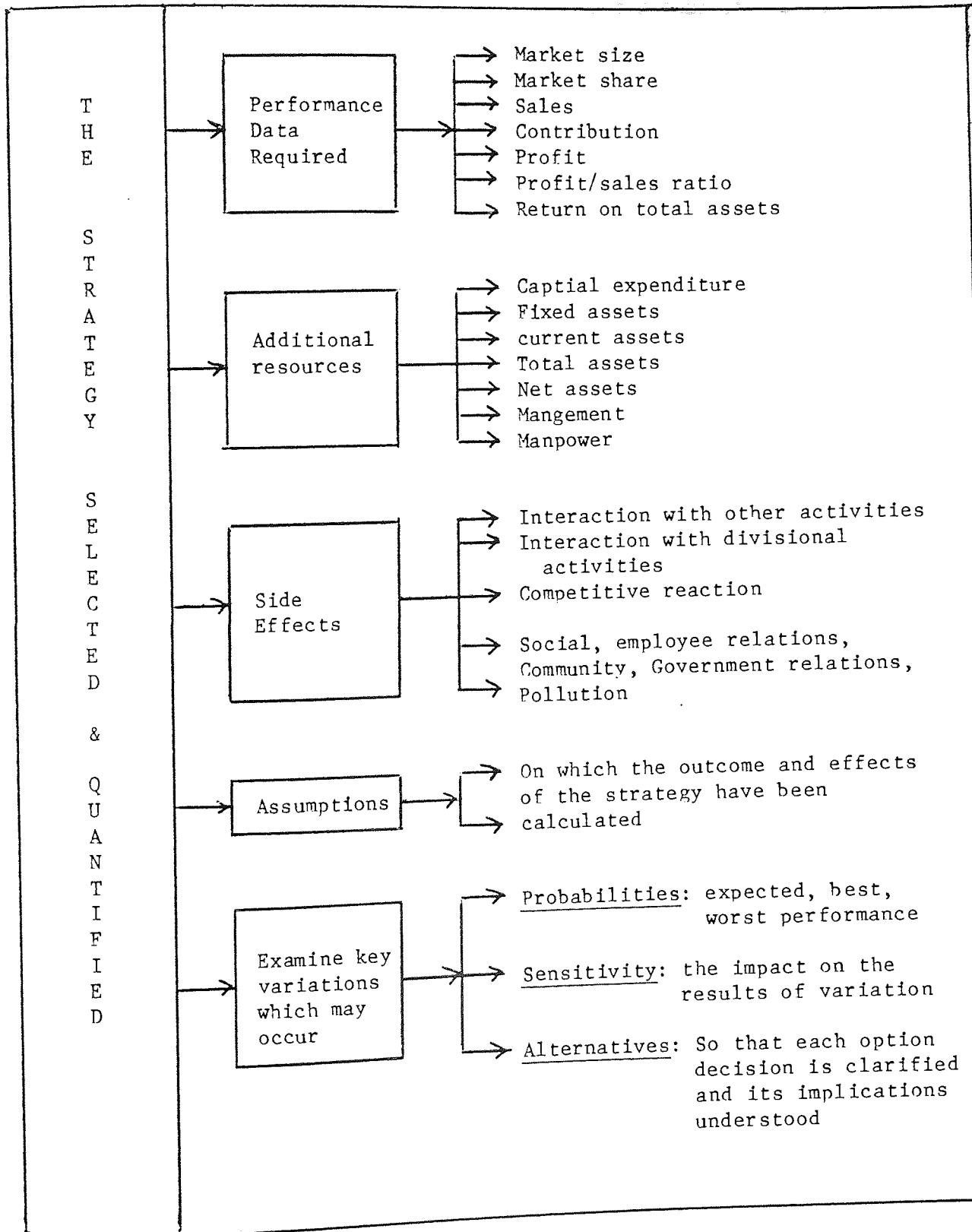
Before developing the long range corporate plan, a summary of the selected strategy has to be recorded. This summary should start with a brief description and cover all the likely effects and implications of the strategy over the planning period, and perhaps even further into the future where this is considered meaningful.

The summary will be very useful if carried out under the following headings:

- a. Performance data required
- b. Resources
- c. Side-effects
- d. Assumptions
- e. Variations which may occur

The following figure (47) explains in brief, the work to be done to cover the above headings:

Figure 47: Selected strategy and likely effects and implications



6. The Plan

Two types of strategy have to be aggregated into the current projection in order to produce the projected plan.

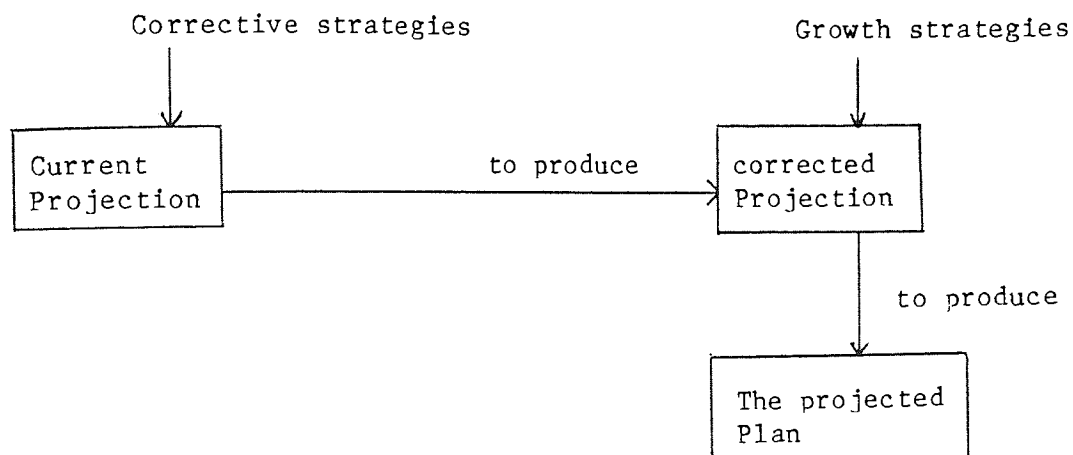
- a. Corrective strategies: which aim at eliminating the weaknesses; are aggregated into the current projection to produce the corrected projection.
- b. Growth strategies: which aim at fulfilling the profit gap; are also aggregated into the corrected projection to produce the plan projection.

When aggregating the corrective and growth strategies into the current projection, Hadisolb has to examine the whole effect on structure, resources, and direction of the business to ensure that:

- a. The combination of strategies does not lead the business into a position of new weaknesses or threats in future years.
- b. The general aim of the business remains valid, and continues to conform to the qualitative overall objectives.

The following diagram summarises the above procedures:

Figure 48: The Projected Plan



The situation of Hadisolb as a steel producing company; dictates that its sectors (except the sales sector) have no sales activities whatsoever; so from the projected plan, it is vital for Hadisolb to identify for each sector of the business:

- a. The key objectives in terms of manufacturing capacity, costs and inventory levels, which must be achieved during the course of the long term planning period.
- b. The total implications for resources in all sectors and the action necessary to ensure their availability.

It is also vital for Hadisolb to record a programme of action for each sector specifying briefly:

- a. a general description of the activities to be followed;
- b. the objectives to be met, with timing;
- c. principal individual responsibilities;
- d. procedures for monitoring and control.

Section Two

1. Short-term Planning

This type of planning covers both short-term planning or management control as it is likely to be called in most of the literature and takes the form of the annual budget, and technical planning or operational control and takes the form of programmes and schedules for day to day operations.

Short-term planning as carried out by Hadisob at present having been discussed and criticised, the aim of this section will be to present to Hadisob a method of co-ordinating the three levels of planning.

Top management in Hadisob having decided on the long-term objectives, should focus its attention on deciding annual objectives for achievement in the shorter term plan. The annual objectives will form the bridge between the long-term plan and the annual budget.

An annual meeting has to be held between Hadisob's top management and the management of each main sector in the company to form a management council which should focus the attention on the problems and areas requiring major operational decisions in the year ahead, both in the light of current conditions and in relation to the longer term plan. This meeting will provide a background and guidance to each sector to establish its annual objectives, subject to their conformation to the long-term objectives, and with the acceptance of Hadisob's top management. Meanwhile, the annual objectives have to be developed in an annual budget. Each sector

in Hadisolb, having formed its Accounting Department as recommended before, has to develop its own annual budget in the light of the annual objectives agreed upon within the management council. At the same time, each sector has to develop its operational schedules and programmes, which are mainly the annual budget for each sector expanded into shorter term monthly programmes.

2. Co-ordinating the Three Levels of Planning

In summary, to bring together the three levels of planning may be broadly outlined as follows:

(1) Long-term Planning:

1. Decide on long-term objectives.
2. Determine the strategies and policies to achieve the long-term objectives.
3. Develop the projected plan:
 - a. Projections of sales (in volume and value)
 - b. Projections of the likely costs which will be incurred to supply the expected sales.
 - c. Develop the profit and loss projection.
 - d. Develop the Balance Sheet and attached statements.

(2) Short-term Tactical Planning (Annual Budgets)

1. Decide on objectives to achieve during the year, which conform to

the long-term objectives.

2. Decide on objectives for each sector in the company.
3. Producing sectors are to develop their production plans for the year ahead in the light of the objectives determined for the sector and the company as a whole.
4. Develop the following budgets at standard rates and prices as previously determined:
 - a. Sales budget.
 - b. Other income budget.
 - c. Materials budget.
 - d. Purchase budget.
 - e. Direct labour budget.
 - f. Manufacturing overhead budget.
 - g. Administrative expenses budget.
 - h. Marketing expenses budget.
 - i. Other expenses budget.
 - j. Budgeted profit and loss account.
 - k. Budgeted Balance Sheet and attached statements.

(3) Short-term Technical or Operational Planning

1. Decide on the monthly level of activities which conform with annual objectives.
2. Develop the monthly production plan and schedules.

3. Develop the following budgets monthly.
 - a. The monthly sales budgets.
 - b. The monthly other income budget.
 - c. The monthly materials budget.
 - d. The monthly purchase budget.
 - e. The monthly manufacturing direct labour budget.
 - f. The monthly manufacturing overhead budget.
 - g. The monthly administrative budget.
 - h. The monthly marketing expenses budget.
 - i. The monthly other expenses budget.
 - j. The monthly budgeted profit and loss account.
 - k. The monthly budgeted balance sheet and attached statements.

The method of bringing the three levels of planning together is briefly outlined in the following diagram.

Long-term planning

Short-term tactical planning

Short-term operational planning

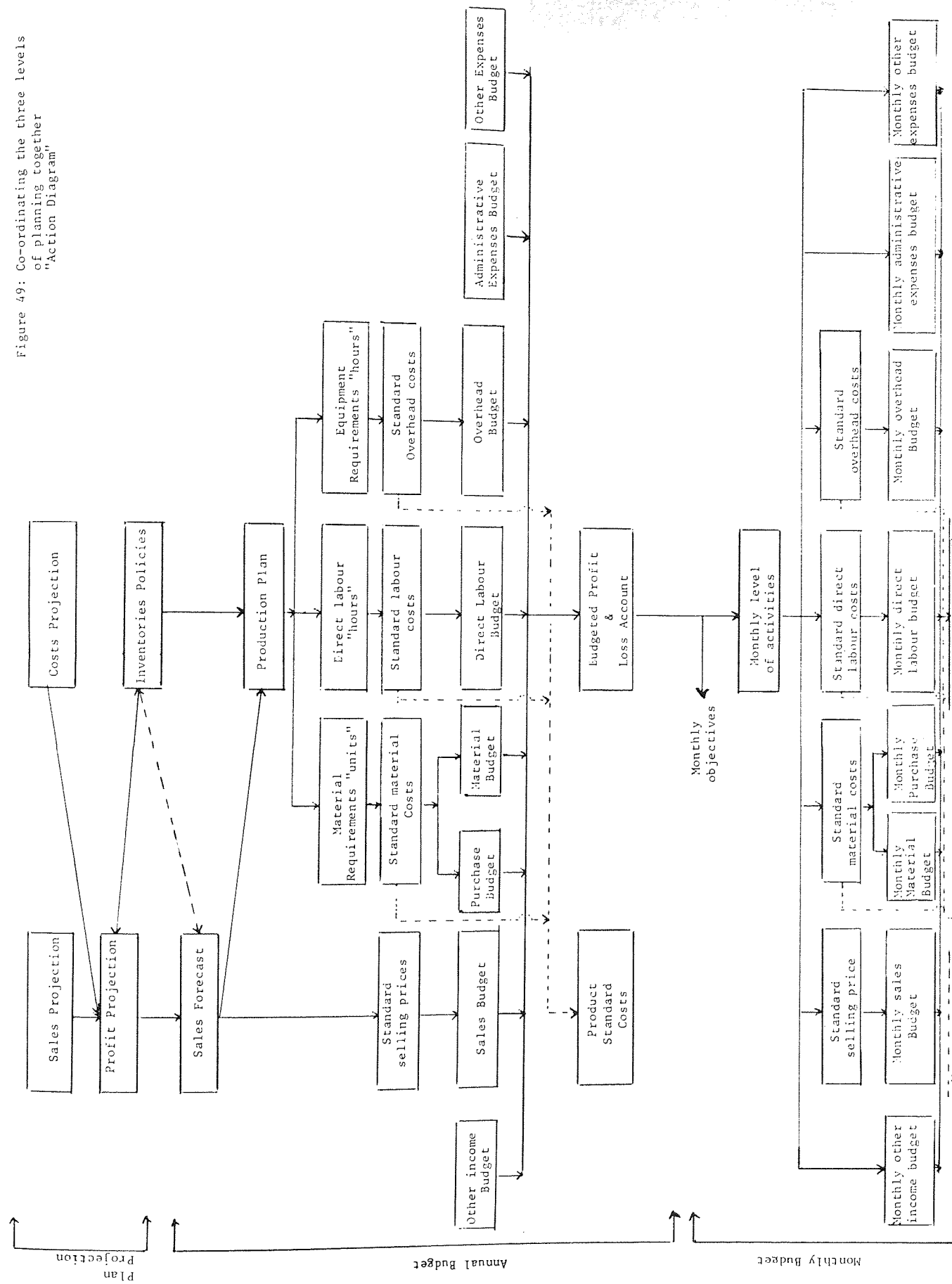


Figure 49: Co-ordinating the three levels of planning together "Action Diagram"

Section Three:

evaluation, and construction of

Planning and Organisation Structure in Hadisolb

Having made it clear how to employ a long-range planning system within Hadisolb for achieving long-term objectives, followed by an introduction to short-term operational planning or annual budgets and how to divide the annual budgets to programmes and schedules, Section Two ended with suggestions as to how to co-ordinate the three levels of planning. What is now required is to introduce to Hadisolb the necessary planning structure. On the other hand, Hadisolb needs very badly to improve its organisational structure in a way which ensures better planning and controlling the business. So, this section will deal with two major points.

1. Introducing a method of planning structure to Hadisolb
2. Possible improvements in Hadisolb organisation structure.

1. The Planning Structure

In its latest organisation structure, Hadisolb has a Vice-President for Planning and Projects. Studying carefully the functions which the Vice-President for Planning and Projects carries out, which was the subject of Part Two of this thesis, the author finds that Hadisolb does need a corporate executive whose functions are to develop a planning system for the company as a whole for the long and short-term to decide and participate in the determination of the company's policies and objectives, and the co-ordination between different company sectors. So, a planner is needed at each level in the company's managerial structure, who will be responsible as an advisor to line management,

for the philosophy, co-ordination, evaluation, and construction of plans.

1.1. At the corporate level, the planner will be responsible directly to the Chairman and President of Hadisolb and, acting under his guidance and supervision, will carry out the following functions:

- a) Assessing the company's present position through historical performance of the past few years.
- b) Suggesting action which has to be taken to correct weaknesses and threats.
- c) Receiving current projections from different sectors in Hadisolb and preparing a corporate current projection for Hadisolb as a whole.
- d) Deciding on the strategies and tactics to achieve the company's objectives both for the long and short-term to fulfil the profit gap between current projected profit level and desired profit.
- e) Advising and assisting the two main sectors (Mines and Quarries Sector and Steel Operations Sector), through the Executive Planner in each sector, in their planning activities, including co-ordination and review of their plans when submitted for top management approval.
- f) The preparation and presentation of the corporate plan to the Executive Planning Committee for review and approval before submitting it to the Board of Directors for approval to become a working document.

1.2. Two Executive Planners should be appointed, one for Mines and Quarries Sector, and the other for Steel Operations Sector. The first will be reporting to and acting under the guidance of the Corporate Planner and under the supervision of Vice-President of Mines and Quarries. The other will be reporting to and acting under the guidance of the Corporate Planner and under the supervision of Vice-President of Steel Operations.

The Executive Planner in each of the two main sectors will carry out the following functions:

- a) Assessing the sector's present position through historical performance of the last few years.
- b) Suggesting action which has to be taken to overcome weaknesses in the sector.
- c) Receiving current projections from all divisions in the sector and preparing a consolidated current projection for the sector which has to be submitted to the Corporate Planner.
- d) Participates in developing the strategies and tactics to achieve the company's objectives.
- e) Advising and assisting executive planners in all divisions in the sector in their planning activities, including co-ordination and review of their plans when submitted to the Sector's management for approval.

1.3. A Planning Executive for each division reporting to and acting under the guidance of the Executive Planner in the Sector and under the supervision of the General Director of the division.

The Executive Planner in each division will carry out the following functions:

- a) Advising and assisting divisional management in their planning activities, including the co-ordination and review of sub-divisions plans when submitted to divisional management for approval.
- b) Preparing the divisional plan which is to be submitted to the Executive Planner in the Sector.

To illustrate, Figure (51) shows how Hadisolb can establish its planning structure; Sinter 1 and Blast Furnaces 1 and 2 Division related to the Steel Operations Sectors are chosen to show how objectives and policies can be decentralised from the top management level of Hadisolb, down to the lowest managerial level in the company. The following steps show how the corporate plan can be built up:

- 1) The Corporate Planner, having studied the historical performance of Hadisolb, done the performance analysis, prepared the current projections, decided on objectives to be achieved at the end of the long-range planning period, has to pass all his projections to the Planning Committee to carry out further studies, and review projections passed to it from the Corporate Planner, then all reviewed and approved projections, objectives, strategies and tactics have to be sent up to the Board of Directors for approval.
- 2) Approved broad objectives and policies will be sent to the

major sectors in Hadisob, from which the author chose Steel Operations Sectors for illustration.

- 3) With the assistance of the Executive Planner in the Steel Operations Sector, the Sector's objectives and policies which will lead to the achievement of the corporate objectives will be sent to each division in the Steel Operations Sector, from which the author chose the Steel Operations Division for illustration.
- 4) With the assistance of the Executive Planner in the Steel Operations Sector, the Sector's objectives and policies, strategies and tactics will be agreed upon and sent to each division in the Sector. From these divisions, the author chose Sinter 1 Plant and Blast Furnaces 1 and 2 to continue his illustration.
- 5) The Executive Planner with the participation of the Manager of Facility Engineering Division will carry out further studies to reach a decision whether the facilities which exist will lead to the achievement of the objectives passed from the Sector's management. However, objectives and policies of the division will be decided upon and passed through to each department in the division.
- 6) Suppose that the studies carried out about the Division's facilities show that the production capacity of Sinter Plant 1 does not produce the needed sinter to fully utilise available capacity of Blast Furnaces 1 and 2. On the other hand, does not meet the objectives passed from the Sector's management.

So, further capital expenditure may be needed to add more sinter machines, more manpower, building construction etc. to meet objectives.

- 8) Each division in the Steel Operations Sector will send its plan to the Executive Planner, who in turn will carry out further studies and reviews of the plans. Then prepare one plan for the Sector which has to be reviewed and approved by the Sector's management.
- 9) All plans of the Steel Operations Sectors will be sent to the Executive Planner in the Steel Operations Sectors for review and prepare one plan for the Steel Operations Sectors and send it to the management of the Steel Operations Sectors for approval.
- 10) The plan of the Steel Operations Sectors, together with the plan of the Mines and Quarries Sectors will be sent to the Corporate Planner at the highest level in the hierarchy for review and approval, who in turn will prepare from the two plans the corporate plan for Hadisolb which has to be sent to the Planning Committee for review and approval. The Planning Committee in turn will carry out further studies and review and approve the corporate plan before sending it to the Board of Directors for approval.
- 11) The Board of Directors, having approved the corporate plan, it then becomes a working document for the company as a whole.

2. Suggested Improvements in Hadisolb Organisation Structure for the Achievement of Proper Planning and Control.

In 1979, Hadisolb initiated a revised organisation structure. Details of this organisation structure and the functions attached to each major sector have been stated and criticised. The main criticism of this organisation structure is that it was not developed in order to achieve planning and control within the business, rather, concentration was given to create more posts in the top level of the hierarchy to benefit certain personnel.

So, the main objective of this section is not to suggest a new organisation structure for Hadisolb which is outside the scope of this study. Rather, this section will concentrate on possible improvements in the present organisation structure which ensures carrying out the planning functions, furthermore, to ensure monitoring and controlling the business to achieve the planned objectives.

The following are the main features of the suggested improvements in Hadisolb's organisation structure :

- 1) To establish a new staff type managerial function, namely a Corporate Planner, headed by a General Director reporting to and under the supervision of the Chairman and President of Hadisolb. Detail about the functions attached to the Corporate Planner and all planning executives at all managerial levels were discussed in the previous section.
- 2) The criticism previously stated as to the functions attached to the Sales Manager, it is recommended that the Sales Manager

should be upgraded to a higher level in the organisation, namely, a Vice-President for the Sales Sector. The Vice-President Sales will be reporting to and acting under the supervision and guidance of the Chairman of Hadisolb. It is also recommended that the Vice-President Sales should chair the Executive Committee for Sales. It follows that the Sales Sector organisation structure should follow the format of:

- a) Keeping the sub-divisions of:
 - Domestic Sales
 - Export Sales

- b) Establishing a new sub-division of:
 - Marketing Services
 - Product Development

The following functions are to be carried out by the Sales Sector:

- a) Developing objectives, policies, and programmes for long and short terms, which cover domestic and export sales.
- b) Carrying out economic research, market analysis and market forecasts, and establishing sales objectives and implementing programmes.
- c) Making recommendations regarding future sales opportunities.
- d) Making recommendations regarding product price levels.
- e) Direct advertising and sales promotion activities, and maintaining customer relations and direct customer service

activities.

- f) Plan and develop sales forecasts, long-range sales plans and annual sales objectives.
- g) Implement the approved sales programmes, continuously evaluating sales reports, performance, claims reports, changing market conditions and sales objectives and recommend or take corrective action.
- h) Control expenses involved in operating the sales functions and periodically review budget and initiate action to correct deficiencies and variances.

2. In Part Two of this thesis, it was pointed out that steel operations in Hadisob are divided into three conflicting sectors, namely:

- a) Iron and Steel Sectors headed by a General Director.
- b) Forming Sectors headed by a General Director.
- c) Maintenance, Utilities and Services Sectors, headed by a General Director.

It was also stated that these directors report directly to and act under the direct guidance and supervision of the Chairman and President of Hadisob. The Chairman, therefore, is loaded with day-to-day operations rather than concentrating on crucial decisions and the establishment and administration of policies and objectives.

The author recommends the establishment of a single position responsible for steel operations headed by a Vice-President and, therefore, eliminating the other two positions mentioned above. The aim is to have one person responsible for steel operations, who in turn will be responsible for all operation activities in the Helwan Plant.

The Vice-President for steel operations will carry out the following functions:

- a) Having known the corporate policies and objectives, he will originate and participate in long-range planning for facilities, policies, procedures and organisation.
- b) Guides, co-ordinate and control the steel operations activities to ensure the most effective performance and to achieve defined objectives.
- c) Establish standards and goals for steel operations.
- d) Continuously evaluate trends in cost, yield, quality, maintenance, safety and performance.

For the Vice-President of Steel Operations to carry out the functions mentioned above, he needs the establishment of the following sectors:

2.1. Accounting Sector, headed by a General Director reporting to and under the guidance of Vice-President of Finance and has the proper communication with Vice-President of Steel Operations.

- b) Preparing long and short term plans for the achievement of planned objectives.
- c) Preparing financial and cost accounting records for actual performance recording.
- d) Developing standard costs and budgets for steel operations.
- e) Comparing actual with budgeted performance and necessary analysis for deviations.

For the Accounting Sector in the Steel Operations Sectors to carry out the above functions, the following sub-divisions, each headed by a General Director, should be established:

- a) Planning Division.
- b) Cost Accounting and Budgetary Control Division.
- c) Financial Accounting Division.
- d) Treasury Division.
- e) Internal Auditing Division.

2.2. Maintenance, Utilities and Fuels Sector, headed by a General

Director who will report to and act under the supervision and guidance of the Vice-President of Steel Operations. The Sector will be divided into necessary divisions and will have the necessary sub-divisions in each sector in Steel Operations.

2.3. Production Planning Sector, headed by a General Director

This sector should concentrate on production planning activities only and make production planning an effective interface between sales and the steel operations organisations. The Production Planning General Director will report to and act under the supervision and guidance of the Vice-President of Steel Operations. On the other hand, he will be reporting also to the Vice-President of Production Planning. The General Director of Production Planning will be responsible for developing long-range corporate production plans according to the long-range objectives and policies for the company as a whole. Also, he will be responsible, with the assistance and collaboration of other sectors in the steel operations, for developing short-term annual production budgets and production schedules and programmes for day-by-day operations. He will also supervise and guide and receive reports from sub-divisions of production planning in all divisions in the steel operations.

2.4. Purchase Sector headed by a General Director

As the Vice-President of Steel Operations according to the suggested improvements in the organisation will be assigned responsibility for the whole operations activities in the Helwan Plant, the Purchase Director should be reporting to and acting under the supervision and guidance of the Vice-President of Steel Operations to ensure the availability of production requirements at the quantities and times they are needed. This suggestion will prevent any stoppages due to unavailable production requirements. At the present, the Purchase Sector is acting under the supervision of the Finance Sector, which I find impractical.

2.5. Industrial Relations Sector headed by a General Director

As the Vice-President of Steel Operations will be responsible for all operations activities in Helwan Plant, it is recommended, therefore, that the Industrial Relations Director should be reporting to and acting under the guidance and supervision of Vice-President of Steel Operations. No further recommendations to the alterations in the structure of the Industrial Relations Sector as it is at present, neither are there further recommendations to the functions attached to the Sector, except that all payroll type functions at present carried out by the Industrial Relations Sector should be transferred to the Accounting Sector.

2.6. Facility Engineering Sector headed by a General Director reporting to and acting under the guidance and supervision of Vice-President of Steel Operations. Facility Engineering is carried out at present by the Planning and Projects Sector which is headed by a Vice-President. The author suggests keeping the Planning and Projects Sector responsible for Facility Engineering corporate type functions. This suggestion will ensure co-ordination between the two main Facility Engineering Sectors in Mines and Quarries and Steel Operations. The Facility Engineering Sector (Steel Operations) will carry out the following functions:

- a) Having collected proposed long and short range capital expenditure plans from all divisions in the steel operations sectors, the Facility Engineering Sector has to review all submitted plans and prepare a long range capital plan, and the annual capital budget for the Steel Operations Sector as a whole. These plans and budgets have to be passed to the Steel Operations management,

approved, and passed to the Facility Engineering Sector at the top level.

- b) Carrying out feasibility studies for new projects, project evaluation, and the design and preparation of purchase specifications.
- c) Managing new projects from the time of identification until time of completion, ensuring the inclusion of the requirements for each project in the annual capital budget.

2.7. Industrial Engineering Sector headed by a General Director

reporting to and acting under the guidance and supervision of Vice-President of Steel Operations. The necessity which led the author to suggest such a sector is that it will be the sector responsible for the establishment of standard practices and performance standards for all operations. Such standards, cover production rates, materials yields, labour manning, repair and maintenance, and consumption of energy. Hadisolb needs urgently the establishment of such a sector to assist in the establishment of its standard cost system.

2.8. Steel Operations Sector headed by a General Director who will be

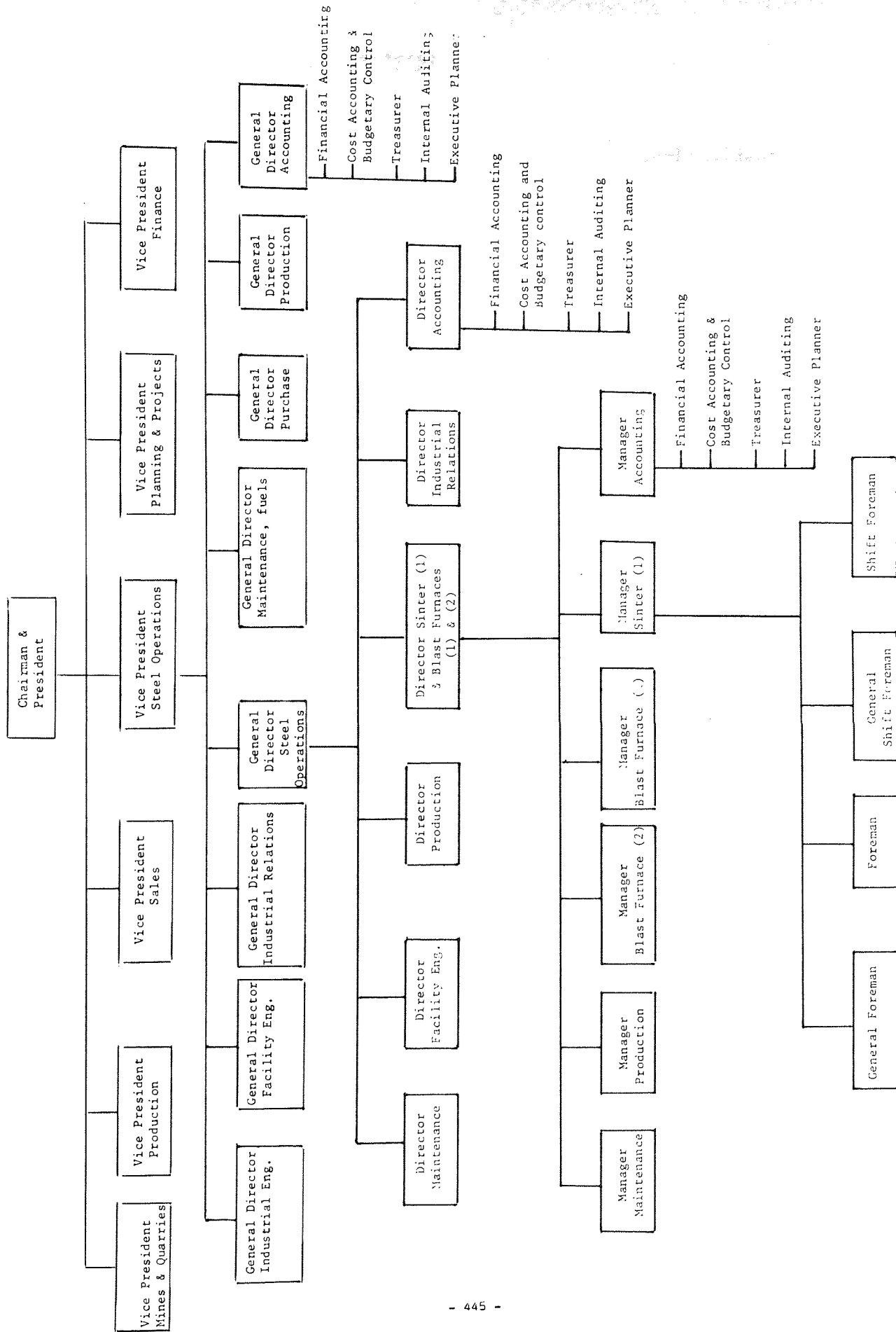
reporting to and acting under the guidance and supervision of Vice-President of Steel Operations. It will be the task of the Steel Operations Sector, with the participation and collaboration of the Industrial Engineering Sector, to establish the necessary organisation structure for the Steel Operations Sector according to the flow of processes starting from iron ore unloading to the loading for shipment of finished products. In this respect, the author suggests that

there should be special attention toward collecting special operations together, for instance, Sinter Plant 1 which supplies Blast Furnaces 1 and 2 with their requirements of sinter, should be one department under the supervision of one director to ensure integrity.

In organising each operation division in the Steel Operations Sector, there should be a director heading each division, a manager heading each sub-division, a general foreman, a general shift foreman, a shift foreman for each sub-division. Each of the suggested personnel will be reporting to and acting under the guidance and supervision of his immediate superior.

The suggested improvements in the structure of the Steel Operations Sectors are summarised and simplified in the following chart.

Figure 51: Suggested Organisation Structure for the Steel Operations Sectors in Hadisob.



(3) Mines and Quarries Sectors: ~~how the present organisation~~

~~of these Sectors; it is obvious that~~

Which will be headed - as at present - by a Vice-President reporting to and under the Guidance and supervision of the Chairman of Hadisolb. Mines and Quarries represent a vital part for Hadisolb existence as they produce the iron ore and dolomite needed for production, nevertheless, the structure of the organisation of Mines and Quarries; as it is at present; does not meet the basic requirements for planning; nor does it achieve any part of control over the Mines and Quarries operations.

The present organisation structure of the Mines and Quarries Sectors is as follows:

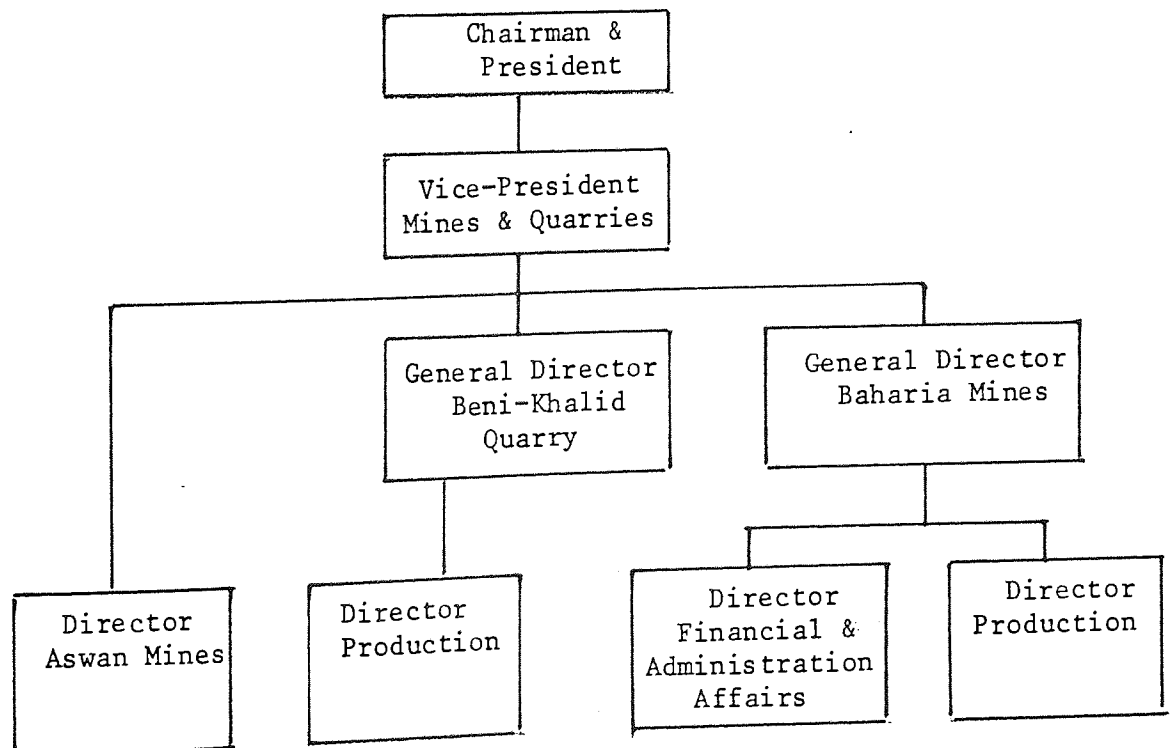
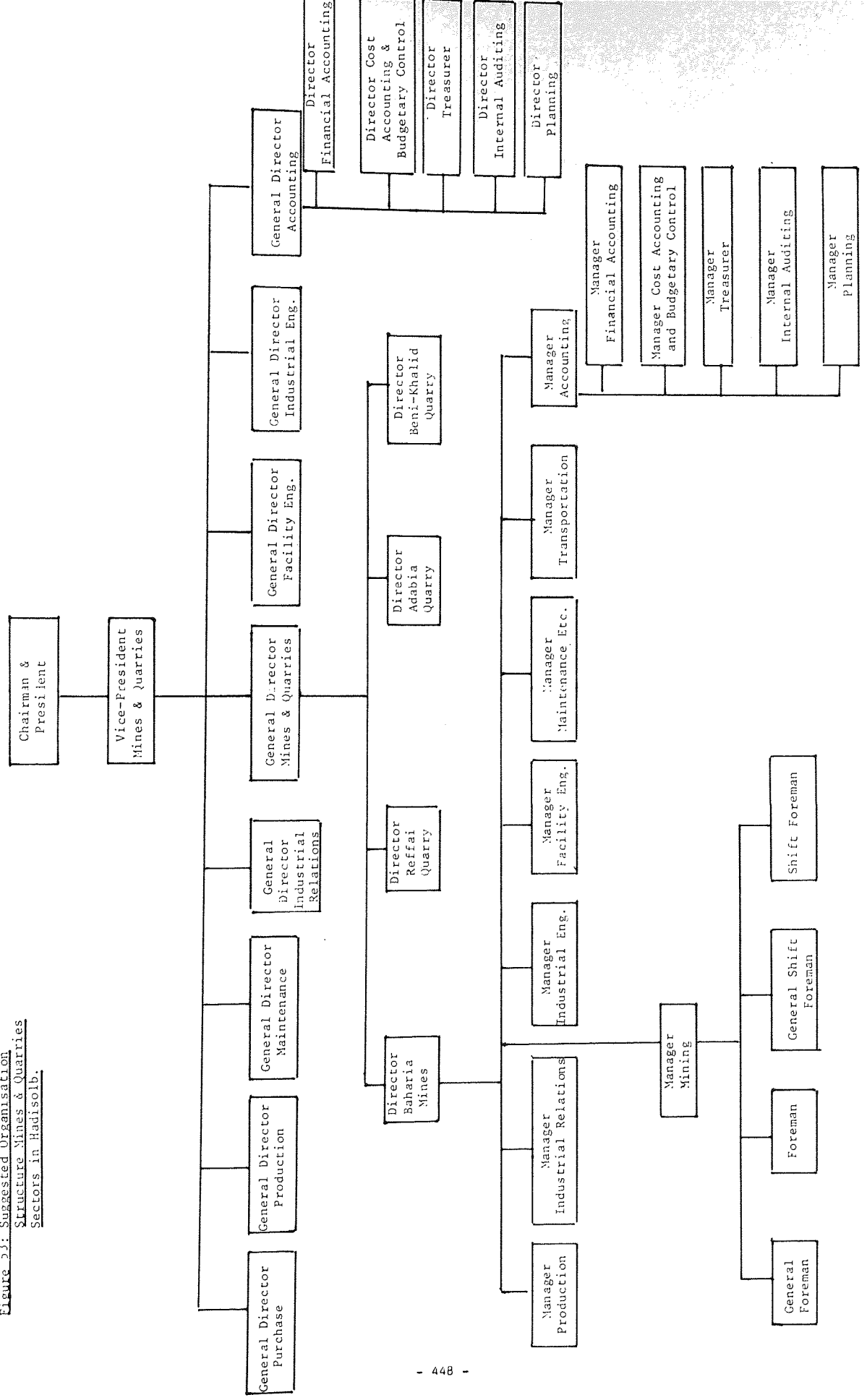


Figure 52: The Present Organisation structure of the Mines and Quarries Sectors in Hadisolb.

From the above chart which shows the present organisation structure of the Mines and Quarries Sectors; it is obvious that much of line and staff management type functions are missing. In addition the Vice-President of Mines and Quarries Sectors is situated in the Helwan Plant near the City of Helwan which is about 30 miles from the City of Cairo, however, the mines and quarries are far from the City of Helwan by hundreds of miles. Also, two quarries do not appear in the organisation chart; that means that, they have no managerial posts. These two quarries are: Adabia Quarry near the City of Suez, and Reffai Quarry near the City of Cairo.

For better planning and controlling operations in the mines and quarries, the author suggests the following organisation structure for the mines and quarries sectors. No reference will be shown for functions carried out by all division in mines and quarries; as they are, apart from mining and quarrying are a like those previously mentioned when tackling the steel operations sectors.

Figure 53: Suggested Organisation Structure Mines & Quarries Sectors in Hadisob.



Chapter Fifteen:

Suggested Improvements on the Control and Performance

- Reporting Systems in Hadisolb

Section One and Two of Chapter Fourteen has dealt with the suggested improvements on long and short-term planning in Hadisolb and concluded with a suggested planning structure for the company. To have effective planning, there should be an organisation structure permitting the flow of objectives and sub-objectives from the top managerial level to the lowest managerial level, then the flow of sub-divisions and divisions plans from the lowest managerial level to the top managerial level to assist the Corporate Planner in preparing the corporate long-range plan for achieving the company's long-range objectives; also short term annual budgets to achieve short-term objectives linked with those long-range objectives. On the other hand, for achieving the planned objectives, there should be an effective organisation structure which prescribes managerial responsibilities. So, the last chapter has ended with a suggested improvement in Hadisolb organisation structure hoping that it will assist Hadisolb in planning and controlling its operations to achieve its objectives. Those proposed improvements in Hadisolb organisation structure will be referred to when proposing improvements in Hadisolb's control systems.

The control function has, as its objective, assurance of conformance with the pre-determined objectives and the plans of Hadisolb and each of its sectors. Control should be designed to check on the effectiveness with which those plans are being accomplished. Hadisolb's management must know whether or not policies and plans are

being followed throughout the organisation; they must have indications which take the form of reports of defects in the plans, and early warnings of deviations from established goals. Thus, the control function is necessary if co-ordination is to be attained on a continuous basis.

A general rule has to be put forward before Hadisob's management that to ensure the achievement of objectives in line with the forecast calls for planning. On the other hand, to ensure that actual performance is leading to the achievement of objectives calls for control.

This chapter concentrates on the design of a control system for Hadisob which overcomes the deficiencies of the system in operation, to ensure the achievement of the company objectives, both long and short-term.

Control cannot be of great benefit unless a system of feedback is designed to keep data of actual performance available to all managerial levels at the time it is required. On the other hand, control cannot be of great benefit unless actual performance is compared with the budget in order to calculate variances and the necessary analyses to prompt corrective action.

Variance analysis as carried out at present in Hadisob is incomplete. The company does not carry out the necessary investigations to determine the reasons for variance incurrence and also the personnel responsible. Personnel in Hadisob are not interested in computing variances, nor are they interested or even keen on carrying out the necessary investigations.

So, this chapter is covering two important subjects which are vital for Hadisolb in order to achieve its planned objectives.

1. Improvements in the control systems in Hadisolb.
2. Variances and related analyses.

Section One:

Improvements in The Control Systems in Hadisolb

Control systems are action-oriented and control-oriented and aim at achieving predetermined objectives. To be effective any control system should be distinguished by the following characteristics:

- a) Corporate objectives both for long and short-term have been agreed upon and fully known to all managerial levels; on the other hand, corporate objectives have been broken down to divisional and departmental objectives.
- b) Divisional and departmental objectives are translated to functions and activities to be carried out to achieve those objectives.
- c) Functions and activities are assigned to responsible personnel in order to achieve accountability and responsibility.
- e) Interrelationships with all control systems in the company are identified and basis for co-ordination clearly defined.
- f) Budgets and predetermined standards are developed in order to measure the effectiveness of actual performance.
- g) A system of reporting actual performance both physically and financially on monthly or weekly or even daily basis is designed in order to issue performance reports in due times.

In this respect, the author stresses the necessity of having such performance reports in the hands of the responsible managers shortly after the end of the interim period covered. Reports received weeks or even months after the end of the interim period are of little value; by that time each manager is involved in too many new problems to be concerned about historical events that cannot be changed.

An important prerequisite of effective control via financial reporting is adequate reporting of physical performance factors. Obviously some such physical reporting currently takes place, but I recommend that this be amended and supplemented where necessary to follow the structure now to be explained.

The following will be concerned with:

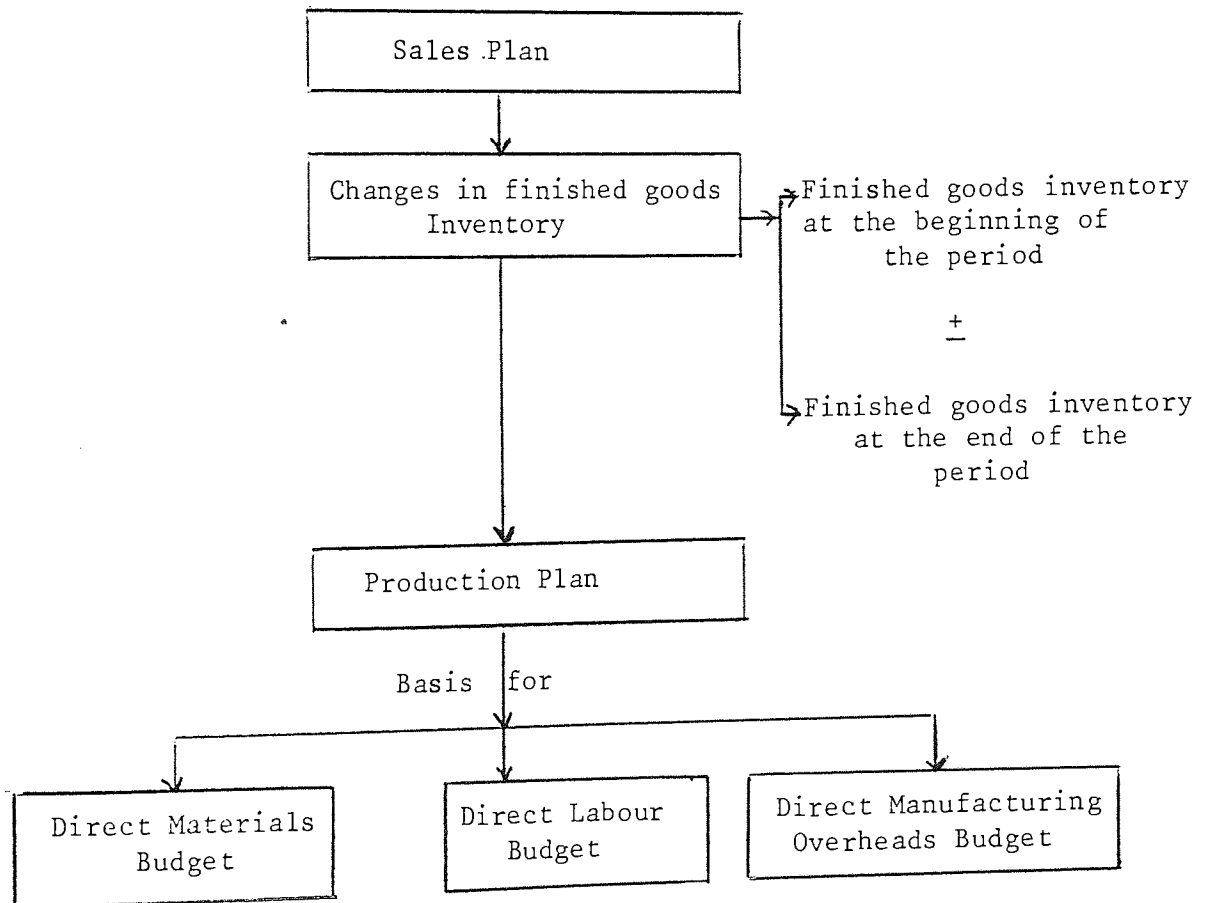
1. Physical Control.
2. Financial Control.

1. Physical Control

Two plans are always linked together; namely, the sales and production plans. It was pointed out when discussing stages in planning that the sales forecasts are the main base to all different stages in the planning process. On the other hand, forecasted quantities of sales, together with inventory policies, are the basis for building up production plans. In this respect, the translation of the sales plan into production can be quite complex, and if not resolved on a sound basis, may be the cause of considerable

inefficiencies. The following chart shows the relationships between sales plan, finished goods inventory, and production plan.

(Figure 54).



The above chart shows the importance of developing a physical production plan since physical quantities are needed to be translated afterwards into sales quantities and inventory levels.

Once the production plan is approved, it should be viewed as a master plan which should be implemented by all production sectors.

The importance of the production plan stems from the fact that it is the primary basis for planning raw material requirements, labour needs, capital expenditure, cash requirements, and factory costs.

The production plan, therefore, is considered as the foundation for all budgets in general.

The foregoing discussion raises the importance of exerting very firm control over production. This can only be achieved by:

1. The production objectives related to long-range corporate objectives are translated to realistic achievable production plans.
2. The long-range production plan is broken down to short-term annual production budgets.
3. The production budget for the company as a whole is broken down to production budgets for all producing sectors, namely, a production plan for mines and quarries, and another for steel operation.
4. Main sectors production plans are broken down to divisions and sub-divisions production budgets.
5. The Production plan for each division is broken down to monthly, weekly, and daily production schedules, and programmes.
6. An action plan is developed to overcome the production deficiencies in each producing sector in order to achieve production objectives.
7. A system of reporting physical consumption and production is developed at all managerial levels to ensure:
 - a) Planned production quantities are achieved.

- b) The availability of production requirements which stem from consumption reporting.
- c) Updating production schedules and programmes according to changes in sales situations.

The foregoing discussion stressed the importance of physical reporting to achieve control of production quantities and consumption. So, Hadisolb urgently needs improvements in its system of reporting its physical production consumption which I propose in the following, noting that the improvements are offered in steel operation sectors and Sinter Plant 1 and Blast Furnaces 1 and 2 Division, chosen for illustration. However, the system of reporting should apply to all producing sectors in Hadisolb, and will be followed by a structure of physical reporting.

- a. Physical Reporting: Steel Operations Sectors, Sinter Plant 1 and Blast Furnaces Nos. 1 and 2.

With reference to the proposed improvements in the organisation structure of Hadisolb, the following are steps in physical reporting from the fourth organisational level, up to the first organisational level:

1. At the end of each shift, each general shift foreman will submit a report containing quantity produced and quantity consumed.
2. Every morning the Production Manager in each sub-division will have three physical reports, day, evening, night, and will consolidate those reports in a daily physical report containing

physical production and physical consumption. Meanwhile, the Production Manager in each sub-division will carry out a comparison between daily actual production and consumption, and daily schedule for production and consumption; compute variances and carry out necessary investigations.

3. Each Production Manager in each sub-division will submit a daily report of physical production and consumption, together with reasons for departures from schedules. These reports will be submitted to the Production Manager of Sinter Plant 1 and Blast Furnaces 1 and 2.
4. The Production Manager of Sinter Plant 1 and Blast Furnaces 1 and 2 will develop a daily physical report containing physical production and consumption. A comparison between daily production and consumption will be compared with schedules. Deviations are computed with reasons written down from previous reports developed and submitted to him by sub-divisions. Meanwhile, the Production Manager of Sinter Plant 1 and Blast Furnaces 1 and 2 will develop a weekly physical report to be submitted to the Production Director of Steel Operations Division.
5. The Production Director of steel operations will be receiving similar physical reports from other producing divisions in the steel operations sectors, he in turn will develop a weekly consolidated physical report and carry out a comparison between weekly actual physical production and consumption and schedules programmes. Diviations are to be computed and investigated. Noting that previous physical reports from lower levels contain reasons for deviation, therefore, he will be actually

consolidating deviations and reasons.

6. The Production Director of Steel Operations will develop a monthly physical report containing physical production and consumption within the last month and will submit this report to Vice-President of Production who at the same time will be receiving a physical report from the Production General Director of Mines and Quarries. Vice-President of Production will develop a corporate monthly production report. A comparison between monthly actual production and consumption and the budget will be carried out, deviations are to be computed and investigated. The monthly physical report will then be submitted to the Chairman and President of Hadisolb.

b) Structure of Physical Reporting

Annex One at the end of this chapter contains charts which illustrate and summarise the structure of physical reporting in Hadisolb. As mentioned before, it will be concerned with Sinter Plant 1 and Blast Furnaces 1 and 2 division in the steel operations sector and will be applied to any producing division in Hadisolb.

2. Financial Control Systems

As to financial control systems, the author's concern will now be with suggested improvements in the most ineffective of them all, namely, cost control, in more specific terms "the controllable elements of costs". Other financial control systems as carried out at present in Hadisolb are satisfactory.

The essence of cost control is to ensure that cost incurrence is in line with that projected, to ensure the achievement of predetermined objectives and goals.

A cost control system is distinguished by the following characteristics:

- a) Projected costs are according to a realistic and properly established standard costing system.
- b) The organisation for control must be designed so that cost incurrence reporting is as automatic as possible.
- c) Actual costs incurred must be compared with budgeted; variances should be computed and analysed.
- d) Corrective action is to be taken in order to prevent variance incurrence in the future.

Hadisolb at present does not employ a standard costing system; a point which the author criticised before, however, the author stresses that Hadisolb has to start designing its standard costing

system in order to achieve an effective control of costs which is the most important advantage of a standard costing system.

As to cost projections which will be built upon the newly designed and introduced standard costing system, these cost projections should be built from the lowest managerial level to the highest. At each level projections of costs will be reviewed and approved before passing them up to the higher level. The Cost Accounting Department at each level will be responsible for developing cost projections. So, at the highest level, namely, at the office of Vice-President Finance, the Cost Accountant will develop a corporate cost projection for Hadisolb as a whole and it will become a working document within which all cost centres will operate, and actual costs compared.

As variance analysis will be the subject of the next section, therefore, this section is concerned with suggested improvements in the following:

1. Cost Control Reporting
2. Cost Control Structure.

As previously dealt with in physical control, Sinter Plant 1 and Blast Furnaces 1 and 2 in the steel operations sector is chosen for illustration, however, the suggested cost control reporting and structure will apply to any cost centre in Hadisolb.

1. Cost Control Reporting

Cost control deficiencies in Hadisolb arise from its ineffective control reporting. At the time the author carried out his investigations, cost reports were six months in arrear. Cost reports together with variances from plans should be brought to the notice of managers so that corrective action can be taken as early as possible.

Suggested improvements in Hadisolb's cost control reporting are explained in the following:

- a) The general shift foreman in each of Sinter Plant 1 and Blast Furnaces 1 and 2 will be responsible for the preparation of cost report containing direct material, direct labour, and direct overheads incurred in his shift. So, the general foreman of each department will have three cost reports; morning, evening, and night cost reports. He, in turn, will be responsible for the preparation of a daily cost report which is to be presented to the Cost Accounting Department in Sinter Plant 1 and Blast Furnaces 1 and 2 sub-division.
- b) The Cost Accountant in the Sinter Plant 1 and Blast Furnaces 1 and 2 sub-division, is to prepare a daily cost report for the Division from which a weekly cost report is to be prepared and compared with the budget. Variances are to be computed and analysed. Investigations are to be carried out with responsible personnel, and corrective action is to be taken. The weekly cost reports together with variances is to be passed

- up to the Cost Accountant in the steel operations division.
- c) The Cost Accountant in the steel operations division will be receiving cost reports from all sub-divisions in the Division. He in turn is to prepare a monthly cost report which is to be compared with the monthly budget. Variances are to be computed and analysed. Investigations are to be carried out with responsible personnel, and corrective action is to be taken. The monthly cost reports together with variances reports are to be passed up to the Cost Accounting Division under the supervision of Vice-President of Steel Operations Sector.
- d) The Cost Accountant in Vice-President of Steel Operations Sector will be receiving cost reports from all divisions in the Sector. He in turn will prepare a monthly cost report for the Sector as a whole to be compared with the budget for the month. Variances are to be computed, analysed, and compared with variances reports received from divisions. Investigations are to be carried out with responsible personnel and corrective action is to be taken. The monthly cost report together with variances are to be passed up to Vice-President of Finance.
- e) The Cost Accountant in the Vice-President of Finance office will be receiving a similar monthly cost report from the Mines and Quarries Sector. He in turn will prepare a consolidated cost report for Hadisolb as a whole. A comparison between actual costs incurred and the budget for the month

is to be carried out. Variances will be already reported from the two main sectors, together with analysis and investigations. A summary will be prepared to be presented to the Chairman and President of Hadisolb. Necessary corrective action is to be taken.

The suggested improvements in Hadisolb's cost reporting system might be rejected from the company because any costs which will accrue due to employing new personnel to carry out the new work, however, Hadisolb is overmanned, in line and staff function, a fact which Hadisolb's management knows very well. So, selected personnel from those overmanned can be chosen and trained for the new work. This suggestion will only cost Hadisolb the cost of training the chosen personnel for the new task. Alternatively, if new employees have to be employed to carry out the additional work, the author is convinced that the reduction in costs as a result of an effective cost control system will be more than those costs which will be incurred due to employing new personnel.

2. Cost Control Structure

Annex Two, at the end of this chapter, contains charts which illustrate the suggested cost control system and summarises how cost reporting will be carried out. As pointed out before, Sinter Plant 1 and Blast Furnaces 1 and 2 Sub-division is chosen for illustration. The structure will be followed by suggested forms for cost control. (Annex Three). The suggested structure will be applied to all cost centres in Hadisolb.

Section Two:

Suggested Improvements in Hadisolb's Analyses of Variances

In the last section, the conclusion has been reached that objectives cannot be achieved without having an effective control system. One phase of any control system is to compare actual performance with the budget; variances have to be computed and analysed.

Chapter Fourteen of this thesis introduced a suggested planning system to Hadisolb. Then, Section One of Chapter Fifteen introduced suggested improvements in Hadisolb's control system. This last section of the thesis is mainly suggested improvements in Hadisolb's analysis of variance.

Chapter Twelve has shown the shortfalls in the way Hadisolb is at present carrying out variance analysis. A conclusion has been reached at the end of that chapter that variance analysis, as it is at present in Hadisolb, is carried out to fulfil government and government agencies requirements. In particular, the forms imposed by the Standardised Accounting System (SAS) on companies in the public sector. Variance analysis is not carried out in order to control the business or for taking corrective action for the future.

Variance analysis as carried out at present needs major improvements in order to coincide with the suggested improvements in planning and control systems dealt with before. The author, therefore,

finds it most useful to Hadisolb to introduce a variance analysis system in detail.

1. General Recommendations

- a) For variance analysis to be effective, line managers and foremen must themselves be involved in tracing the reasons for variance incurrence, in order to take any necessary action to control such variances.
- b) There should be a degree at which the variances are regarded as serious, and the stage at which action should be taken.
- c) Controllable variances should be recognised in order that responsibilities can be identified.
- d) Consideration should be given to profit variance which is the result of a comparison between actual and budgeted profit instead of the system at present in Hadisolb which considers the profit margin variance on finished goods as a total variance.
- e) Profit variance should be computed, reported, and analysed two weeks after the end of each month in order to take timely corrective action.

The detail of carrying out the variance analysis will differ according to the period it covers, i.e. profit variance, which represents total variance practically cannot be carried out on daily or weekly basis, so it should be carried out monthly. However, the principles and methods of carrying out variance analysis as described below will remain valid for the calculation of variances

and their analysis on a daily and weekly basis.

2. Profit Variance

Profit or total variance will be computed firstly as a rate of return on total capital employed. Justification is that profit as an objective will be determined as a rate of return. So, actual rate of return on total capital employed is to be compared with the budget to calculate the profit variance.

Profit variance as a rate of return

= Actual Rate of Return Achieved - Budgeted Rate of Return

Profit variance as a rate of return on total capital employed will not be valid for analysis purposes. So, net profit before tax and interest is needed to carry out the necessary analysis.
Profit variance = Actual Net Profit - Budgeted Net Profit.

I have to stress that the net profit which is to be used for the analysis is that before tax and interest to reflect the management's performance.

Profit variance, if unfavourable, shows that there are deficiencies in the company's performance; however, alone it does not show causes for its occurrence. A detailed analysis is needed to analyse the profit variance to its factors as well as the differentiation between controllable and uncontrollable variances, as controllable variances lie under certain responsibilities, therefore, responsible personnel will be investigated as to variance occurrence under their control.

2.1. Sales Variance

Sales Variance is computed as follows:

$$\begin{aligned} \text{Sales Variance} &= \text{Actual Sales Revenue} \\ &\quad - \text{Budgeted Sales Revenue.} \end{aligned}$$

The sales variance as described above does show whether variances occurred or not, whether the variance is favourable or unfavourable. However, it does not show the reasons for variances. More analysis is needed to cover the following:

- a) Sales Price Variance
- b) Sales Volume Variance
- c) Sales Mix Variance.

a) Sales Price Variance

This variance will be computed to each single product which Hadisorb produces and sells, then, a total sales price variance will be the result of adding them together. This also can be achieved by having a budgeted average selling price and an actual average selling price. Whatever method is used, the sales price variance is computed as follows:

$$\begin{aligned} \text{Sales Price Variance (Product -)} \\ &= (\text{Actual Quantity Sold} \times \text{Actual Selling Price}) \\ &\quad - (\text{Actual Quantity Sold} \times \text{Budgeted Selling Price}). \end{aligned}$$

Alternatively, the sales price variance may be computed as follows:

due to changes in quantity sold of each product has to be calculated, then, by adding them together a sales mix variance will be obtained as follows:

$$\begin{aligned} & \text{Sales Mix Variance Product ()} \\ & = (\text{Actual Quantity Sold} - \text{Budgeted Quantity for Sale}) \\ & \times \text{Budgeted Contribution Margin for Product ()} \end{aligned}$$

$$\begin{aligned} & \text{The Budgeted Contribution Margin for Product ()} \\ & = \text{Budgeted Selling Price for the Product} \\ & - \text{Budgeted Variable Costs for the Product.} \end{aligned}$$

2.2. Cost Variances - Raw Materials

Raw material variances will be reflected in two different reports.

- (1) The Purchasing Manager should be responsible for controlling the purchase price of raw materials, the timing and quantity of raw material purchases, and inventory levels.

In respect to variances, the report submitted by the Purchasing Manager will include the following variances:

a. Raw Materials Volume Variance

This is done by comparing actual quantity purchased with budget; the variance is computed as follows:

$$\begin{aligned} & \text{Raw Material Volume Variance} \\ & = (\text{Actual Quantity Purchased} \times \text{Budgeted Price}) \\ & - (\text{Budgeted Quantity} \times \text{Budgeted Price}) \end{aligned}$$

b. Raw Material Price Variance quantity at budgeted price as

This variance is computed by comparing actual quantity purchased at actual price with actual quantity purchased at budgeted price.

Raw Material Price Variance

$$\begin{aligned} &= (\text{Actual Quantity Purchased} \times \text{Actual Price}) \\ &- (\text{Actual Quantity Purchased} \times \text{Budgeted Price}) \end{aligned}$$

- (2) Each manager in the producing centres is responsible for the controllable elements of raw material, i.e. direct material. The actual cost of raw material used is affected by the price at which it is purchased, and usage of raw material. Each manager in the producing centres is responsible for raw material usage, however, two variances are computed in respect of direct material.

a. Direct Material Price Variance

This variance is computed by comparing actual direct material used at actual price with actual direct material used at budgeted price as follows:

Direct Material Price Variance

$$\begin{aligned} &= (\text{Actual Direct Material Used} \times \text{Actual Price}) \\ &- (\text{Actual Direct Material Used} \times \text{Budgeted Price}) \end{aligned}$$

b. Direct Material Usage Variance

This variance is computed by comparing actual quantity used at

budgeted price with budgeted quantity at budgeted price as follows:

Direct Material Usage Variance

$$\begin{aligned} &= (\text{Actual Quantity of Direct Material Used} \times \text{Budgeted Price}) \\ &- (\text{Budgeted Quantity of Direct Material} \times \text{Budgeted Price}) \end{aligned}$$

2.3. Cost Variances - Direct Labour

Direct labour variance is computed by comparing actual direct labour paid with budget. This variance has to be analysed to its causes which may be wages rate and/or direct labour efficiency. So, three variances are developed as follows:

a. Direct Labour Variance

$$= \text{Actual Direct Labour Cost} - \text{Budgeted Direct Labour Cost}$$

b. Direct Labour Rate Variance

This variance is computed by comparing the cost of actual hours worked at actual rate paid with actual hours worked at budgeted rate as follows:

Direct Labour Rate Variance

$$\begin{aligned} &= (\text{Actual Hours Worked} \times \text{Actual Labour Rate}) \\ &- (\text{Actual Hours Worked} \times \text{Budgeted Labour Rate}) \end{aligned}$$

c. Direct Labour Efficiency Variance

This variance indicates the efficiency of using available hours for production and is computed by comparing actual hours

at budgeted rate with budgeted hours for production at budgeted rate as follows:

Direct Labour Efficiency Variance

= (Actual Hours Worked x Budgeted Labour Rate)

- (Budgeted Hours for Actual Production x Budgeted Labour Rate)

2.4. Cost Variances - Overheads

A realistic analysis of overhead variance can be computed provided that overhead expenses are identified as to their fixed and variable components.

As to the vagueness which surrounds the analysis of overhead variance, detail is needed to overcome this problem.

Overhead variance is defined by the I.C.M.A. as follows:

"The difference between the standard cost of overhead absorbed in the output achieved and the actual overhead cost".

Overhead variance may be analysed into a number of sub-variances, as follows:

a) Overhead Volume Variance

This variance is defined by the I.C.M.A. as follows:

"That portion of the overhead variance which is the difference between the standard cost of overhead absorbed in actual output and the standard allowance for that output".

The overhead volume variance may be calculated as follows:

$$= (\text{Overhead rate per Standard Hour} \times \text{Standard Hours Value of production}) - (\text{Overhead Rate per Standard Hour} \times \text{Budgeted Standard Hours})$$

b) Overhead Expenditure Variance

This variance is defined by the I.C.M.A. as follows:

"That portion of the overhead variance which represents the difference between the standard allowance for the output achieved and the actual expenditure incurred".

The standard allowance in the I.C.M.A. definition is the budgeted overhead for the period.

The overhead expenditure variance may be calculated as follows:

$$= \text{Actual Overhead} - \text{Budgeted Overhead.}$$

c) Overhead Volume Efficiency Variance

This variance is defined by the I.C.M.A. as follows:

"That portion of the volume variance which reflects the increased or reduced output arising from efficiency above or below the standard which is expected".

The overhead volume efficiency variance may be calculated as follows:

$$= (\text{Overhead Rate per Standard Hour} \times \text{Actual Hours Worked on Production}) - (\text{Overhead Rate per Standard Hour} \times \text{Standard Hours Value of Production}).$$

d) Overhead Capacity Usage Variance

This variance is defined by the I.C.M.A. as follows:

"That portion of the volume variance which is due to working at higher or lower capacity usage than standard".

The overhead capacity usage variance may be calculated as follows:

$$= (\text{Overhead Rate per Standard Hour} \times \text{Actual Hours Worked on Production}) - (\text{Overhead Rate per Standard Hour} \times \text{Budgeted Standard Hours}).$$

e) Administration Overhead Variance

Each product absorbs administration overheads on the basis of the standard factory cost of sales. Actual administration overheads are compared with absorbed administration overheads for the calculation of administration overhead variance as follows:

Administration Overhead Variance

$$= (\text{Actual Overheads Incurred} - \text{Absorbed Overheads})$$

f) Selling and Distribution Overhead Variance

Each product absorbs selling and distribution overheads at a rate per unit. Actual selling and distribution overheads are compared with absorbed selling and distribution overheads for the calculation of selling and distribution overhead variance as follows:

Selling and Distribution Overhead Variance

$$= (\text{Actual Selling and Distribution Overheads} - \text{Absorbed Selling and Distribution Overheads})$$

As this chapter closes, there remains an important recommendation to present to Hadisolb. The history of the company proves its inability to achieve the planned volume of production. So, it will be of great use for Hadisolb to employ the flexible budget technique.

Hornngren (110) points out that flexible budgets have the following distinguishing features:

- a. They are prepared for a range of activities instead of a single level;
- b. They supply a dynamic basis for comparison because they are automatically geared to changes in volume.

Hornngren concludes his definitions of flexible budgets by saying "The flexible budget approach says, Give me any activity level you choose, and I'll provide a budget tailored to that particular volume".

In the case of Hadisolb, a flexible budget would show the planned behaviour of costs at various volume levels. In applying this technique, comparisons will then be between actual costs incurred and budget allowances that are adjusted to the level of activity actually attained.

Annex One: Structure of Physical Reporting "Steel Operations"

1. Sinter 1 and Blast Furnaces 1 and 2

The following system for production control applies for any producing centre in Hadislob:

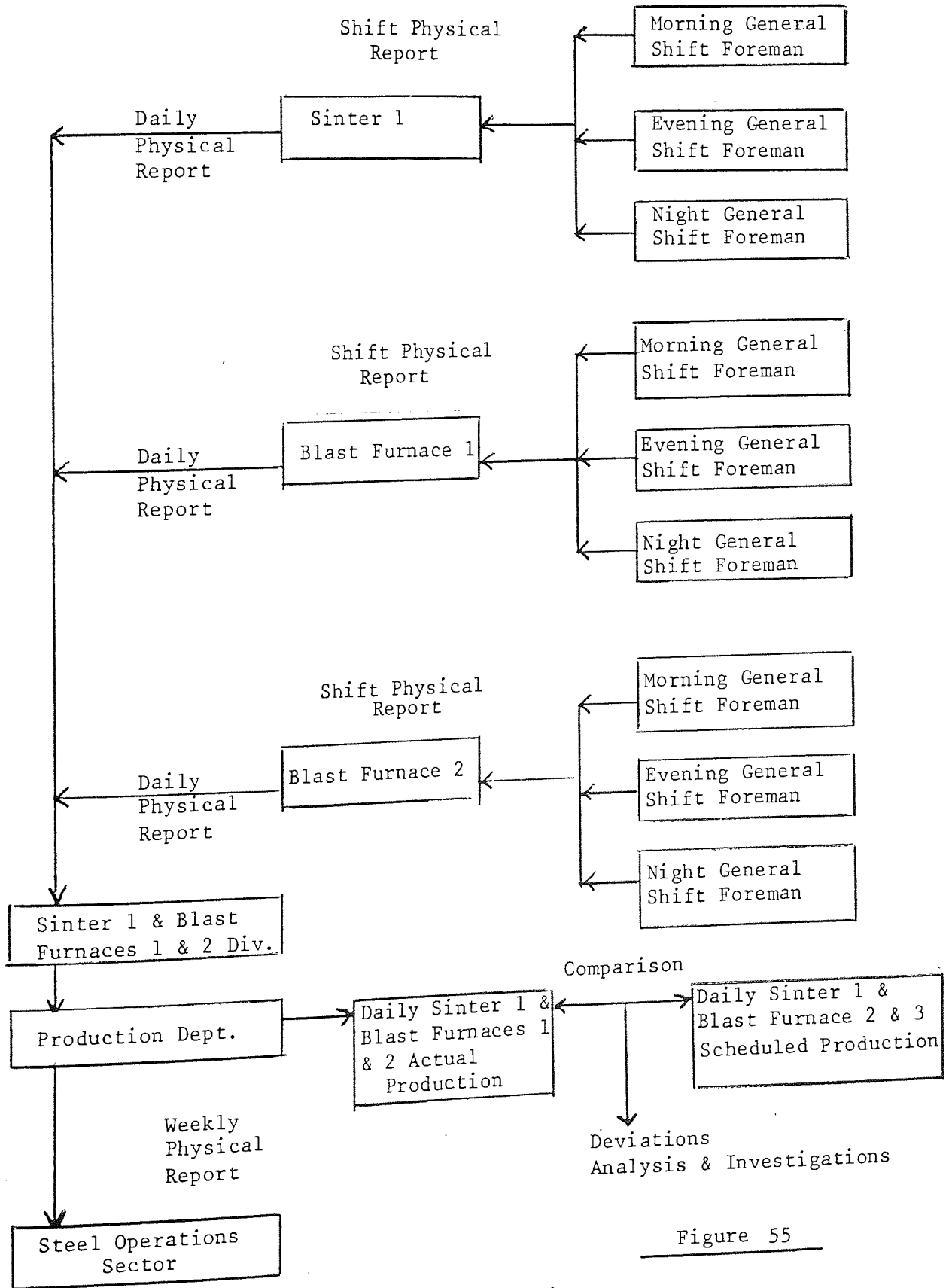


Figure 55

2. Steel Operations Sector

The following control system applies to each sector within the Mines & Quarries Sectors.

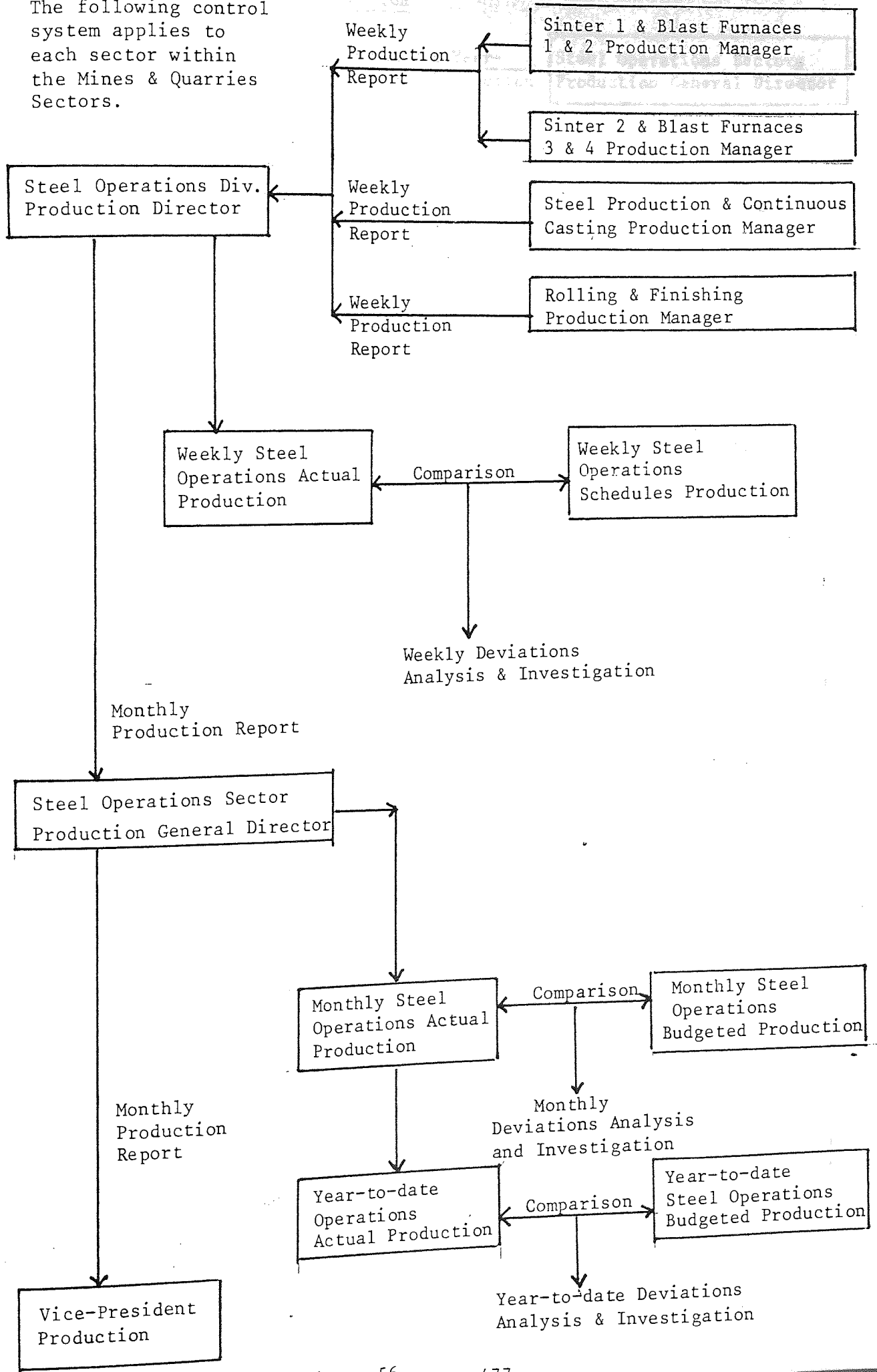


Figure 56

3. Vice-President Production

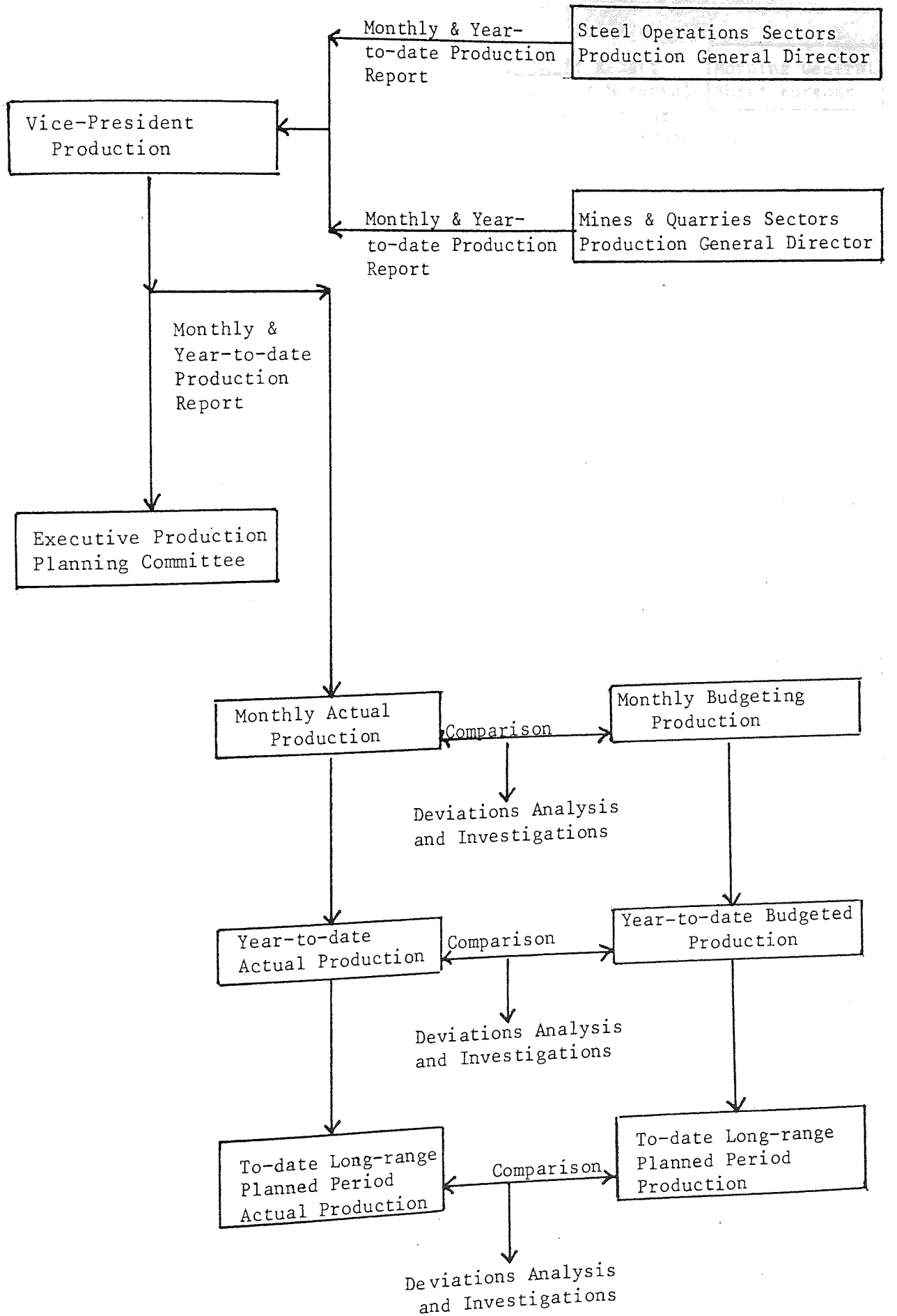


Figure 57

Annex Two: Cost Control Structure "Steel Operations"

Level 4

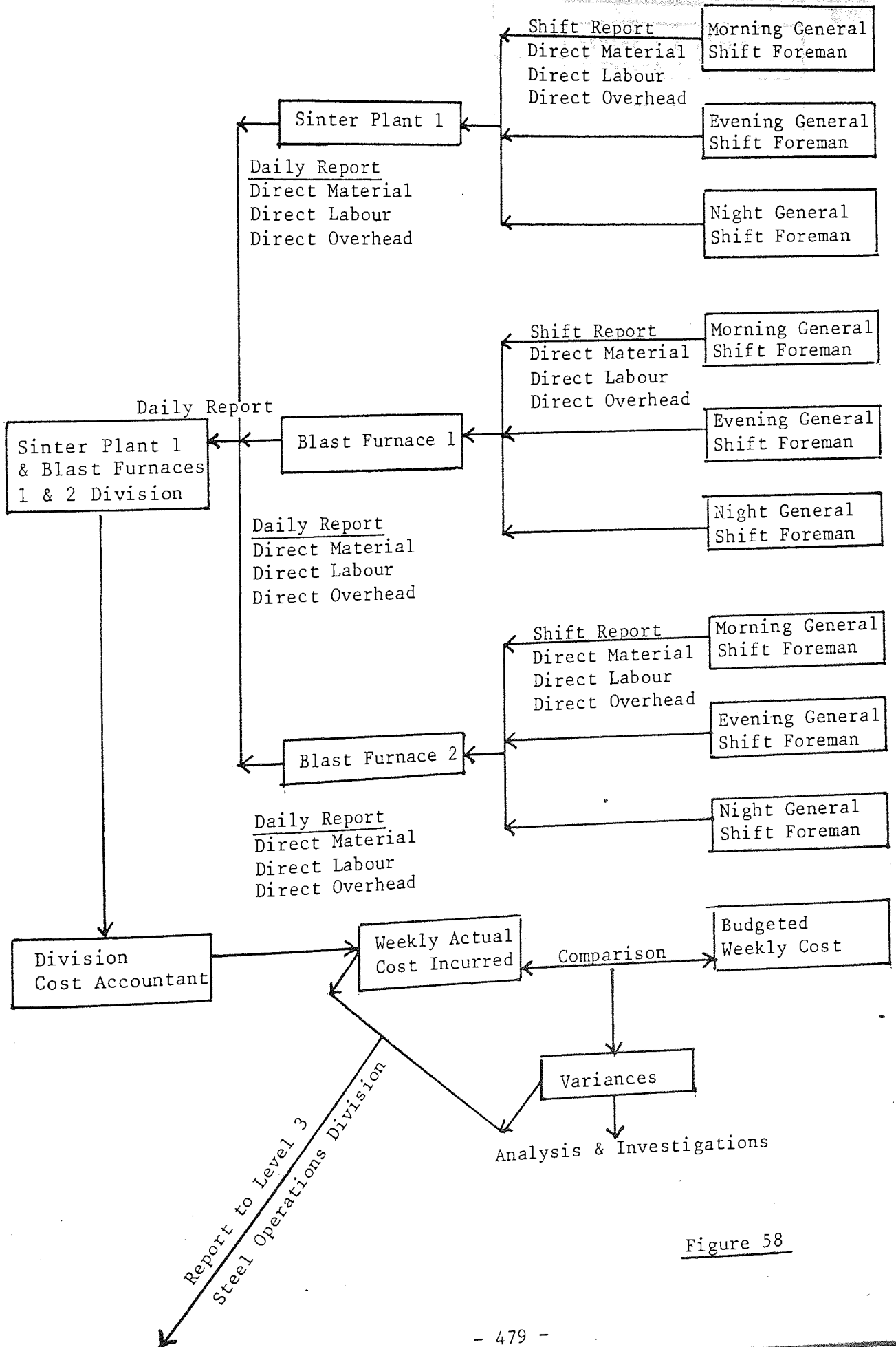


Figure 58

Level 3

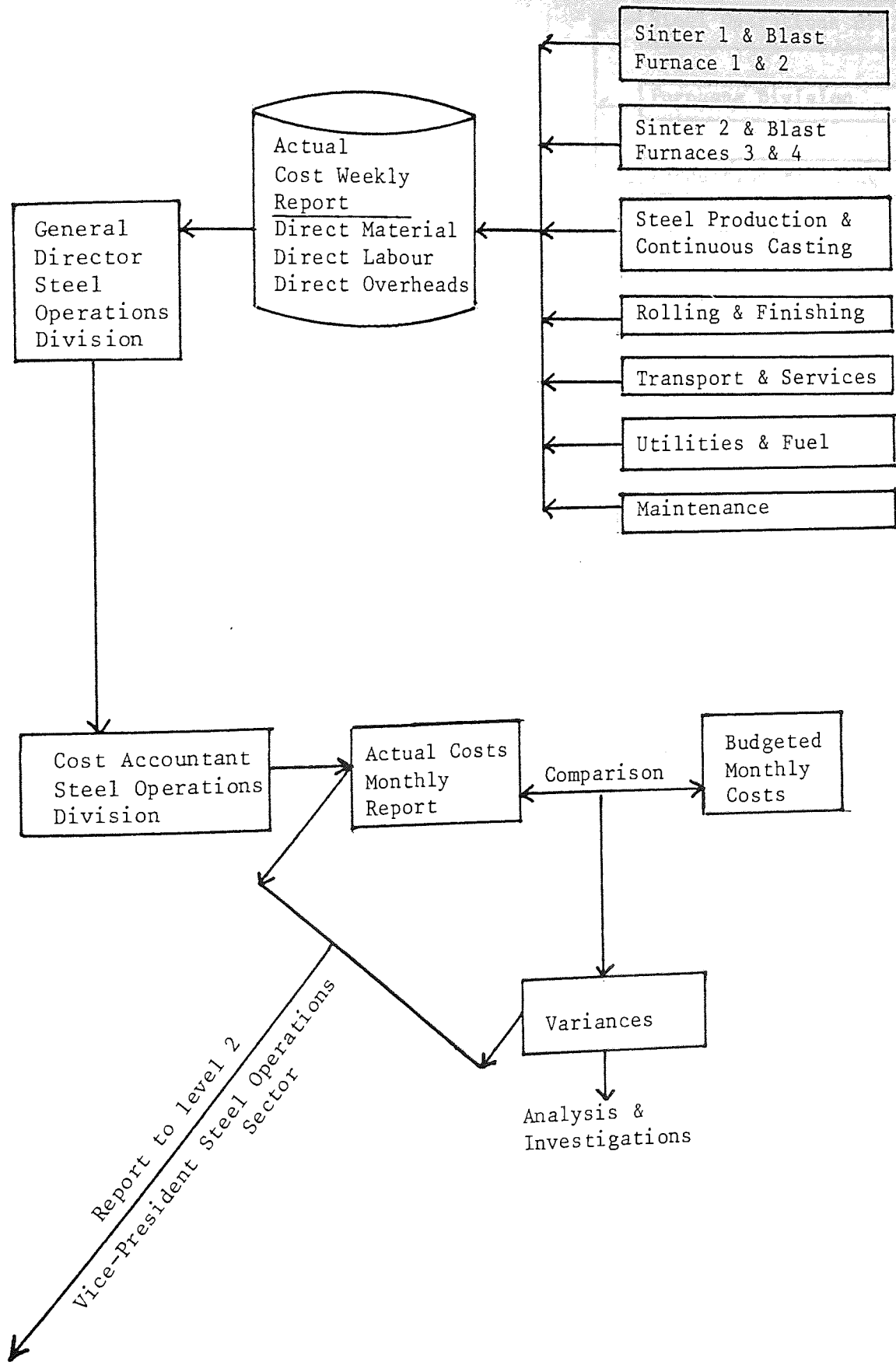


Figure 59

Level 2

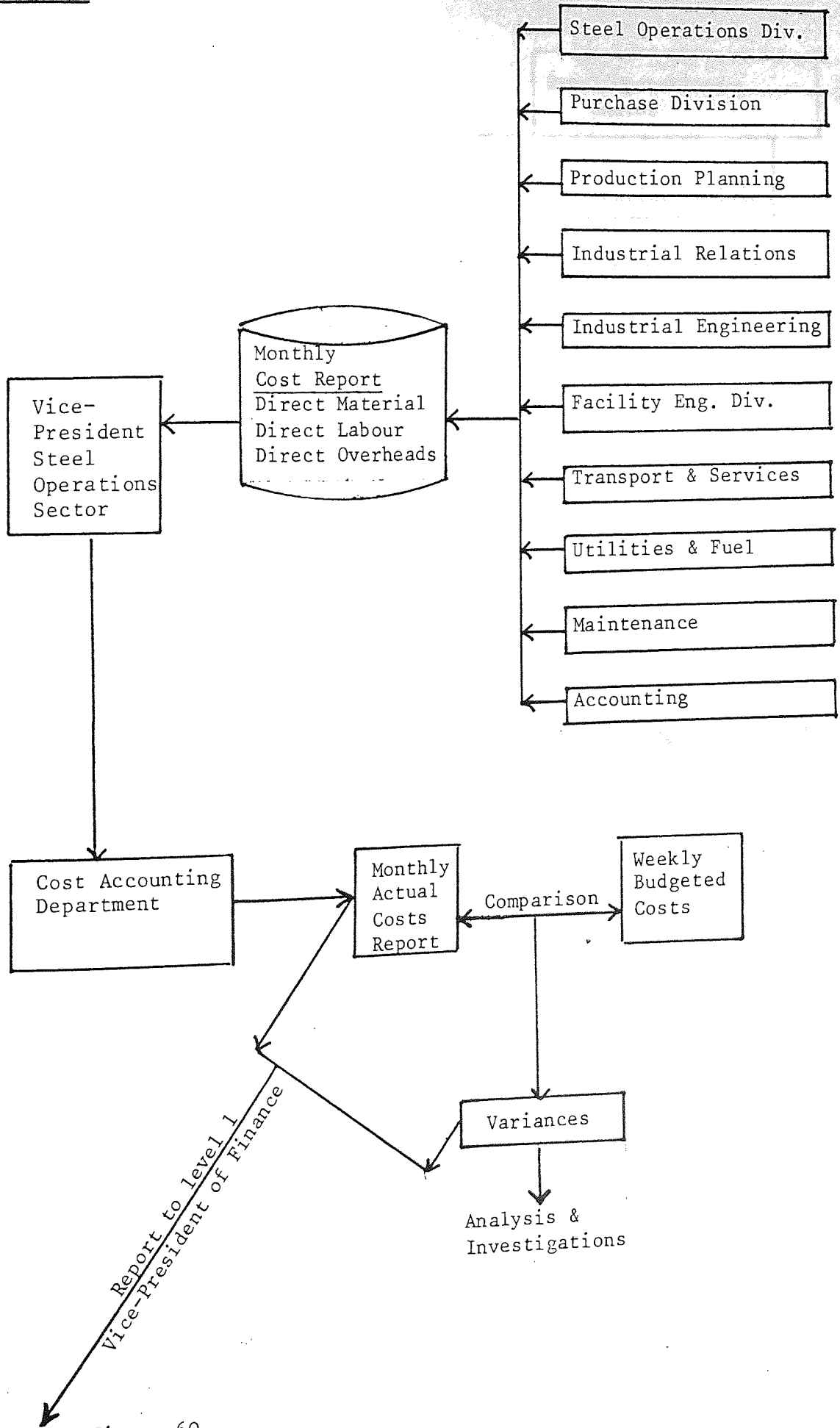


Figure 60

level 1

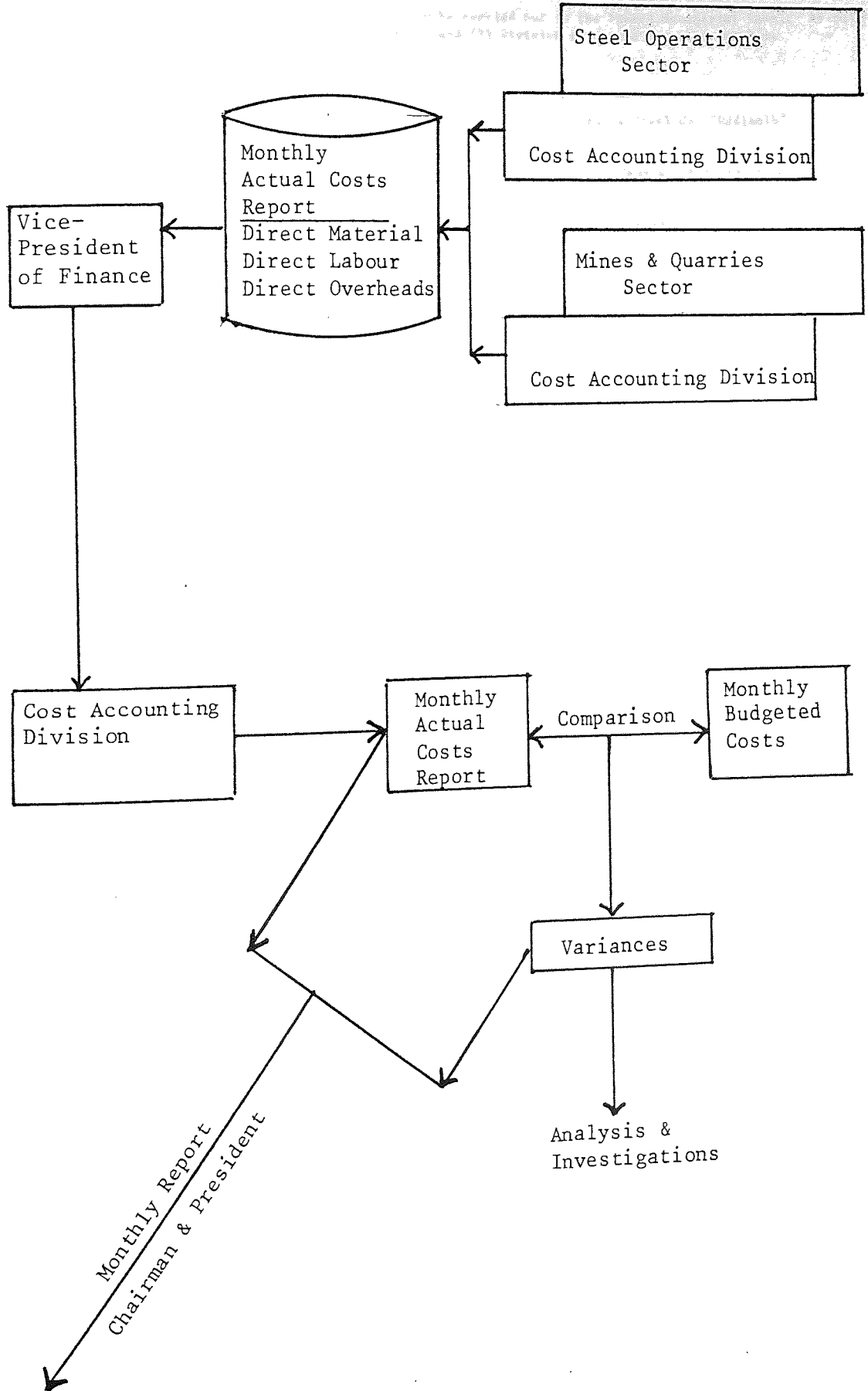


Figure 61

Annex Three

Cost Control Forms

"Steel Operations"

The following forms show how cost control is to be carried out in the lowest Managerial level. As pointed out before, Sinter Plant (1) and Blast Furnaces (1) and (2) Division is chosen for illustration.

Managerial Level (4) Daily Reports

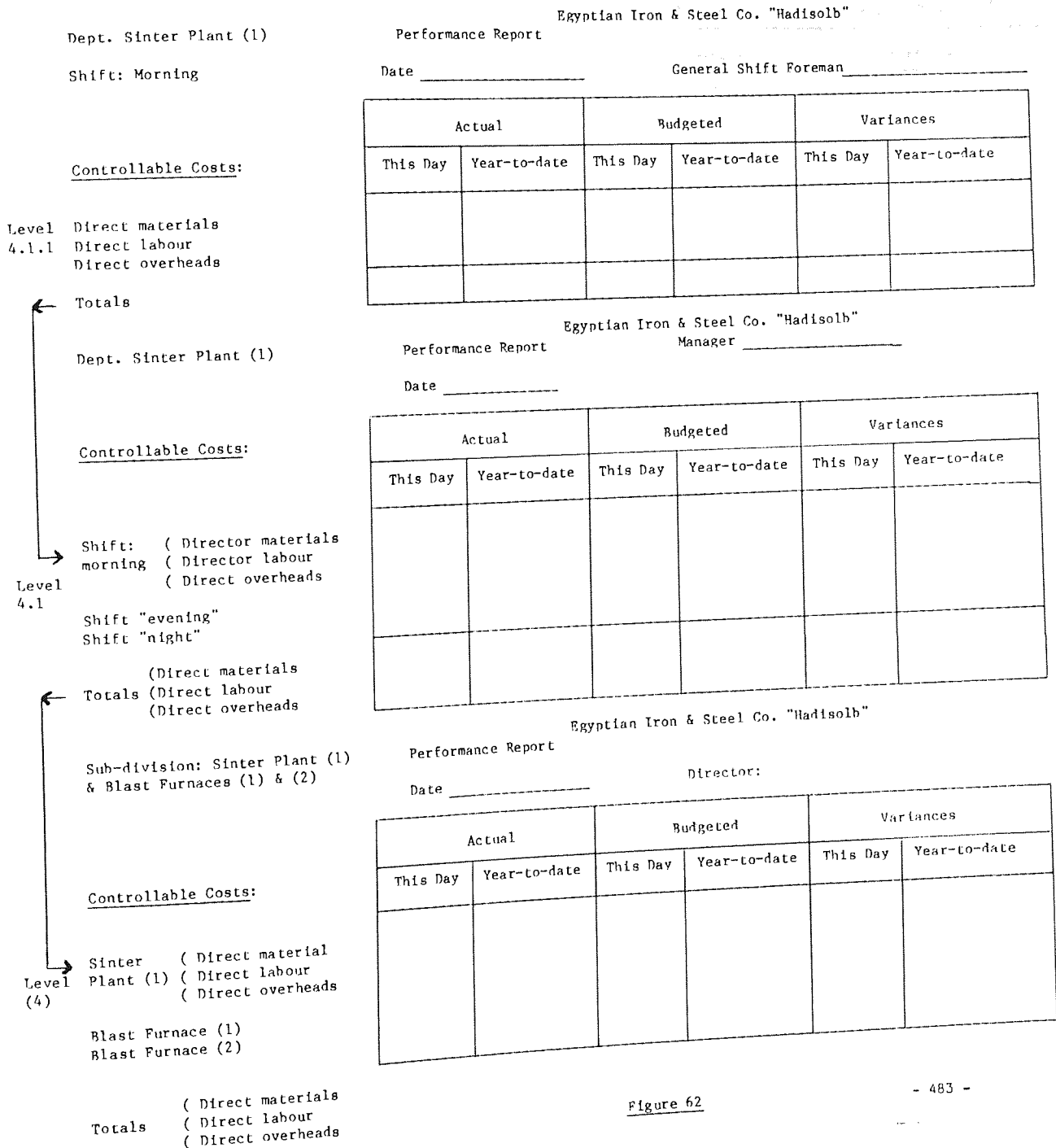


Figure 62

Levels 4 & 3 Weekly Reports

From
Level (4) Sub-division: Sinter Plant (1)
& Blast Furnaces (1) & (2)

Egyptian Irons & Steel Co. "Hadisob"

Performance Report Director _____
Week Ending _____

Level (4) Controllable Costs:
Direct materials
Direct labour
Direct overheads

Actual		Budgeted		Variances	
This week	Year-to-date	This week	Year-to-date	This week	Year-to-date

Totals

Division: Steel Operations

Egyptian Iron & Steel Co. "Hadisob"

Performance Report General Director _____
Week Ending _____

Controllable Costs:

Sinter (1) &
Blast Furnaces (1) & (2)

Level (3)

(Direct materials
(Direct labour
(Direct overheads

Sinter (2) &
Blast Furnaces (3) & (4)
Steel production
& Continuous Costing
Rolling & Finishing

Actual		Budgeted		Variances	
This week	Year-to-date	This week	Year-to-date	This week	Year-to-date

Totals

Direct materials
Direct labour
Direct overheads

To
Level (2)

Figure 63

Egyptian Iron & Steel Co. "Hadisob"

Division: Steel Operations

Performance Report
Month Ending _____

Managing Director _____

Controllable Costs:
Level (3)
Direct materials
Direct labour
Direct overheads

Actual		Budgeted		Variances	
This month	Year-to-date	This month	Year-to-date	This month	Year-to-date

← Totals

Sector: Steel Operations

Egyptian Iron & Steel Co. "Hadisob"

Performance Report
Month Ending _____

Vice-President _____

Controllable Costs:
Steel Operations
(Direct materials
(Direct labour
(Direct overheads
Production Planning
Level (2)
Industrial Eng.
Facility Eng.
Transport & Services
Utilities & Fuels
Maintenance

Actual		Budgeted		Variances	
This month	Year-to-date	This month	Year-to-date	This month	Year-to-date

From Level (2)

← Totals
(Direct materials
(Direct labour
(Direct overheads

Figure 64

Egyptian Iron & Steel Co. "Hadisob"

Performance Report
Month Ending _____

Vice-President Finance

Controllable Costs:
Steel Operation Sector
(Direct material
(Direct labour
(Direct overheads
Level (1)
Mines & Quarries Sector
Total
(Direct materials
(Direct labour
(Direct overheads

Actual		Budgeted		Variances	
This month	Year-to-date	This month	Year-to-date	This month	Year-to-date

Figure 65

In conclusion, it should be said that Hadisolb has certain major deficiencies in its planning and control systems. First of all, planning and control arrangements are designed not to meet the requirements of sensible and clearly-thought out company objectives, but to satisfy Government and Government Agencies, and in particular to follow certain rules, procedures and forms imposed on Hadisolb and all public sector companies in Egypt by the Standardised Accounting System. Secondly, there needs to be more effort put into a longer-term planning approach, since the emphasis at present is only in the budgetary planning area. This should involve all the traditional elements of long-term planning, and there needs to be proper links established between objectives, strategies, tactics, budgets and programmes. A change in organisation structure is called for, in order to facilitate the operation of appropriate planning and control procedures. Control needs to be made more effective, this implies the use of adequate physical reporting, better cost reporting on the basis of a standard costing system, a flexible budget approach and improvements in the analysis of variances.