

THE USE OF MANAGEMENT INFORMATION
SYSTEM FOR PRODUCTION PLANNING
AND CONTROL
(A CASE STUDY OF THE PHARMACEUTICAL
INDUSTRIES CORPORATION)

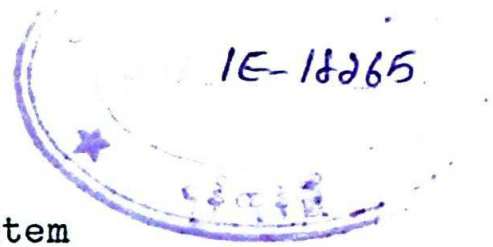
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Industries Corporation)

by

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CONTENTS

<u>CHAPTER</u>		<u>PAGE</u>
	Acknowledgement	
	List of Figures	
I	Introduction	1
	-Objectives of the Study	
	-Scope of Investigation	
	-Method of Study	
II	Theoretical Aspects of the Management Information System for Production Planning and Control	8
	-Definition of a Management Information System	
	-Hierarchy of Management Information System (MIS)	
	-Relation of Management Levels and Information Needs	
	-MIS for Production Planning and Control	
III	A Case Study of MIS for Production Planning and Control in Pharmaceutical Industries Corporation	26
	-Organization Structure and Management Levels	
	-Existing MIS for Production Planning and Control	

CONTENETS (contd.)

CHAPTER

PAGE

-Reporting Sub-system in Management Information System	
-General Evaluation of the Existing MIS for Production Planning and Control	
-Summary and Implications	
Appendices	86
References	95

List of Figures

<u>Figure Nos.</u>		<u>Page</u>
2-1	Hierarchy of Management Information System	12
2-2	The Management Information System as a Pyramid	12
2-3	Relationship of Decision Categories to Management Levels	15
2-4	Relation of Management Position and the Time Spent in Planning and Control	16
2-5	Relation of Managerial Position to Summarization of Information	19
2-6	Information Flow of MIS for Production Planning at Strategic Planning Level	20
2-7	Information Flow of MIS for Production Planning at Management Control Level	22
2-8	Information Flow of MIS for Production Control at Operational Control Level	24
2-9	Information Flow and Hierarchical View of MIS for Production Planning and Control	25
3-1	Organization Structure of the Ministry of No.(1) Industry	28
3-2	Organization Structure of Industrial Planning Department	30

<u>Figure Nos.</u>		<u>Page</u>
3-3	Organization Structure of Pharmaceutical Industries Corporation	32
3-4	Relation of Decision Categories to Management Levels in PIC	34
3-5	Organization Structure of BPI	37

Appendices

<u>Figure Nos.</u>		<u>Page</u>
3-6	Production Planning System of the Pharmaceutical Industries Corporation	86
3-7	Production Control System of Tablets Section of BPI	87
3-8	Reporting System for Daily, Weekly, and Monthly Production	88
3-9	Monthly Progress Reporting System	89
3-10	Reporting System for Quarterly Production	90
3-11	Information Flow for Production Planning and Control	94

Appendices

<u>Table Nos.</u>		<u>Page</u>
1	Analysis of Information Requirements, Sources, and Organizing for Four-Year Plan	91
2	Analysis of Information Requirements, Sources, and Organizing for Yearly Plan	92
3	Analysis of Information Requirements, Sources, and Organizing for Quarterly and Monthly Plan	93

CHAPTER (I)

INTRODUCTION

Productivity, a measure of effectiveness and efficiency, is a key factor in the development of business organizations. Managements of Industrial Corporations have to plan and control production systematically to increase productivity. Management information systems (MIS) play critical roles in the achievement of productivity. For the management information systems to be useful, they need to provide all levels of management with current, relevant, prompt, and up-to-date information. With these information, managers can plan and control production effectively and make sound decisions in the execution of plans.

Although it is not labeled as such, there exists management information systems in the Industrial Corporations in Burma exactly like the presence of a nervous system in the human biological systems. A study of the management information systems which exist in the Industrial Corporations of Burma is expected to render us with answers to such questions like "Are there adequate information in relation to the tasks in hand?", "Is the information provided to an officer tailored to his respective duties?" "Is the information obtained useful?" and "Is there an overabundance of irrelevant information?", etc. We hope this

study will contribute towards understanding general business problems of state-owned organizations in Burma.

Objectives of the Study

The present study of the management information system is chiefly concerned with its usage in the production activities. We have set the following objectives for the study.

- (1) To understand the present management information system of an Industrial Corporation.
- (2) To determine the adequacy of the information produced and communicated in relation to the tasks or jobs in hand.
- (3) To find out the extent to which the information provided to the executives are tailored to their duties, responsibilities, and authorities.
- (4) To investigate the relevance and usefulness of the information produced by the system.
- (5) To examine the abundance or perhaps overabundance of irrelevant information.
- (6) To determine the strengths, weaknesses, and problems of the management information systems in the Industrial Corporation, and
- (7) To come up with suggestions for the improvement of the MIS.

Scope of investigation

An industrial Corporation under the Ministry of No.(1) Industry has been chosen for our study. There are six corporations namely Textile, Food-stuff, Pharmaceutical, Ceramic, Metal, and General Industries under Ministry of No. (1) Industry. Among these Industrial Corporations, Pharmaceutical Industries Corporation is selected for our study because of the nature of the simple chemical production process which is easily understandable. Besides, the factories under this corporation are all situated in Rangoon.

The study is to be directed at the three levels of the managerial hierarchy namely ministerial level, corporation level, and factory level. For factory level, we will choose the Burma Pharmaceutical Industry which is the biggest in size and is also the most important one under the Pharmaceutical Industries Corporation. We therefore hope that the types of problems encountered in this factory will cover those problems found in the remaining nine factories under this corporation. The remaining factories are three Soap factories, two Plastic factories, one Pharmaceutical raw material factory, one Hydrogenated oil factory, one Household toilet goods factory, and Coconut products industry.

It is regarded that the ministerial level as strategic planning level, corporation level as management

control level, and factory level as operational control level. The ministerial level as top management sets the objectives of organization, rules of their conduct, and determines the long-term budget which is concerned with the allocation of material, man, machine capacity, and capital for production planning and control. The Industrial Planning Department under Ministry of No.(1) Industry is to be examined for the study at this level because it is a staff organization of the Ministry of No.(1) Industry.

At corporation level, management makes decisions for short-term production plans and detailed work plans. The study at the corporation level will be made at the head office of Pharmaceutical Industries Corporation as it plans for and controls the factories under the corporation.

At factory level, management prepares detailed production schedules for shop production. As such, production control function is exercised more at this level. The study at this level will be made by following through one major group of pharmaceutical products in the factory.

First of all, there will be a general investigation into organization objectives, lines of authority and responsibility, relationships among various departments at each level and the production planning system at respective levels. In the planning system, matters like personnel responsible for decision-making, planning horizon, tasks or activities planned, department responsible, change of plans

and their causes, and preparation of detailed plans for each organization will be studied. Basing on this background data, observation will be made on the following points.

- (1)Information requirement. Information has been defined as the essential raw material for making decisions. It consists of data that have been retrieved, processed, or otherwise used for planning and controlling operations.
- (2)Source of Information. Source of information is the point, origin or place from where data is obtained. Generally, there are two sources i.e. external and internal.
- (3)Organization of information. Information organizing in the sense of data collection or capture, storage and retrieval will be studied in our project.
- (4)Information flow. The study of information flow is the study about the channels of information, information dispatch among the various levels in the organization, the rate, frequency, timing, etc.
- (5)Information usage. We will analyze whether or not all the information obtained is suitable, relevant and used actually in decision-making. If all the information obtained is not used in decision-making, we need to study the reasons of their non-use like-late in receiving, overabundance of irrelevant information, etc.

(6)Use of equipment. Equipment is a material thing, object, matter or entity, big or small, needed for a purpose. We will study whether or not equipment is used in MIS for Production Planning and Control. Here, equipment can be computer, punched card, and calculator, etc.

(7)Reporting system. Reporting system is concerned with the provision of relevant information to executives to carry out their respective duties of planning, execution and control. Under this we will study the types of report, their frequency, regularity, filing or storage, usefulness to recipients, and person responsible for preparation.

Method of Study

In this study, the observation method in the form of personal interviews was used. Although no formal questionnaires were used, the persons to be interviewed were guided with the set questions to obtain essential data. The pre-set questions include the points on the process of planning and control, the required information, how they were received and processed, and how they are used.

Included in the interviews were responsible officials at IPD, PIC, and BPI. The total of thirty-eight managers related with production planning and control ranging from Director to the Head of Branch were

interviewed. All these persons took time and interest in explaining the existing MIS on the basis of the question asked.

Field work was undertaken between May and October, 1982.

CHAPTER (II)

THEORETICAL ASPECTS OF THE MANAGEMENT INFORMATION SYSTEM FOR PRODUCTION PLANNING AND CONTROL

Definition of a Management Information System

Management Information Systems have been defined in many different ways. The following are some of the definitions which could be found in current literature. We present below seven significant definitions.

Definition (1). Management information system is an information system which uses formalized procedures to provide managers at all levels in all functions with appropriate information from all relevant sources (both internal and external to the organization) to enable them to make timely and effective decisions for planning, directing and controlling the activities.¹

Definition(2). A management information system, fundamentally, is a financial control system, which is the principal basis of a good planning system.²

1. T. Lucey, Management Information Systems, An Instructional Manual for Business and Accountancy Students. Hore Stock Winchester, Hants, D.P. Pubns. 1978. P. 5.
2. La Verne, G. Milunovich, "Management Information System", Management Services a Magazine of Planning, Systems and Controls. March-April, 1970, P. 23.

Definition (3). Management information system is concerned with the receiving and perceiving of information and translating it into the language in which the system operates and the discrimination of the information.¹

Definition (4). A management information system may be defined as the set of human and capital resources within an organization which is responsible for the collection and processing of data.²

Definition (5). Management information system is described as a communications process in which data are recorded and revised to support management decisions for planning, operating, and controlling.³

Definition (6). Management information system refers to computer-based information processing systems. Therefore, it can be also defined as an integrated man-machine system.⁴

Definition (7). A MIS is an organized method of providing past, present, and projection information relating to internal operations and external intelligence.⁵

1. Arthur C. Laufer, Operations Management. Cincinnati: South-Western Pub. Co., 1975. P. 69.
2. Barry E. Cushing, Accounting Information Systems and Business Organizations. 2nd.ed. Reading Mass: Addison-Wesley Pub. Co., C. 1978, P.5.
3. Adrian M. Mc Donough and Leonard J. Garrett, Management Systems, Working Concepts and Practices. Homewood, Ill., R.D. Irwin, 1965, P. 4.
4. Gordon B. Davis, Management Information System Conceptual Foundations, Structure, and Development. McGraw-Hill, Inc., 1974, P. 4,5.
5. John Dearden, "MIS is a Mirage". Mc Farlan Nolan Norton, Information Systems Administration. 1973 by Holt, Rinehart and Winston, Inc. P. 71.

Although these definitions may differ in emphasis and points of view, all of them bear the same purpose of providing relevant and timely information for management decisions in planning, operating, and control. The primary purpose of a management information system is to expose significant relationships that will decrease uncertainty in organizational decision-making with a corresponding increase in the utilization of organization resources.¹

In a narrow sense, management information system is a sub-system like the financial control system which is included in the total system of organization. But, this term becomes broader today. In a wider sense, it is a system used in planning and decision-making at all levels for total organizational system.

As organizations grow and try to achieve their complex functions, data and information become more complex. Consequently computers become necessary for management information system in large organizations. Lately, many people accept the definition of management information system as an integrated man-machine system and a computer-based system.

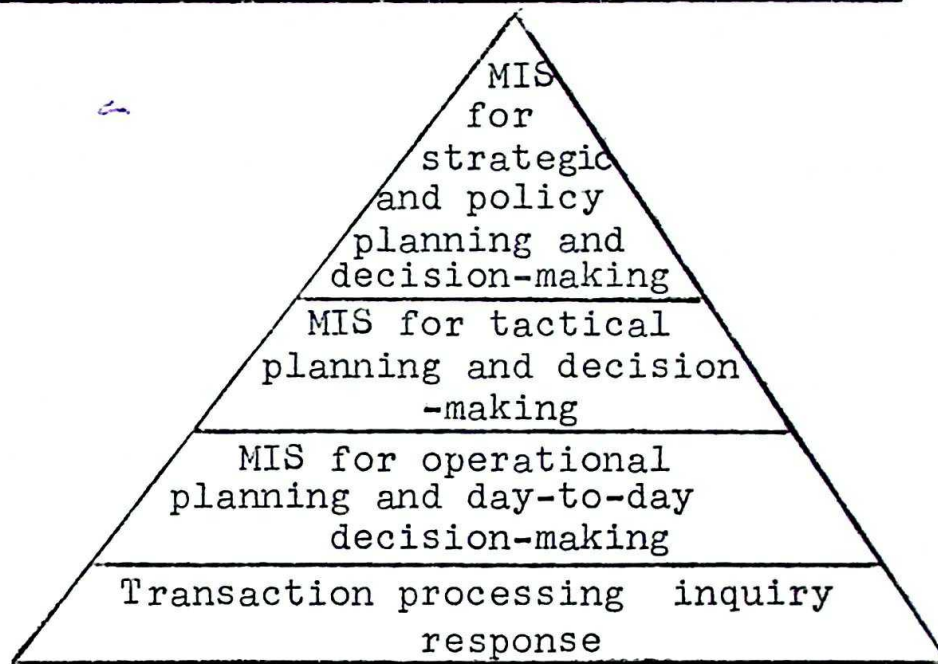
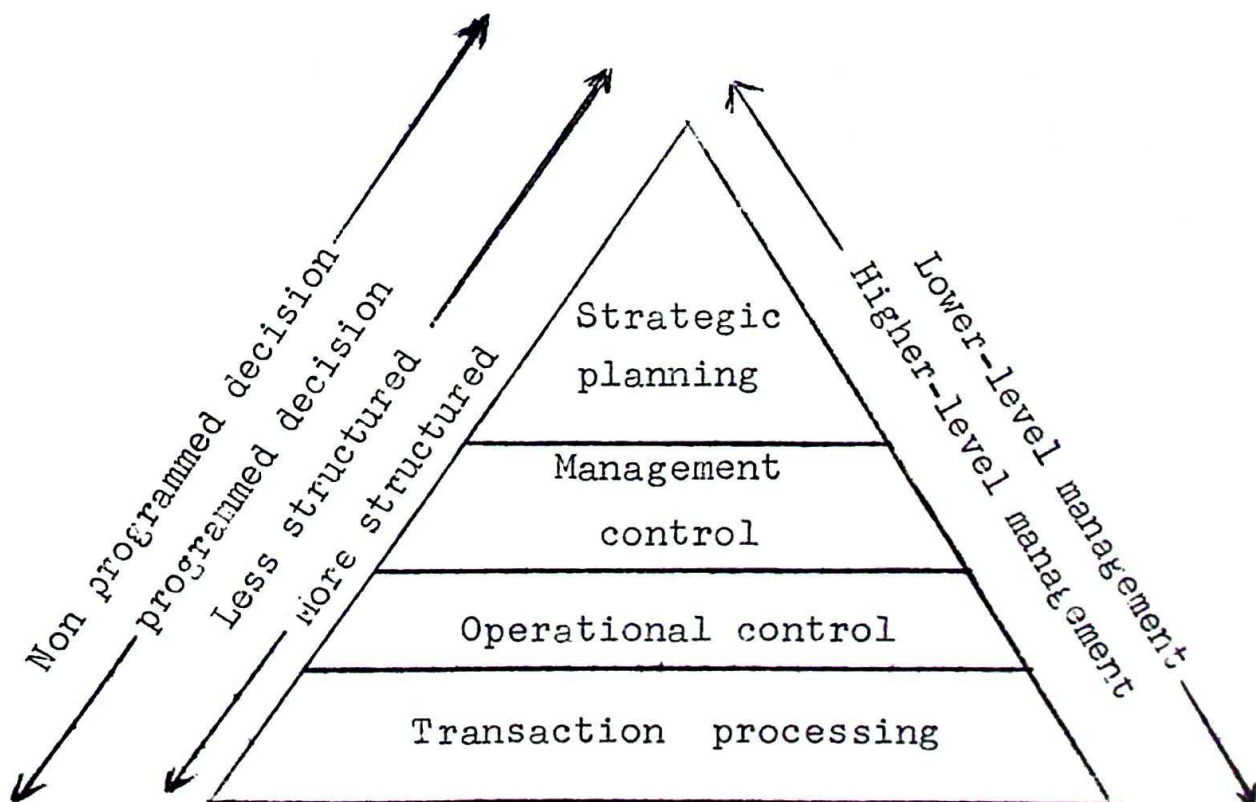
1. Gerald E. Nichols, "On the Nature of Management Information." Robert H. Trent & Thomas L. Wheelen, Developments in Management Information Systems. 1974 by Dickenson Publishing Company Inc. P. 70.

We can summarize from the above definitions that a management information system is "an information system which aids management decisions for planning and controlling of the activities in achieving the required objectives." In our study, the "activities" will naturally be production activities.

Hierarchy of Management Information System (MIS)

The management information system has been described as a four-layer pyramid structure as in Figure (2-1) in which the bottom layer consists of the information or transaction processing, status inquiries, etc.; the next level consists of information resources in support of the day-to-day operations management; the third level consists of information system resources to aid in tactical planning and decision making for management control; and the top level consists of information resources in support of strategic planning and policy-making by higher levels of management.

In Figure (2-2), the lower part of the pyramid constitutes structured, well-defined procedures, while the top part of the pyramid involves more and more unstructured processes. But, in some cases, lower level can be involved with unstructured processes and higher level with structured processes. The bottom levels of the pyramid are of more use to clerical personnel and lower-level managers, while the higher levels apply primarily to top management. Thus we can

Figure (2-1)Hierarchy of Management Information System¹Figure (2-2)The Management Information System as a Pyramid²

1. Gordon, B. Davis, op. cit., P. 4.

2. Ibid. P. 222.

say that the decision processes at the lower-level tend to be programmed while top-level decisions tend to be nonprogrammed.

According to Herbert Simon,¹ nonprogrammed decisions imply less dependence on the computer and more dependence on the basic character of the problem solving activity in question. The procedures, the kinds of computations and the types of information vary depending on the extent of structuredness of the problem in question. In a highly programmed situation, much if not all of the decision making process can be automated.

Management information system structure could be defined on the bases of management activity and organizational function.² Management information system structure can be summarized into three levels by management activity. The three levels of managerial activity according to Robert Anthony³ are strategic planning, management control, and operational control.

1. H.A. Simon, The New Science of Management Decision. New York: Harper & Row, 1966. P. 5.
2. G. Anthony Gorry and Michael S. Scott Morton, "A Framework for Management Information Systems". Sloan Management Review. Vol.13, 1971-72 No. 1, P.55. See also Alfred Rappaport, Information For Decision Making: Quantitative and Behavioral Dimensions. 2nd.ed. Englewood Cliffs, New Jersey, Prentice-Hall, c. 1975. P. 16.
3. R.N. Anthony, Planning and Control Systems: A Framework for Analysis. Boston: Harvard University Press, 1965. P. 16.

Strategic planning is the process of deciding on objectives of the organization, on changes in these objectives, on the resources used to attain these objectives, and on the policies that are to govern acquisition, use and disposition of these resources.

Management control is the process by which managers assure that resources are obtained and used effectively and efficiently in the accomplishment of the organization's objectives.

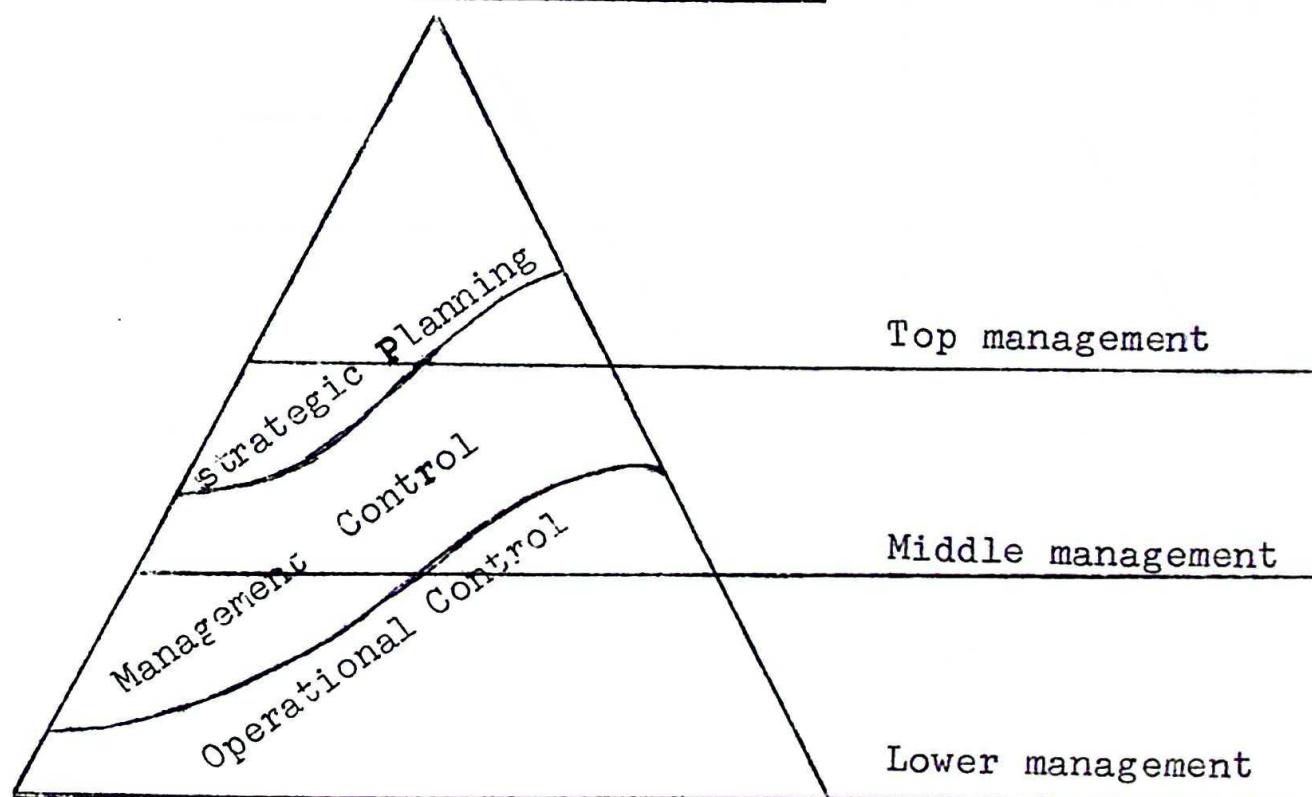
Operational control is the process of assuring that specific tasks are carried out effectively and efficiently. The basic distinction between management control and operational control is that operational control is concerned with tasks whereas management control is most often concerned with people.¹

It generally holds true that strategic planning is carried out by top management, management control by middle management, and operational control by supervisory management and employees at the lowest levels of the organization. However, in most organizations it is likely that middle management will participate to some extent in strategic planning, and may carry out some operational control functions as well. Further, both top-level and

1. G. Anthony Gorry and Michael S. Scott Morton, op. cit., P. 55.

lower-level managers may participate in some management control activities. Thus, there is a fairly strong correlation between the decision categories and the levels of management, but it is not a perfect correlation. A diagram representing this relationship is shown in Figure (2-3).

Figure (2-3)
Relationship of Decision Categories to
Management Levels¹



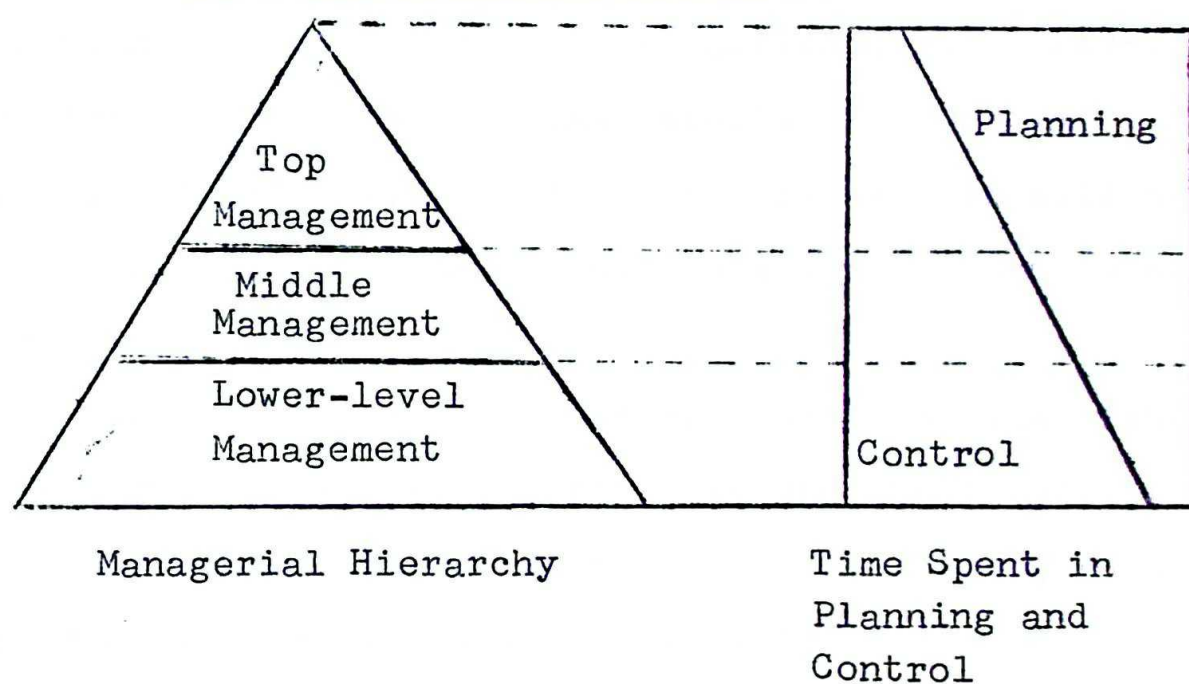
In the relation of managerial hierarchy and time spent in planning and control, the lower management is more control-oriented, while top management is more planning-oriented. But, sometimes planning function can be found

¹. Gerald E. Nichols, op. cit., P. 70.

in lower management and control function can also be found in top management. This situation is depicted in Figure (2-4) where management activity is bisected into planning and control.

Figure (2-4)

Relation of Management Position and the Time
Spent in Planning and Control¹



From the study of the hierarchy of management information system, we will proceed to look into the relation of management levels and information needs.

Relation of Management Levels and Information Needs

The primary function of a management information system is to transmit data quickly to the managers, so that

¹. Gerald E. Nichols, op. cit. P. 9.

the information can be used in time for planning, control, and decision purposes.¹ Managers require the information for effective planning and control of their functions and for making decisions. But, some managers do not realize what their information needs are, or even know what information is available.²

Without information, day-to-day or long-range organizational functions cannot be carried out.³ Therefore, information is the essential raw material for making decisions. It is providing accurate, timely, reliable and valid information on which to base an effective management decision.⁴

Information may have several attributes like true or false, new, incremental, corrective and confirmatory.⁵ Outdated information is not only useless-it is dangerous and can drastically affect the continuity of the profitability of the business in the future. Dynamic information systems rather than static systems are therefore essential.⁶

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1. Arthur C. Laufer, op. cit., P. 389.
 2. R.G. Anderson, Data Processing and Management Information Systems. 2nd.ed., Estover, Plymouth, Macdonald and Evans, 3rd.ed., 1979. P. 13.
 3. Robert L. Johnson and Irwin H. Derman, "How Intelligent Is Your 'MIS' ?" Peter P. Schoderbek, Management Systems. New York, John Wiley, 1967. P. 204.
 4. Raymond J. Coleman and M.J. Riley, MIS Management Dimensions, San Francisco, Holden Day, 1973, P. 135.
 5. Gordon B. Davis, op. cit., P. 30.
 6. R.G. Anderson, op. cit., P. 15.

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 4. Raymond J. Coleman and M.J. Riley, MIS Management Dimensions, San Francisco, Holden Day, 1973, P. 135.
 5. Gordon B. Davis, op. cit., P. 30.
 6. R.G. Anderson, op. cit., P. 15.

All levels of management need information on which to base decisions, to plan, to organize, and to control.¹ This information can be generally divided into two types: external and internal. External information includes population, market research, foreign trade, political and competitive information, etc. Internal information consists of material, man-power, machine capacity, capital and comparative information, etc.

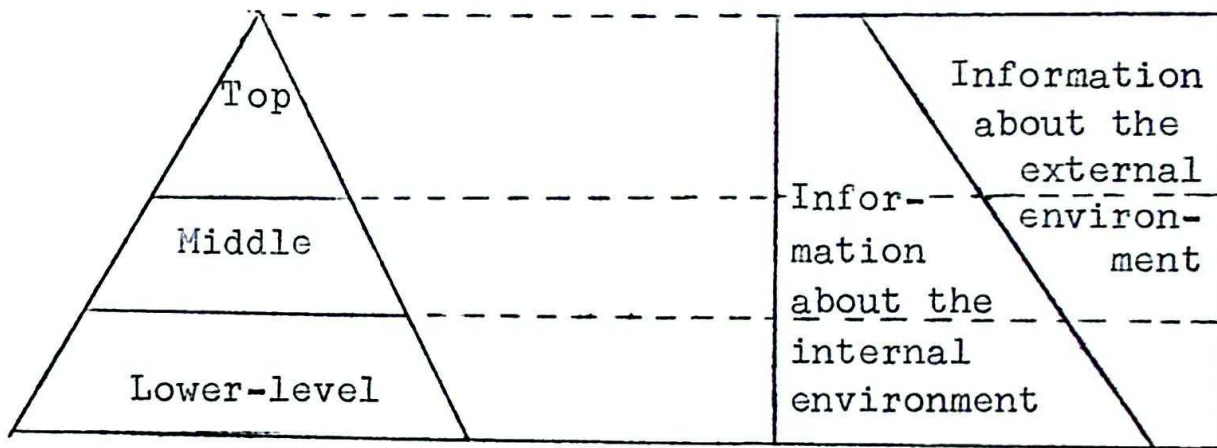
The amount of information supplied to management and their orientation is also a function of the relative position of the manager in the managerial hierarchy. It is a well known generalization that internal information should be more and more summarized as the level of management for which the information is prepared increase in the hierarchical structures, with top management receiving the most summarized reports.

The lower-levels of management are more control-oriented and control necessitates more information concerning the organization's internal environment. The upper levels of management are more planning oriented and since planning necessitates more information concerning the organization's external environment, it should be increasingly more summarized and selective. This situation is depicted in Figure (2-5).

1. T. Lucey, op. cit., P. 5.

Figure (2-5)

Relation of Managerial Position to Summarization
of Information¹



Management Hierarchy

Degree of Summarization of
Information

MIS for Production Planning and Control

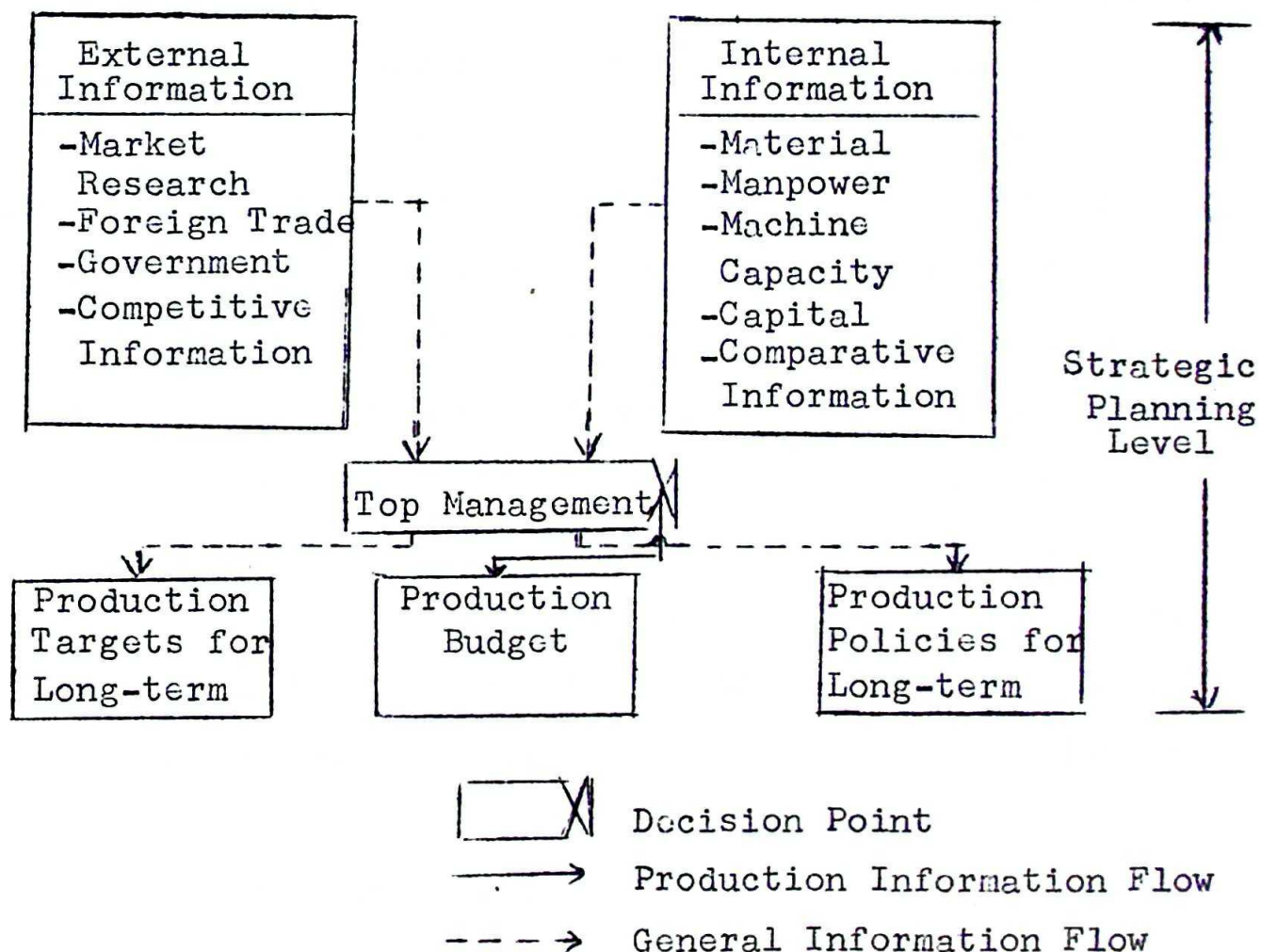
In production planning at the strategic planning level, top management makes forecasting decisions regarding production target, production policy, and production budget. To make forecasting decisions, top management needs external and internal information. Top management decisions depend on the changes in external and internal information. At the top management decision point, with these information they make forecasting and allocation of budget in strategic planning level of management information system. From this level, we obtain long-term production targets, production policies, and production budget for capital and resource allocation. Therefore, top management decision point is the

1. Gerald E. Nichols, op. cit., P. 9.

main point in strategic planning level of management information system. From the above description, we can produce the following management information system for production planning at the strategic planning level. Figure (2-6).

Figure (2-6)

Information Flow of MIS for Production Planning
at Strategic Planning Level



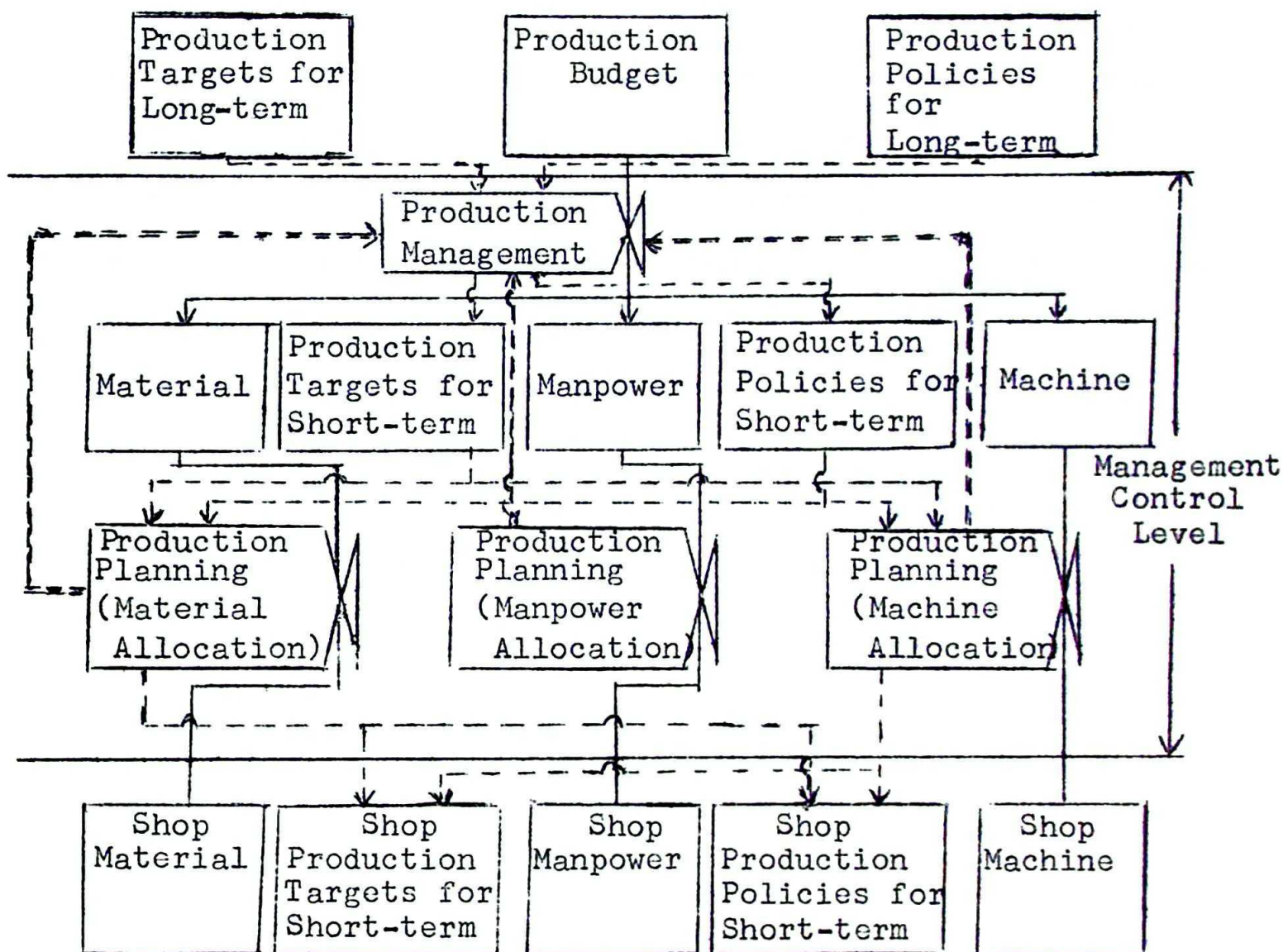
(Source: Adapted from Jay W. Forrester. "Managerial Decision Making", in Martin Greenberger (ed.) Computers and the World of the Future (1962) by permission of the M.I.T. Press, Cambridge, Massachusetts.)

At the management control level, the detailed decisions for production planning are made with regards to production target and policy, order writing, product design, and procurement plans of man, machine, and material. In this level, routing and scheduling is also included in production management decision-making.

Outputs of the strategic planning level become inputs of management control level in management information system. Production targets information and production policies information together with production budget flow into production management decision point for detailed resource allocation. Then, short-term production targets information and production policies information together with resources such as material, manpower, and machine flow into production planning decision point for establishing procedures and methods. From this level, we obtain short-term schedules (e.g. routing process sheets, machine load charts, etc.) and detailed work plan (e.g. manufacturing authority, product time, processing and facilities etc.). Therefore, production management decision point and production planning decision points are the main in management control level of management information system. MIS for production planning at management control level is shown in Figure (2-7).

Figure (2-7)

Information Flow of MIS for Production Planning
at Management Control Level

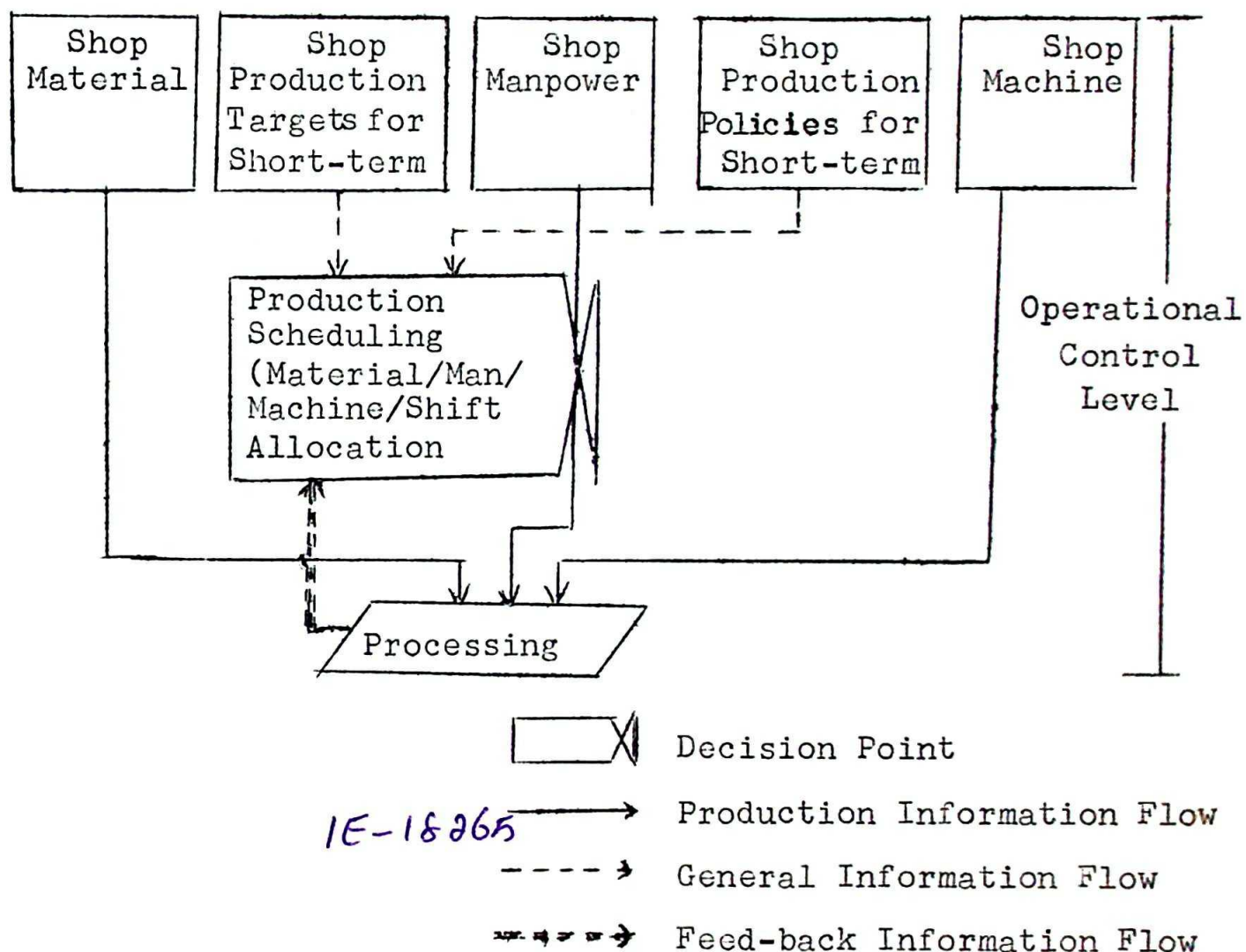


-  Decision Point
 Production Information Flow
 General Information Flow
 Feed-back Information Flow

In production control at operational control level, lower-level management makes more detailed plans and schedules for day-to-day control. Outputs of management control level become inputs of operational control level. Orders are dispatched to the production shop so that actual production activities can take place. Next, production control is carried out. Foreman's reports, shop orders, move orders, inspection reports, and Gantt charts are some of the devices used to compare actual with planned targets. Therefore, production scheduling decision point is the main point in operational control level of management information system. Management information system for production control at operational control level is depicted by Figure (2-8).

Figure (2-8)

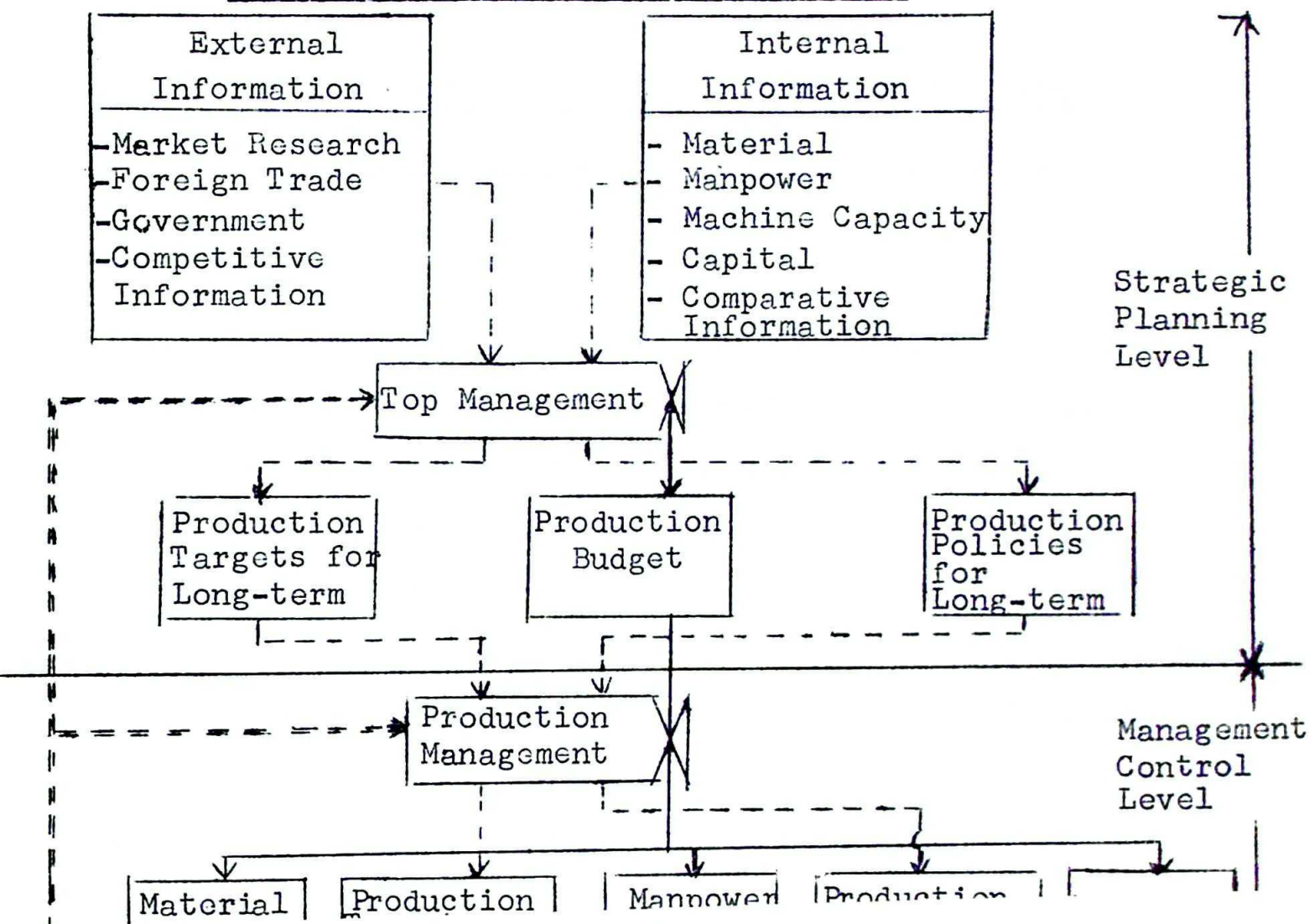
Information Flow of MIS for Production Control
at Operational Control Level



The total management information system model could be presented by the combination of these three levels of MIS as in Figure (2-9). In this figure, we can add the feed-back flow of information to show the production control aspect in the MIS. The lowest decision point is responsible to report to the next higher decision point with regards to the proper implementation of the plans. The feed-back information is used for corrective action or control action. This would form the report sub-system within the MIS.

Figure (2-9)

Information Flow and Hierarchical View of MIS
for Production Planning and Control



(1) Industrial Planning Department

CHAPTER (III)

A CASE STUDY OF MIS FOR PRODUCTION PLANNING AND CONTROL IN PHARMACEUTICAL INDUSTRIES CORPORATION

This chapter deals with the organization structure and management levels in the Ministry of No.(1) Industry, Industrial Planning Department (IPD), Pharmaceutical Industries Corporation (PIC), and Burma Pharmaceutical Industry (BPI). Next, the existing system of MIS for production planning and control is presented as a case study. Then, the reporting sub-system wherein the flow of daily, weekly, monthly, and quarterly reports is examined. The last part of the chapter reviews the existing information system relating to production planning and control in the light of information requirements, sources, organization, and flow.

Organization Structure and Management Levels

The Ministry of No.(1) Industry had been established with the minister as head of ministry. With the assistance of two deputy ministers and his staff, the minister controls the two departments and six corporations under him. There are 117 mills and factories under the corporations. The two departments and six corporations under Ministry of No.(1) Industry are

- (1) Industrial Planning Department

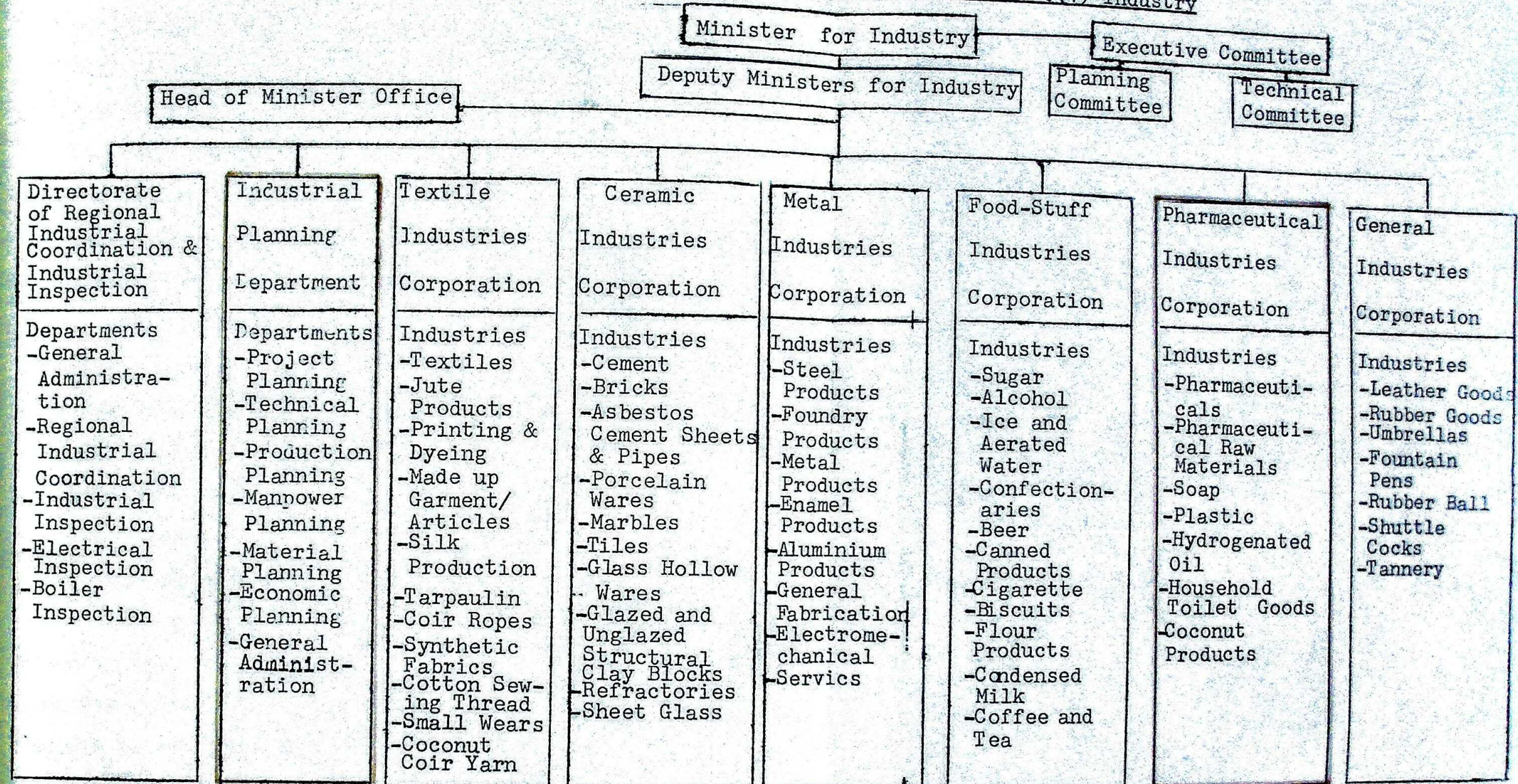
- (2) Directorate of Regional Industrial Coordination and Industrial Inspection
- (3) Textile Industries Corporation
- (4) Food-stuff Industries Corporation
- (5) Pharmaceutical Industries Corporation
- (6) Ceramic Industries Corporation
- (7) Metal Industries Corporation and
- (8) General Industries Corporation.

Organization structure of the Ministry of No.(1) Industry is presented in Figure (3-1). For the successful implementation and coordination work, an "Executive Committee" has been formed with the minister as chairman, two deputy ministers, two directors general and six managing directors as members. The latter members are concurrently involved also in the other two important committees of "Planning Committee" and "Technical Committee", each headed by separate deputy minister.

For organization and implementation purposes, the Ministry of No.(1) Industry could be looked upon as consisting of three different levels namely, ministerial level, corporation or department level and factory level. IPD is to be classified as ministerial level, as it is responsible for monitoring, evaluation and compilation work of all corporations under the ministry. IPD is headed by a director-general assisted by seven directors, responsible for the seven departments, viz.

Figure (3-1)

Organization Structure of The Ministry of No.(1) Industry



Note: Blocks with heavy lines show the departments under study.

- (i) Project planning
- (ii) Technical planning
- (iii) Production planning
- (iv) Manpower planning
- (v) Material planning
- (vi) Economic planning, and
- (vii) General administration.

For the purpose of our study we will look into Production Planning Department mainly. The Production Planning Department is divided into four sections namely

- (i) Production planning
- (ii) Internal sales
- (iii) Export, and
- (iv) Production evaluation. (See Figure 3-2)

IPD is responsible for the success of the six corporations. The six corporations in the Ministry of No.(1) Industry, send in monthly, quarterly, and yearly progress reports to the IPD. These progress reports include production, marketing, expenditures and income, manpower planning and all other aspects of the six corporations.

The Pharmaceutical Industries Corporation (PIC)

PIC is one of the six corporations under the Ministry of Industry (1). It is composed of four main departments namely

- (i) Planning Department
- (ii) Production Department

- (iii) Finance Department, and
- (iv) Administration Department.

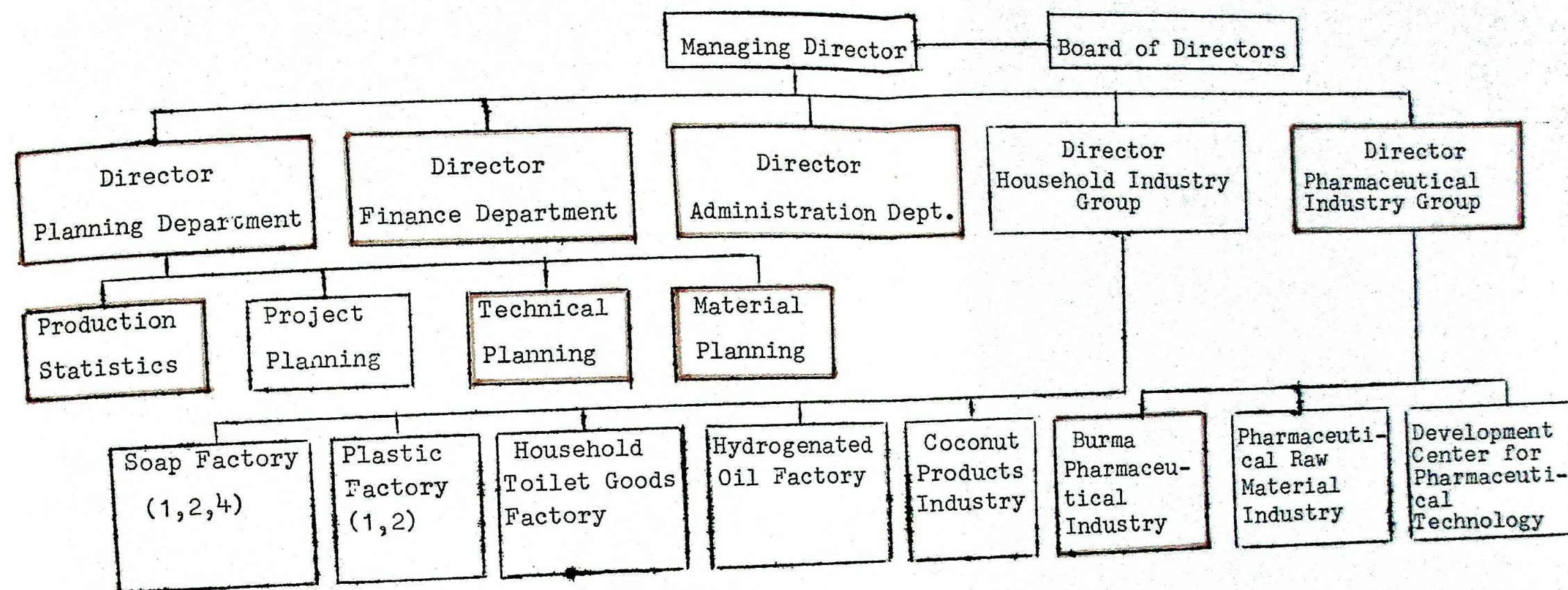
These departments can be divided into sections in accordance with the operations. Thus, under the Planning Department, we have production statistics, project planning, technical planning, and material planning. And then, we have purchasing division under Material Planning Section. The Production Department is divided into Pharmaceutical industry group and Household industry group and each managed by a director. Pharmaceutical Industry group comprises BPI, Pharmaceutical Raw Material factory, Development Center for Pharmaceutical Technology whereas Soap factories (1,2 and 4), Plastic factories (1 and 2), Hydrogenated Oil factory, Household Toilet Goods factory and Coconut Products industry are included in Household Industry group. At PIC, like other corporations, there exists a Board of Directors who looks after production, marketing, manpower, technical matters and finance. This Board is formed with Managing Director, Planning Director, Director of Pharmaceutical Industry group, Director of Household Industry group, Finance Director, Administrative Director, and representative from Workers Asiayone. (See Figure 3-3).

Managing Director of PIC, being the responsible head of the corporation, has the entire authority over the whole corporation. There are altogether seven administrative ranks in PIC hierarchy, namely

- (i) Managing Director (MD)

Figure (3-3)

Organization Structure of Pharmaceutical Industries Corporation



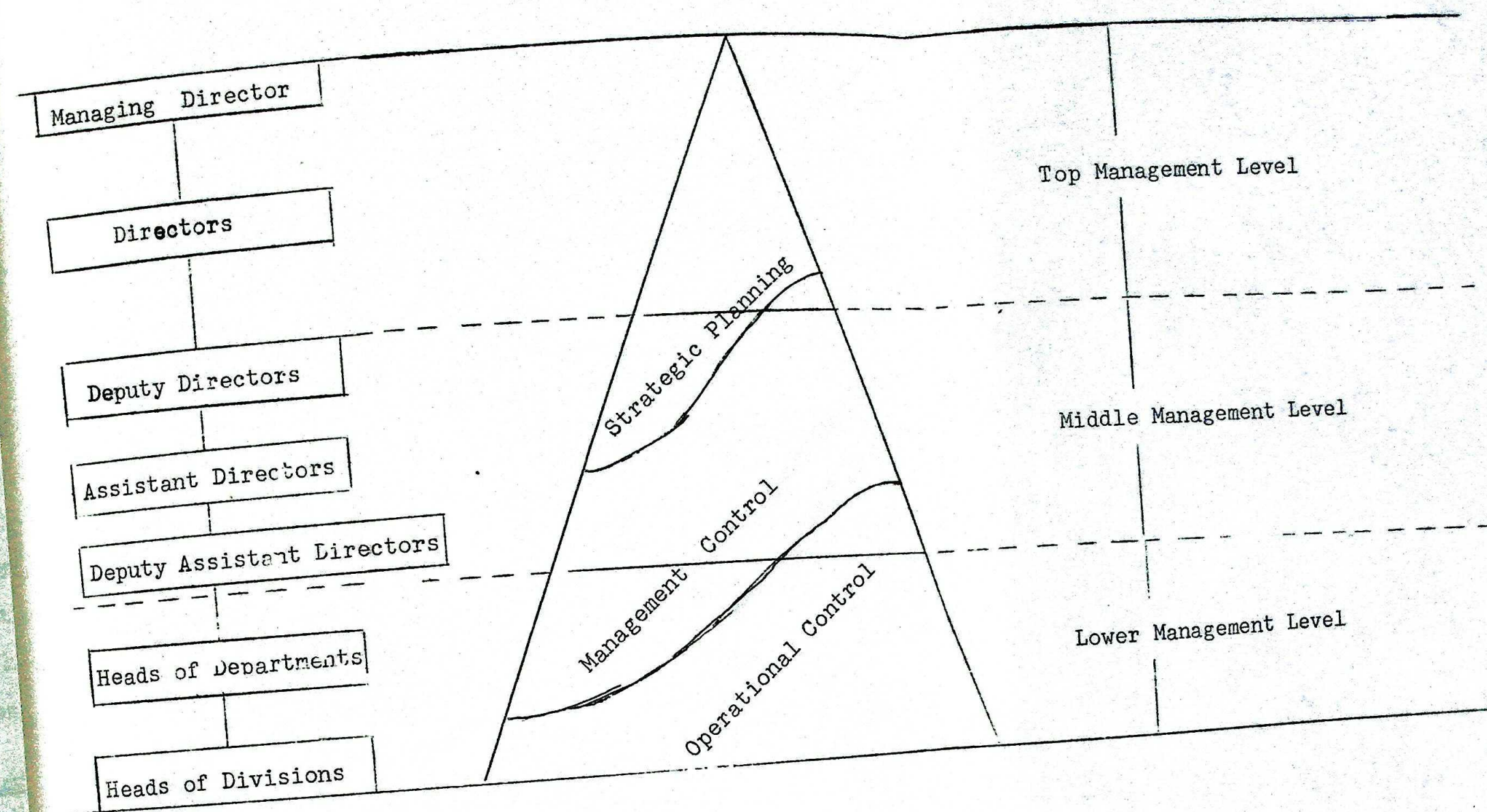
Notes: Blocks with heavy lines show the departments under study.

- (ii) Director
- (iii) Deputy Director
- (iv) Assistant Director
- (v) Deputy Assistant Director
- (vi) Head of Department and
- (vii) Heads of Division.

Within the corporations, MD and Directors are top management officers and they are concerned with strategic planning tasks. Directors, Deputy directors, Assistant directors and Deputy assistant directors are middle management officers who are concerned more with the decisions of management control level. The Heads of departments and divisions can be looked upon as lower management staff who are concerned more with the tasks at operational control level. (See Figure 3-4).

Burma Pharmaceutical Industry (BPI)

Burma Pharmaceutical Industry is the most important and largest of all the ten factories under PIC, and is therefore selected for our case study. In December, 1982, BPI produces 197 varieties of medicines; 63 in tablets, 53 in liquids, solids, ointments, and similar preparations products, 61 in injections and sterile products, 13 in biologicals and 7 in alcohol and allied products. BPI is organized into seven main departments with fifteen sections

Relation of Decision Categories to Management Levels in PIC

under them. The seven main departments are:

- (i) Planning Department
- (ii) Production Department (1)
- (iii) Production Department (2)
- (iv) Production Department (3)
- (v) Quality Control Department
- (vi) Finance Department and
- (vii) Administration Department.

Under the Planning Department, there are three sections which are Material planning, Technical planning and Engineering planning. Technical planning section is responsible for preparing the production plans. Production Department (1) mainly produces the prescription medicines, household medicines and life saving medicines, and also produces the raw materials (codeine and morphine) for the production of analgesin. Production Department (2) produces the biological products and Production Department (3) undertakes the production of alcohol and allied products.

Production department (1) is chosen for our study as it produces the widely used medicines for the public. It is divided into five sections by medicine product groups as

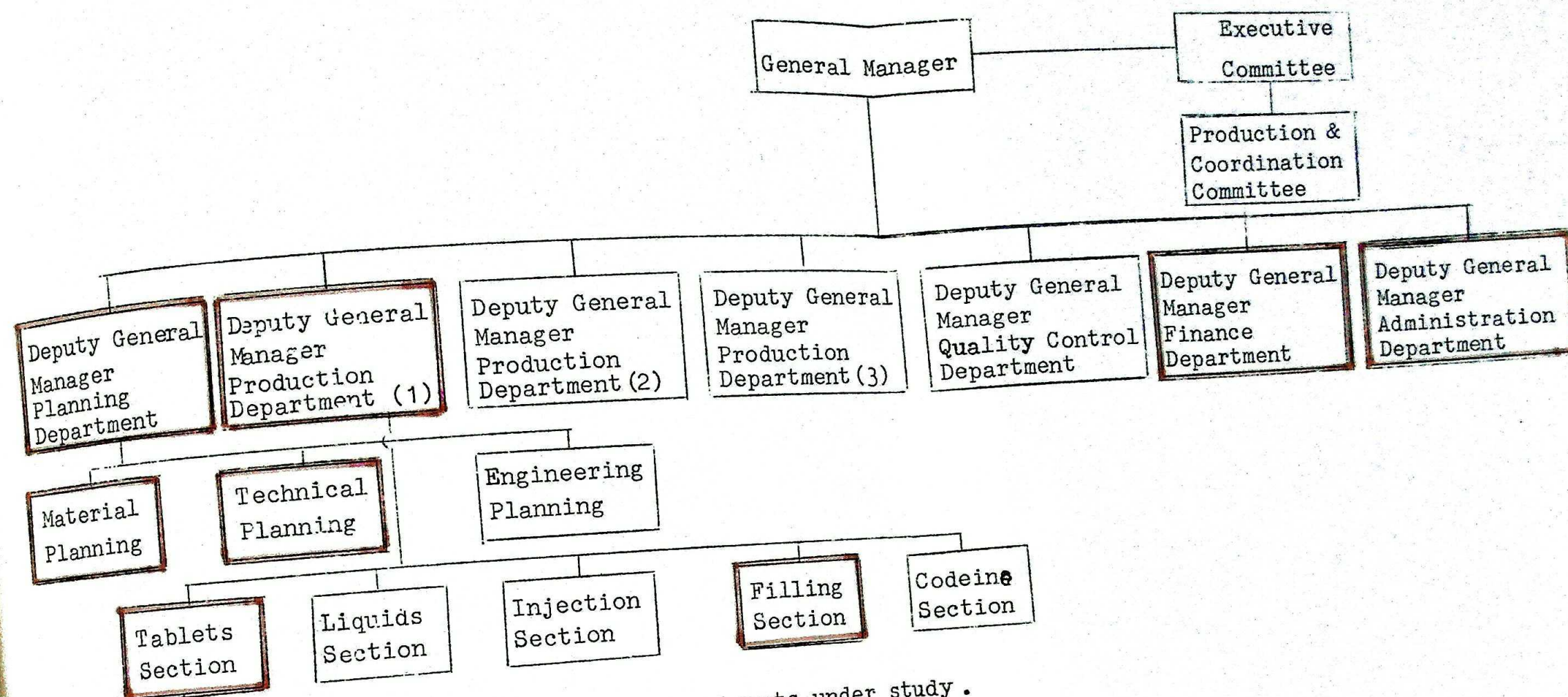
- (i) Tablets
- (ii) Liquids
- (iii) Injection
- (iv) Filling and
- (v) Codeine sections.

Of these, Tablets Section and Filling Section, are chosen for the study. (See Figure 3-5). There exists a Production and Coordination Committee which is concerned with the solution and making of decisions relating to production problems. General manager, the Deputy general manager, Heads of departments and the Pharmaceutical directors are members in this committee. There is also an Executive Committee which deals with the financial and general administrative affairs. It is comprised of the General manager, all Deputy general managers, Pharmaceutical directors, Finance and Administrative Assistant general managers and two representatives from Workers Asiayone.

The management staff at BPI can be placed into three management levels as top management level including General manager and Deputy general manager; middle management level including Assistant general managers and Deputy assistant general managers; and lower management level including Managers and Assistant managers of the various sub-departments.

Figure (3-5)

Organization Structure of BPI



Note: Blocks with heavy lines show the departments under study.

Existing MIS for Production Planning and Control

(1) Production Planning Stage

The Burma Socialist Programme Party launched a 20-year long-term economic plan in 1974-75. The plan is divided into five 4-year plans. The principal aim of the 20-year plan is to have constructed the structure of a socialist state by 1993-94, the last year of the long-term plan. The economic strategy for implementation of this plan is to remarkably increase productivity, and as a consequence, make the industrial sector an important sector.

The Ministry of No.(1) Industry has been laying out and implementing the four-year plans within the scope of the long-term 20-year plan, and by 1982, is implementing the first year of the fourth 4-year plan.

Four-Year Plan

The Finance and the Planning Departments of the Factory draw up the Budget and Production Plan. The Production Plan is drawn up by the Technical Planning Department while the Capital and Current Budgets are drawn up by the Budget section of the Finance Department. The 4-year plan is drawn up in the third year of the preceding four year plan period.

A preliminary meeting is held before the plan is formulated; the meeting is attended by the officials and the personnel of the Finance and Planning Department of the

factory. The prospective increase in the annual production, including the manner of production, to achieve the target in accordance with the guiding principles contained in the directive of the Ministry is discussed at this meeting.

Under the directives of that meeting, the Technical Planning Department, first, draws up a production plan based on the percentage increase in annual production and calculated in accordance with the target for the entire four years of the plan period. Such estimated production is checked with the available machine capacity and manpower and a report is submitted to the Production Coordination Committee for approval.

Calculations are made to determine whether or not the increased production can be effected with the available machine capacity and manpower. If more machine capacity is needed, the types of machines required are determined and their cost included in the Capital Budget. If more manpower is needed, mention is made of the classes of workers required, and a report to that effect is made to the Ministry step by step through the management levels like the Administration Departments of factory, corporation, and Manpower Planning Department of the IPD for increased allotment in the 4-year plan budget.

The production plan approved by the meeting is then sent to the Pharmaceutical Industry Group in the PIC. The Group examines the plan and submits a summary of the plan

for the two factories under it to the Planning Department of the PIC.

Also, the Technical Planning Department of the BPI works out the raw materials required for increased production in accordance with the operating data, based on the requirements of the base year and in accord with the 4-year plan targets. The Material Plan so drawn up is sent to the Pharmaceutical Industry Group and the factory Finance Department. The Group files the report and keeps it for reference at the time of review of the material situation.

The factory Finance Department draws up the budget estimates for the 4-year plan period after assembling the data relating to the cost of raw materials, capital investment for machines and spares, and salaries. The budget so prepared is submitted to the Finance and Planning Departments of the PIC.

The Planning Department of the PIC examines the Production Plan and the Budget once again and submits them to the Ministry for the 2 industry groups of the Corporation. A copy is also sent to the Planning Department of the IPD which analyses and examines them and submits a summary of the plans and budgets for all the corporations under the Ministry of No.(1). Industry to the Minister's office which in turn submits them to the Pyithu Hluttaw.

The Finance Department of the Corporation summarizes the documents relating to the two industry groups and draws

up a one-line Budget. After having drawn up the one-line Budget, the Corporation's Finance Department examines the detailed budgets and sends them on to the Finance Department of the IPD. That Department makes a review of the one-line and detailed budgets and makes a report on each of the corporations to the Ministry. Then the completed budget is prepared by the Ministry in consultation with the Ministry of Planning and Finance, and sends up to the Pyithu Hluttaw.

In summary, the drawing up of the production plans and the budget is a means to determine the production values, sales values, capital and current expenditures and the estimated profits or loss for the 4-year plan period.

Annual Plan

The Production Plan, and Current and Capital Budget, comprised in the annual plan, are drawn up by the factory Planning and Finance Departments and submitted to the officials concerned. The annual plan is prepared six months before the plan period and the Current and Capital Budgets are usually drawn up separately.

Before the annual plan is prepared, PIC obtains the annual demand by about the end of May and early June of the preceding year from such customers as the Medicines and Medical Stores Trade Corporation (former Trade Corporation No. 10), the Central Medical Store Depot (CMSD), the Army Medical Store Depot (AMSD), the Social Security Board (SSB),

Cooperatives and other departments. Those organizations are asked to give their estimated requirements for the forthcoming year in the prescribed forms.

After all the customers' demands have been received, Technical Planning Department records them in a book and compiles the demand by products and prepares the detail and summary total demands.

After the required quantities have been compiled and worked out, a coordination meeting chaired by the Deputy General Manager of Planning Department of BPI and comprising the officials of the departments concerned is held. The meeting discusses the production volume by items under the present situation of the factory and when there is excess demand the quota to be given to each customer is also fixed. In working out the quotas, the Armed Forces is given the first priority followed by Hospital and Trade Corporation in that order. Besides, the annual plan figures have to agree with those of the 4-year plan and must also conform with the report to the Pyithu Hluttaw.

When the factory could not fulfill the requirements of the customers, the party concerned is informed. In accordance with the decisions arrived at the coordination meeting, the Planning Department of BPI draws up detail and summary figures of "Estimated Production and Distribution Programme". The summary programme specifies the requirements of the Medicine Group. The Planning Department then submits

these yearly programmes to the Pharmaceutical Industry Group in the Corporation and Factory Finance Department.

When the yearly programmes have been received, the Corporation holds a coordination meeting with the customers either at the Corporation's head office or at the factory. The meeting is attended by members of the Drug Advisory Council (DAC) who are senior officials of the Health Department, medical specialists, professors from the Medical Institutes and also by the representatives of the purchasing organizations. The proposals of the DAC members are noted at the meeting, and resolutions are passed as to which medicines are to be produced and which are to be discontinued. There could be changes in the types and quantities in accordance with the prevalence of diseases. Usually, the programme for the year remains unchanged but for practical purposes quarterly programmes are drawn up, and changes in these programmes are usually made in respect of enhancement or reduction of production. The meeting also decides each item of medicine and production is determined according to the quota for each customer. The totals as per indents become production targets for the year, and they are submitted by the Pharmaceutical industry group to the Board of Directors. The annual plan is thus prepared with the quarterly and monthly programme breakdowns.

Based on the approved yearly programmes, the Technical Planning Department works out raw material requirements by

formula; and then they are submitted to the Finance Department of the factory for inclusion in the yearly budget. A copy of the report on the raw material requirements is also sent to the Pharmaceutical Industry Group of the Corporation. The factory's Finance Department prepares a yearly capital and current budget after collecting data from other departments. The capital budget is submitted to the Corporation's Finance Department and Planning Department whereas the current budget is submitted only to the Corporation's Finance Department.

The Planning Department of the Corporation examines and reviews the capital budget proposals and incorporates them in the overall budget for the Corporation, which is submitted to the Ministry. The Finance Department draws up a one-line budget based on the Current Budget and sends it to the Finance Department of the IPD, after checking the budgets in detail. The IPD examines the budgets of each corporation and sends them with comments to the Ministry. The Ministry in turn coordinates with the National Planning Department. And then, it submits the completed budget for the entire Ministry to the Pyithu Hluttaw through the Prime Minister's office.

Quarterly Programme

Quarterly programmes are prepared by the factory's Technical Planning Department and submitted to the officials concerned. Each quarterly programme is prepared one month ahead, that is, during the last month of the preceding quarter.

The Technical Planning Department prepares a summary of cost of production and in so doing, last year's raw materials situation is taken into consideration so that the time of availability of raw materials can be anticipated. It is usual for the production figure for the first quarter to be lower than the production figure for the next. The reason for this lies in that the raw materials from abroad are received in the later quarters of the year. In the last quarter, production is increased to fully implement the year's targets. In the quarterly summary the progressive totals of the various kinds of medicines are shown, item by item and by values. From this figure, quarterly detailed plan is drawn up again for the quarter.

The first quarterly programme is prepared in March which is the last month of the last quarter of the preceding. The value of production during the first quarter is estimated by this formula: the value of production for the year is divided by the number of actual working days in the year and the divided is multiplied by the number of working days during the first three months of the year, and the result is

the estimated value of production for the first quarter. The resultant figures are taken as a basis for calculation value of each item to be produced.

The second quarterly programme is usually prepared in June, the third quarter in September and the fourth in December. The second, third and fourth quarterly programmes are drawn up after taking into consideration the actual production of the previous quarters, yearly programme with quarterly figure, current raw materials situation, the stock of wrapping materials, labels, printed directions for use of medicine, etc., and foreign exchange situation. The raw materials availability is estimated from similar situation in the corresponding period of the previous year, together with the current foreign exchange situation, and the shipping and clearance information sent to the factory by the Corporation. The quarterly programmes are sent to the Pharmaceutical Industry group in the Corporation well ahead, so that the group can check the figures before submitting them to the Board of Directors.

The factory's Technical Planning Department draws up an estimate of raw material requirements from the figures mentioned in the quarterly programmes so that necessary foreign exchange may be applied for. In drawing up the estimate, priority is given to the raw materials of low stocks, and also the raw materials required for production

of essential and complement products mentioned by the DAC in the list of about 200 items of medicines which BPI has been producing. Of course, raw materials purchases are made with due regards to the foreign exchange grant. The names and kinds of raw materials that are to be purchased with foreign exchange allotted by the Ministry must be mentioned in the application for foreign exchange. After having completed the application form for foreign exchange, the F.E. form and material plan are sent to the Ministry. Foreign exchange grants are made in quarterly instalments. A foreign exchange commitment budget is submitted annually for the coming year in December; the budget is usually approved in January of the year concerned. The first foreign exchange grant is usually made in June and the second in August/September. When the budget has been approved by the Pyithu Hluttaw, applications for foreign exchange is made by the Finance Department of the Corporation directly to the Ministry.

Monthly Programme

Monthly programmes are usually drawn up in the middle of the preceding month. As these programmes contain details of daily and weekly production, they can be taken as daily programmes and weekly programmes. Average production figures are obtained by dividing the monthly production by the number of days of actual production. In the monthly programmes are mentioned daily production in three categories, namely,

medicines, alcohol and contact lenses. In the category of medicines are included tablets, solids, liquids, ointment and injection. As the production of pharmaceutical is a multiple production, it is difficult to control production by items very strictly, and so control is exercised only by categories, or groups. Monthly programmes are drawn up with a view to exercising control over production for the day and for the week so as to be in accord with prescribed targets for the month. Such control is exercised by the Assistant General Manager. To facilitate ready reference, a Bar Chart is drawn up showing the targets and the actual production of each item. These monthly programmes are not meant for submission to higher authorities; they need not be put up at the monthly meeting of factory officials. They are put up at the quarterly coordination meeting for information. Drafting of production plans and budget by stages is shown in Figure (3-6).

Schemes and plans undergo changes according to circumstances. There are many factors which causes for changes like increases or cuts in foreign exchange grants; changes in raw materials situation; changes in the demands from such purchasing organizations as CMSD owing to changes in incidence of diseases; changes in targets for production of certain items; shortage in fuel for running the machines, late-arrival of new machines, etc.

(2) Production Control Stage

As long-term and short-term plans are drawn up with the objective of improving the national economy, successful implementation is important. It is also necessary to oversee the implementation activities and check and control them in order to obtain the best possible results. The factory management is responsible for the successful implementation of short-term plans, and control over it is exercised by the Corporation. Check and control over implementation of long-term plans at ministerial level is done by the IPD.

In the case of the BPI the following six methods are resorted to in exercising production control.

- (a) Restriction of wastage allowances,
- (b) Sending memoranda (order)
- (c) Preparing Bar Chart,
- (d) Inspection,
- (e) Check list of the operations,
- (f) Production meetings.

(a) Restriction of wastage allowances

It is usual that in production of commodities, wastage occur. Wastages are responsible for reduced output, and so it is necessary to control wastages in order to prevent excess in production cost. The Executive Committee of the factory has, therefore, prescribed rates of

allowances for wastages either in regard to each item or each process. These rates of wastage allowance may vary with items or with processes. However, it is sometimes necessary to change the rate for increase control over negligence or corruption, and such changes are made in the light of existing production experiences.

The management usually prescribes rates of wastage allowances in accordance with the standards set by the Pharmacoposia of Britain, American and Europe and production experiences. Control of wastages brings forth such beneficial results as reduced cost of production, reduction of wastages, better attention paid by workers in production work, elimination of negligence and corruption, increased motivation for workers, and an increase in output.

(b) Sending memoranda (order)

Sending out memoranda is one of the chief means of control over production and it contributes to fulfilment of the targets as fixed at factory level. The Assistant Factory Manager in the Technical Planning Section under the Planning Department of the BPI takes charge of sending out the production orders and production instructions.

Production orders (PO) are sent daily to the production sections. If there are sufficient raw materials for production of an item for the month, PO are sent out at once to carry out production of the item in batches with the number of batches mentioned. In a PO for a batch are

specified the kind and number of the product, the kind and quantity of raw materials to be used and the Batch No. As control by this method of sending out memoranda is uniform in practice, an example is cited below, relating to production in the Tablets Section of the medicines group.

Tablets Section is divided into 5 sub-sections, namely,

- (i) Granulation Sub-section
- (ii) Compression Sub-section
- (iii) Sugar-coating Sub-section
- (iv) Capsulation, Inspection and Delivery Sub-section
- (v) Development Lab.

The Tablets Section produces three items; plain tablets, sugar-coated tablets and capsules. The production process for all the three types of medicine first goes through the Granulation Section, and then, if capsules are to be produced, the powder goes to the Capsule Sub-section, if plain tablets or sugar-coated tablets are to be produced it goes into the Compression Section for moulding into tablet form. For the plain tablets, outputs from Compression Section are ~~semi~~-finished products which only need to be packed. But if they are to be sugar-coated, they are sent on to the Sugar-coating Sub-section. Capsules go through less number of stages than plain tablets which in its turn undergo lesser number of stages than the sugar-coated tablets. The processing of plain tablets is mentioned below

to show how production is controlled by sending memoranda.

The Technical Planning Department sends out three memorandas: (i) production order (ii) material requisition, and (iii) production order copies. The Granulation Sub-section receives the PO and registers it and file a PO copy, and then gets the materials from the store by the material requisition memo. When the materials are received they are checked with the PO, and then when found correct, a manufacturing batch No. is given and that number is marked on the PO. A card is provided for each item manufactured. The Batch Nos. are in serial order, and have been registered since the start of the operations of the factory.

The Granulation Sub-section fills in the prescription form and starts the manufacturing process. There are six stages of production. The ingredients are first properly mixed, and after that a note is made and the compounders have to attest their signatures thereto. The mixture is weighed and the weight recorded on the Granulation Record Card. Here, allowances are made for normal wastage, and the workers have to make sure that their products do not weigh less than the prescribed weights.

After production of the medicine powder, samples are sent to the Quality Control Department for a test. The Quality Control Department makes a test of the sample and if it is passed, an Intermediate Miscellaneous Sample

certificate is issued to the Granulation Sub-section which files the certificate and sends the mixtures to the Compression Sub-section, together with the necessary forms, such as first and last stage mixing, processing report, granulation record card, and the production order, and the fact of dispatch entered in the register, duly signed by the officials concerned.

When the Compression Sub-section receives the medicines and the relevant documents, it enters data like the data and the time of first action, the number of workers on the assignment , and other information in the register. When such preliminaries being done, the Compression Sub-section begins processing of the tablets. As tablets are being made, sample of ten tablets are taken out every ten minutes and examined. The tablets are sent to the Quality Control Department where a test is made. If the Quality Control Department endorses the samples, the Intermediate Miscellaneous Sample certificate is issued to the Compression Sub-section; when the processing has come to an end QC form is also sent to the Compression Sub-section. The tablets are then sent to the Inspection Section, together with the PO, material requisition memo, compression card, weight checking record, checking point for granulation and compression, granulation record, granulation form, intermediate miscellaneous samples and the quality control certificates.

After receipt of the semi-finished goods, the Inspection Section writes out four copies of Delivery Notes (DN). Two copies (one orange and one white) of the DNs are sent to the Technical Planning Department. A copy (another white) is retained in the file. The green copy of the DN and the semi-finished goods are then sent to the Bulk Store. Then the Inspection Section sends all the relevant documents to the Tablet Department office. That office sends the PO and the material requisition slip to the Costing Department for working out the cost of production. The data from other papers are noted in the production card for record. All the relevant papers are bound in book form and kept in Card Index Store.

The Technical Planning Department enters in the register the receipt of the DN (orange and white) copies, and sends the orange one to the Costing Department and the white one is used for writing out production instruction (PI). PI are written daily as DNs are received. The PI comprise 4 documents, namely, PI, Raw Material slip, Component slip and Component copy.

The Filling Department has three sections: Tablet Section, Solids Section and Ointment and Liquids Section. All the production instructions that come in are registered and sent on to the sections concerned. The Tablet Section gets labels from Label Store according to the PI. It takes out tablets, on the authority of the Raw Material slip, from

the Bulk Store; and with Component slip and Component copy, wrapping materials are taken out from the Component Store. The accompanying slips are sent back to the Filling Department where the goods are checked with them and duly recorded.

Labels are drawn out for the whole batch and issued daily by the workshop supervisor after filling out the Label Issue Notes; thus wastage of labels is controlled. In the Filling Department wrapping materials and labels are usually in excess because of breakages of tablets and losses of medicine powder. The excess materials are returned to the Store with Internal Vouchers. On the other hand, when more wrapping materials and tablets are needed because of breakages of bottles and labels get torn, they are requisitioned with Material Requisition slips. These slips are signed by the supervisor in charge of control of wastages. Additional indents are allowed within the prescribed allowances for wastages. If the limit is exceeded an explanation has to be made.

At the Filling Department are 21 work desks, of which 8 are for tablets wrapping operations. At each desk works 10 workers. Once the work begins, a note is made on the Production Instruction slip. Then entries are made in a form called. Time Leader of Incharge Job Description, in respect of starting time, break time, time of actual work, manpower, PI No; packaging size. All the completed Time

Leader forms for the day are collected and bound.

When a product has been completed, a note of the day, time, number of products, the DN number is made in the PI. Then in the daily production chart such entries as the starting time operation, the time of completion, manpower, number of products are made. Then all the relevant documents are collected and bound and the bound volumes are sent to the Costing Department.

When wrapping is finished, the Filling Department writes out a DN in four copies. The packages are sent to the Finished Goods Store under the control of the Material Planning Department, together with a green copy of the DN. The orange copy and the white copy of the DN. are sent to the Technical Planning Department. The remaining white paper copy is filed in the Filling Department. The Technical Planning Department registers receipt of the DN, and sends the orange copy to the Costing Department. With the white copy, a check is made whether or not it is consistent with the daily targets of production and the white copy is retained in the files of the Technical Planning Department. This department controls production by checking the actual production with the targets for the year in the Bar Chart.

The costing department, on receipt of the copy of Production Order and Production Instruction, works out product costs from the relevant papers. The product costs, as a tool of production control, play an important role as the authorities normally sanction the price increases which are

indexed to material cost increases. Increase in overheads, as a rule, are seldom allowed to mark up on selling prices. The Production Control of the Tablets Section of the BPI is shown in Figure (3-7).

Control by memoranda method produces such benefits as reduction of mistakes and errors in production, a smooth flow in the production process, reduction of wastages and lowering the cost of production.

(c) Preparing Bar Chart

The Technical Planning Department is responsible for production planning and control. In order to facilitate efficient discharge of its duties, Bar Charts are drawn up. Bar Charts help the Department make modifications to implement the daily and monthly production targets. The Deputy Assistant Manager of the Technical Planning Department is charged with examining the production to see whether or not the production targets are fully met.

Bar Charts are drawn up for planned production figures for the year, broken down into monthly quotas in comparison with the figures of actual production noted in the DNs from the Filling Department. In the Bar Charts, the values of items in the medicine group to be produced during the year is mentioned and figures of actual production for each day are filled in every day.

The advantages of controlling production by Bar Charts lie in the knowledge whether the actual production can or cannot meet the planned figures and thus if the

actuals do not come up to the planned figures, action can be taken to step up the production.

(d) Inspection

The Assistant Manager of the Technical Planning Department takes charge of inspection of the production sections in the factory and controls production. He has to go round daily the Tablets Section, the Galencal Section and the Filling Department to inspect the work in these sections and give necessary instructions. The managers, assistant workshop supervisors and their assistants also have to go round in their own sections and departments to inspect work done and offer suggestions and instructions wherever necessary for proper performance during the process of production.

The benefit of such inspections lies mainly in the encouragement for the workers for the prompt and proper performance of work in the process of production, and also in getting the priority items done first. Moreover, there is a less wastage, and the practical problems can be solved on the spot by the inspectors.

(e) Check Lists of the Operations

Check lists of the operations to be performed, the steps to be followed and instructions to the workers in the production departments are posted in the departments and shop floors concerned. These check lists are prepared by

the assistant workshop supervisors and other responsible work-in-charges, based on their experiences in the work and in the production processes and also from machine instructions.

Production control through check lists is beneficial in that these lists serve as warnings against possible mistakes and mis-steps in the process, and also against careless handling and incurring of losses and wastages, and improving the quality of the products.

(f) Production meetings

(i) Meetings at BPI

Meetings are necessary in production control. In BPI are held weekly, fortnightly, monthly and quarterly meetings. There are production coordination meetings, Executive Committee meetings, Central Medical Store Depot meetings, distribution meetings, and quarterly meetings. At these meetings, practical problems are put up and necessary directions issued and control is exercised for the purpose of implementing the production plans.

Production coordination meetings are usually held weekly. The factory manager, deputy and assistant factory managers, section chiefs and senior officials from the Directorate of Health, in all about thirty persons attended these meetings. At these meetings, plans, programmes, production situations, practical problems, financial matters and other problems are discussed.

Executive meetings are held every other week, and special meetings are convened for emergency cases. Attending these meetings are the factory manager, deputy and assistant factory managers, directors of medicine group, assistant workshop supervisors from the Finance and Administrative Departments of the factory, and two representatives of the workers' organization. Production problems, financial matters and worker's problems that cannot be resolved at the lower levels are discussed here.

CMSD meetings are held monthly to enable the BPI's chief customer to revise their demands in accordance with the changing health conditions of the working people. These meetings are attended by the Director of Medicine Group, Deputy Director of CMSD, Deputy Factory Manager of Planning Department, Assistant Factory Managers from the Technical Planning Department, and the Material Planning Department. The agenda includes matters relating to production of priority medicines and transport and delivery of finished products.

The Distribution meetings are usually held quarterly. Director of Pharmaceutical Industry group, representatives of customers, Factory General Manager, Deputy Factory manager of the Planning Department and Assistant workshop supervisors from the Technical Planning and the Material Planning Departments attend these meetings. On the agenda are the volume and general situation of production

during the three-months period, transport of finished products, prospects of production in the forthcoming months, and the requirements of the customers.

At the quarterly meetings, the Director of Pharmaceutical Industry group, factory general manager, deputy general managers, section chiefs, branch supervisors and representatives of the workers' organization in all about 100 persons attend to discuss the actual production situation and review of the work already done and practical problems are also discussed for the whole factory.

(ii) Meetings at PIC

Meetings of officers at the corporation level and the officials of factories are also held to keep in touch with the production situations and to solve practical problems. In this way, control upon production is exercised through meetings. The meetings usually held by the Pharmaceutical Industries Corporation are Board of Director's meetings, work group meetings and permanent Party Cadres meetings.

The Board of Directors' meetings are held twice monthly. The meetings usually take about 5 to 6 hours. Attending the meeting are the Managing Director of the Corporation, Directors of Planning, Administrative, Finance Departments and Pharmaceutical Industry Group, and two representatives from the Party and the Council. The meeting is usually held one or two days after the EC meeting. At

such meetings the agenda includes a report on the directives from the minister, matters relating to raw materials, finished products, sale transactions and resolution of difficulties and defects as experienced by the Corporation, decision on quarterly and annual programmes. The resolutions passed at the Board of Directors' meeting are reported monthly to the Ministry of No.(1)Industry.

The Production Department of the PIC is divided into two main industry groups which are Pharmaceutical group and Household group. Group meetings are held monthly. Attending the meeting are the Managing Director, Directors of the groups concerned, factory managers of the groups concerned, one representative each of the Administrative, the Finance and the Production departments of the factories concerned. At the meeting a review is made of the raw materials, finished products and machinery situations, reports on practical problems are made, discussed and decisions arrived at and the production programmes submitted by the factories are also reviewed.

The permanent Party Cadres meetings are held monthly. The Managing Director and party representatives of the various industry groups attend these meetings where affairs of the Party with emphasis on organizational activities are discussed. Besides, the Party Cadres discuss the practical problems encountered in the production processes and ways and means are sought for the resolution

of these problems. The minutes of such meetings are sent to the Party Cadres Organization at the Ministry of No.(1) Industry.

(iii) Meetings at IPD

Meetings are also held at the ministerial level, at which production situations of the corporations are reviewed and discussed, and coordination and assistance in resolving the problems are decided upon. Ministerial level meetings are usually held at the Technical Planning Department where meetings of the Executive Committee of the Ministry and coordination meetings of factory managers, are also held.

The Executive Committee meetings are held monthly, and the sessions of each meeting extend usually to about seven hours. This meeting is attended by the Minister, two Deputy Ministers, six Managing Directors, two Directors General and the Head of Office of the Ministry, 12 in all. All matters relating to the corporations and factories under the Ministry of No.(1) Industry are discussed; the plans, programmes, directives and instructions, promotions, postings and transfers, changes in sanctioned strengths of personnel, etc. are discussed and decided upon.

Quarterly coordination meetings of factory managers are attended by the Minister, two Deputy Ministers, two Directors General, six Managing Directors, directors from the Departments and Corporations, and factory managers,

totalling over one hundred. Reports are submitted at the meeting reviewing the work done by the corporations. Copies of reports are distributed to the corporations. At the meeting the Minister sets down the goals and targets for the forthcoming year after having reviewed the production situation of the previous year. The goals for the Ministry set since 1976-77 are as follows:

- 1976-77 -full implementation of the production targets
 in the Economic Plan;
- 1977-78 -improvement of quality of the products and full
 utilisation of plant and machinery;
- 1978-79 -reduction of production costs;
- 1979-80 -beneficial use of foreign exchange;
- 1980-81 -improvement of calibre of workers;
- 1981-82)
) -improved maintenance of plant and machinery
1982-83)

All the factories under the Ministry of No.(1) Industry have to give due priority to the goals set for each year; instructions to achieve the goals are to be followed efficiently. Yearly goals in the form of slogans are posted on the walls of the factory. Extent of achievement of these goals is one of the factors considered in the selection of Model Factory of the year.

As stated above, production control is being exercised through meetings held at different levels at factories, corporations and the ministry. At these meetings

efforts are made to get at the true facts about production at every stage and to discuss and find ways and means of controlling the production processes in order to achieve the best possible results in the implementation of the economic plans.

Reporting Sub-System in Management Information System

In planning and controlling production, the various meetings base on the reports and directives prepared at each level. We will examine the reporting system, the method which the BPI uses by submitting reports through the channels at different levels to the Ministry.

Daily Production Report

The Technical Planning Department of the BPI assigns a manager with the task of writing out DNs for all the finished goods and to prepare stock cards for each of the products besides preparing charts of daily production values. From those statistics are produced reports in tabular form for the month. The tables prepared are: (1) Daily production quantities and progressive totals for the month, (2) Daily production values for the month, and (3) Progressive values for the month.

The Technical Planning Department also prepares tables from the sales figures received from the Material Planning Department. The tables include Daily sales quantities and progressive totals for the month, and Daily stock balance for

the month. The following reports are produced from these tables for submission daily to the PIC: (1) Daily summaries of production, sales and balances, (2) Production for the next day, (3) Production for daily quantity control passed, and (4) Daily production. These reports are signed by the Deputy General Manager and sent to the Pharmaceutical Industry Group of the Corporation.

When Daily Production Reports are received, entries are made in the ledger and the reports are filed in Daily Report File. As only quantities of products are entered in the table, production value has to be calculated and checked with the factory by telephone. In this way, the Corporation keeps track of the daily production in the factory. When Form 030/5, which is the quarterly report, is received, Pharmaceutical Industry group compares it with the total values of the daily report, and if found short of the plan targets, explanation is sought and discrepancies examined. Copy reports are sent to the Planning Director of the Corporation. The Finance Department of the Corporation checks production quantities, sales, and stocks with Form 030/5 for financial evaluation purposes.

Weekly Production Report

The manager of Technical Planning Department prepares a summary of Weekly Production and Detailed Weekly Production Report based on the figures from the daily reports, and sends

them, after duly signed by the Deputy General Manager, to the PIC every week on Tuesday. In the summary report only production values are mentioned, and in the detailed report quantities are recorded. In the case of production of contact lenses, a weekly production report is sent as usual, but if the quality control tests have not been completed in time, a remark to that effect is included in the report.

When the weekly reports are received by the Medicine Group, the figures are checked with those in the daily reports, and checking is also made to see if the production measures up to the targeted production figures. If they do not, then an explanation is called for from the factory, and steps are taken to catch up with the targets. Production control is exercised in this manner. Weekly reports are not sent up to higher levels; they are filed properly at the Pharmaceutical Industry Group.

Monthly Production Report

The manager of Technical Planning Department prepares a monthly production report, based on the figures of the daily and weekly reports and sends it, duly signed by the Deputy General Manager, to the Director of the Pharmaceutical Industry Group in the PIC within seven days of the succeeding month. In the report are mentioned the planned targets, the actual production figures, percentage of fulfilment, and if the actual production does not come up to the target, an explanation is given in the Remarks column.

The Pharmaceutical Industry Group checks the figures in the Monthly Production Report with the total figures of weekly reports, and files in the BPI Monthly Production statistics file to be checked with Form 030/5.

The flow of reports, daily, weekly and monthly, is shown in Figure (3-8).

Monthly Progress Report

The manager of Technical Planning Department also prepares a monthly report besides the production reports. This report contains such information as Monthly Stock Balance and Stock Purchase Statement. These Stock Adjustment and Purchase Statement, duly signed by the Deputy General Manager, are sent to the Pharmaceutical Industry Group in the PIC.

The Pharmaceutical Industry Group totals the Stock Adjustment figures received from the two factories under that group and prepares an Abstract. From this Abstract is produced a statement showing raw materials situation, finished products situation, descriptions of machines and vehicles in need of repair and also a statement of balance of stores and stocks of the factories. This statement is sent by the Director of the Pharmaceutical Industry Group of the Corporation to the Ministry, while a copy goes to the Planning Department of the Corporation for information and reference.

The Planning Department of the Corporation examines the figures relating to the stock balances of finished goods and issues necessary instructions for disposal of the goods. If there is an excess of finished goods, an explanation is called for, and measures are taken for quick disposal.

The Pharmaceutical Industry Group prepares a monthly return (Form 6), based on the figures in the Purchase Statement. Form 6 shows production targets, actual production, opening balances for the reported period, requirements, purchases and use of materials, and the closing balances. It is sent to the Material Planning Director of the IPD, while a copy goes to the Corporation's Planning Department. This statement is sent within ten days after the end of the month under report.

The Material Planning Department of the IPD files the statements in Form 6 received from the corporations separately for each corporation. From out of these statements is produced a quarterly summary report, reviewing the stock balance situation for the three-month period. In submitting this statement special attention is given to the 19 items from among the raw materials available within the country. These 19 items are: (1)cotton, (2)jute, (3) dry pads, (4)sugar-cane, (5)virginia tobacco, (6)wheat, (7)four-edged iron lumps, (8)round aluminium plates, (9)aluminium lumps, (10)electro-plated enameled-sheets, (11) quartz, (12)chalk, (13)white sand, (14)cattle hides, (15)goat and sheep hides,

(16)tallow, palm oil, (17)coconut oil, (18)caustic soda, and (19)caster oil and menthol. Of them the ones that are most useful to the PIC are: tallow, palm oil, coconut oil, caustic soda, caster oil and menthol.

On the strength of the reports submitted the Ministry directs a special study of the raw materials that are not easily available. In such cases, the IPD Material Planning Department makes a special study and submits a detailed report.

The Administration Department of the factory, also prepares a monthly summary report on the production situation of the factory, section by section, and sends the combined report to the Director of the Administration Department of the Corporation. The Administration Department distributes this report to the Planning Department, Pharmaceutical Industry Group, and Finance Department. Each department concentrates on the section with which it is concerned and makes an abstract on purchasing, production, operating ratio and manpower reports to the director of department concerned. The Director analyses the Abstract, and explanations are called for an ambiguous points. Summary monthly reports are filed in the monthly reports file of each department.

The monthly progress reporting system is shown in Figure (3-9).

Quarterly Report

The manager of Technical Planning Department of the BPI prepares the monthly productions and sales figure in Form 030/5, based on the monthly production report and daily sales figures from Material Planning Department. This form is sent within 5 days after the end of the month, through the Planning Department, to the Director of Pharmaceutical Industry Group in the Corporation as a quarterly report.

Based on Form 030/5, Head of the Department of the Pharmaceutical Industry Group prepares tables showing monthly production (Form La Hta - 5), tables analysing the monthly/quarterly production situations (Form Ka, Kha, Ga), a tabulated report showing production situation in factories during each quarter of the financial year (Form Tha La Hta - 4) and tables analysing the quarterly production.

Abstract of Form 030/5 is sent from the Pharmaceutical Industry Group to the Planning Department of the Corporation, which further prepares the total summary. Copies of these summaries are sent to the Planning Department of the IPD and to the Project Appraisal and Progress Reporting Department under the Planning and Finance Ministry.

Form La Hta - 5 is sent by the Director of the Pharmaceutical Industry Group to the Ministry every month by the tenth of the following month.

Monthly Forms (Ka, Kha, Ga) are sent from the Pharmaceutical Industry Group to the Corporation's Planning Department every month within 10 days after the end of the reported month. The Corporation's Planning Department checks the figures in these three forms and prepares an abstract which is sent together with the three forms to the IPD within the first ten days of the following month.

When the three forms are received by the Planning Department of the IPD, the figures are checked with the planned figures, and prepares a detailed monthly statement of the production and implementation situations of all the corporations concerned. This detailed statement is sent to the Ministry and the three forms from all the corporations are filed in the IPD's Planning Department.

The quarterly review statement is prepared in the same manner as the monthly statement in Forms (Ka, Kha, and Ga). The only difference, of course, is that the figures here are for three-month period. Quarterly Forms Ka, Kha, Ga are sent by the Director of the Pharmaceutical Industry Group to the Director of Planning Department in the IPD. A copy also goes to the Planning Department of the Corporation.

The Planning Department of the IPD prepares a consolidated and combined statement covering all the corporations. This statement together with a detailed statement is sent to the Ministry twenty days after the end of the quarter under report.

The Planning Department of the Corporation checked the detailed statement and an abstract is prepared, covering both the industry groups (Pharmaceutical and Household). A graph is also drawn from this abstract and is posted in the Director's office for easy reference.

Form Tha La Hta -4, a quarterly production report, from the Pharmaceutical Industry Group to the Director of Planning Department of IPD, a copy also going to the Corporation's Planning Department Director every three months before the tenth of the following month.

The Planning Department of IPD receives Form Tha La Htha -4 from each of the six corporations and prepares an amalgamated statement and sends it to the Prime Minister's office through the Ministry. The Planning Department of the Corporation keeps a copy of the Form in its files for reference.

The quarterly production situation report is sent by the Director of the Pharmaceutical Industry Group to the Director of the Planning Department of IPD and also to the Director of the Planning Department of the Corporation before the tenth of the following month.

The Planning Department of IPD rehashes the reports from all the corporations into an amalgamated report, and binds the reports in book form after the Minister's approval. In the fourth quarterly report, a review of the whole year's performance is made and submitted. In the quarterly report

of the Ministry, information relating to all the six corporations under it are dealt with. All information relating to production, distribution, export, financial matters, manpower programmes, raw materials procurement, quality control, capacity utilization, and data concerning the entire production situation are included in this report. This review in book form is distributed at the quarterly coordination meeting.

Meanwhile, the Planning Department of the Corporation assembles the quarterly reports of the two industry groups and produces the combined report in book form. The fourth quarterly report covers the report for the whole year. The Corporation's quarterly report is sectionalised into production, sales and distribution, financial situation, exports, purchase of raw materials, the extent of implementation of the planned targets, new plans and extensions and substituted works and general. In the general section are mentioned situation regarding maintenance of discipline among the workers and the number of workers who were sent to attend courses of instruction in the country or abroad. This report book is sent to the Ministry sometimes before the quarterly coordination meeting is held. At the meeting each corporation submits the report and other related papers, and also distributes them to other Corporations. The system of submission of quarterly reports and the process of preparation of these reports is shown in Figure (3-10).

General Evaluation of the Existing MIS for Production Planning and Control

The production planning processes of the PIC follow the same procedure of drawing up of the National Economic Plans, as the 4 year plan and the annual budget have to be approved by the Pyithu Hluttaw. However, the quarterly plan and the monthly plan are more of the short range plans for implementation purposes. Approval of these shorter range plans is necessary only at the ministerial level. The quarterly foreign exchange plan has to be approved by the Ministry but the quarterly and yearly production plans are approved by the Board of Directors.

With regards to the control processes, the PIC monitors the daily and weekly production. But the monthly and quarterly production is controlled at the ministerial level by the IPD. The yearly plan performances are reported to the higher planning organs.

In analysing the existing MIS for the Production Planning and Control in PIC, the factors such as information requirements, sources of information, organization of information, usage of information, usage of equipment, information flow and reporting system should be evaluated. In doing so, we shall tackle the problem in two parts. In the first part, we will analyse the first five factors, and in the second part, we will study the information flow and the reporting system.

Dealing with the points in the first part, the requirement of information seems to be dictated by the planning system. Almost every level of management is involved in the planning process creating decision points at various departments. Thus, the production planning and control processes of the PIC does not end at the corporational level but goes beyond to the higher decision points. Consequently, the PIC as an economics unit becomes a very challenging organization as it calls for more efficient information system. Information requirement for the production and control at each level seems to be regular and routing although the volume of work is large.

In general, the sources of information that have to be processed seem to be internal in nature. Information such as material, manpower, machine capacity, capital and comparative information are all available within the corporation or the BPI. The information from the ministerial level may also be regarded as internal since the corporations are administered by the Ministry of No. (1) Industry. External information comes mainly from other ministries, DAC, the five main customers, and the Five Star Shipping Corporation. The production of medicines is focussed on the local consumption only, hence there is no question of foreign trade or export information. The Development Center for Pharmaceutical Technology is recently opened under the PIC, which is to promote the quality of the products.

Therefore, this new center is not directly involved in obtaining information for production planning and control. The PIC does not need any competitive information as it is the only organization producing medicines for the working peoples. But market research, rather than reliance on the present informal system of obtaining data based on customer complaints is essential for product improvement and innovation.

The other factor which contributes to the efficient MIS is the organization of information. Managers of the various departments are assigned with specific tasks of collecting relevant data and preparing the reports for production planning and control. As there are time targets for the drawing up of the production plans, the time factor is very important. Collection of data depends on the systematic keeping of records in files. It is apparent that the planning system requires a large volume of information files, but the retrieval of information in time should be correct and certain. In general, there are prescribed forms and papers used systematically in the collection or processing of data in organizing the information. But, PIC experienced certain lateness in obtaining information relating to customer demand and arrival of material.

The usage of information is a significant factor in any MIS. In the production planning and control operations of the PIC the information used for decision-making purposes seems to be relevant and suitable. The

use of equipment in the information system of the PIC seems to be limited to hand calculators only. Whether or not the introduction of the computer will be feasible is another important question that may change the quality of the MIS of the PIC.

Analysis of information requirements, sources, and organizing for the various plans is presented in Tables (1,2, and 3).

The points to be studied in the second part are information flow and reporting system of the PIC. In studying the information flow, we found that the up and down flow of work information start from the **ministrial** level down to the factory level. The 4-year plans and the annual budget plan are approved by the Pyithu Hluttaw and the information regarding this is transmitted to the Ministry. The Ministry accepts the production plans and the budget plans as the basic information for starting the realization process. Information on production targets and the relevant policies and guide-lines are used as general directives. The Ministry then established specific production targets and formulated necessary policies and guide-lines to the corporation. Information on 4-year plans and annual budget are specified and sent to the PIC for detail planning and control purposes.

At the corporation level, the information received from the Ministry is used for calculation of production

targets for each factory and formulation of corporation-level policies and guide lines. The quarterly and yearly production plan are approved for each factory. This information is sent to the factories along with the 4-year plan and the budget allotment approved at the ministerial level. All these information flow down to the factory level as a basis for implementation.

At the factory level, implementation of the plans start as soon as the PIC dispatched the relevant information and instructions. Basing on the production targets set for each shop, the BPI plans the necessary allocation on material, manpower, and machine capacity within the limited budget. More detailed policies and guide lines for shop production are formulated the Executive Committee for day-to-day production.

When the information flow reaches to this stage the production is scheduled and dispatched for processing the products.

The feed-back information on the production run are sent to various decision points. Control data are sent to production planning and production scheduling personnel of the BPI. The information also goes to the Executive Committee through the Production & Coordination meeting. The PIC and the Ministry are also informed of such control data.

The channels of information for Production Planning and Control as presented in Figure (3-11) seem to be long and

far reaching as the information has to pass through various levels. At the factory level, the information flow for Production Planning and Control seems apparently efficient as it is close to the production processing system. Hence, the accuracy and timing of the processing of information are perhaps assured. But the information must flow-up to the corporation level and the ministerial level as well. Therefore, BPI has the responsibility to report the work progress continuously to the PIC which, as an economic unit, in turn is responsible for the information process of the ten factories including BPI. As the study is confined to the products of medicine group, the information flow at the corporation level in Figure (3-11) look simple and direct. But in actual situation the PIC has to handle not only the products of the medicine group but also the remaining products of the Pharmaceutical Industry Group. Moreover there are products produced by other factories under the PIC. As such the information flow for Production Planning and Control at the PIC would be more complex than our presentation. How these information are handled in the light of the rate, frequency and timing should be studied separately. One can imagine that the rate of information flow at the ministerial level could be slower as the decision point at this level is concerned not only with Production Planning and Control but with many other affairs of the entire Ministry.

The flow of information from one level to the another is an important point to consider as it can effect the rate of flow depending on the frequency of use. If we consider the three levels of management as separate sub-system, the nature of the problems and issues at the interface should be determined so as to make a further analysis of the existing MIS, which is not dealt in this study.

The reporting system of the PIC is the main feed-back information flow within the MIS. It serves as an information flow for the production control function. The reporting system is devised with the daily, weekly, monthly and quarterly production reports and a monthly progress report. As we have seen in "the reporting sub-system in MIS", the daily, weekly, and monthly production reports are initiated at the Technical Planning Department of the BPI. All of these reports are received and analysed at the Pharmaceutical Industry Group of the PIC. However, the daily summary of production is sent to the Planning Department of the PIC. The volume of control reports handled by the Pharmaceutical Industries Group at the PIC seems appropriately organized and managed as there is a separate industry group for each line of products.

The quarterly production reports are also initiated at the Technical Planning Department of the BPI. They are processed through the Planning Department of the BPI,

Pharmaceutical Industry Group at the PIC, Planning Department of the PIC, and the Planning Department of the IPD. The Pharmaceutical Industry Group of the PIC is a focal point of the reporting system. It is at the Pharmaceutical Industry Group of the PIC that information in Form 030/5 is separated into numerous reports for various purposes. Form 030/5 is summarized and sent to the IPD and Project Appraisal and Progress Reporting Department of the Ministry of Planning and Finance. All other information are reported to the Ministry which inturn report the general situation in brief to the Prime Minister's office.

Apart from the production reports there is also a monthly progress reporting system in the PIC. In this case the Administration Section (1) and the Technical Planning Department of the BPI are the initiators. The Administration Section (1) of the BPI prepares the monthly summary report concerning all aspects of production, whereas the Technical Planning Department prepares the material balance report. Therefore, from the analysis of this monthly progress reporting system it seems the PIC looks after a monthly situation of the production but the material situation has to be reported further to the ministrial level. Thus, it facilitates the Ministry to monitor the situation of nineteen items of locally available raw material.

The reporting system for Production Control is also complex and follow the planning system like the production

planning information flow. The control information also has to pass through various departments at different levels.

Summary and Implications

The present study of MIS is concerned only with the production planning and control function in one particular industrial corporation. The study is based on the theoretical aspects of the MIS found in current literature. Its mission is to bring out the existing MIS exercised at the PIC. The present MIS for production planning and control is dictated by the prevailing planning system of the national economy. Hence the management levels through which information pass through could not be confined to the PIC only. It covers the various management levels of BPI and the IPD as well. Thereofre, the communication network served by the MIS looks to be large, complex and cumbersome.

The objective of the present study is limited to the description of the flow of information up and down for production planning and control purposes. However, a general evaluation is made on the basis of observation and personal judgement. Conclusions reached are only tentative and not final. It is recognized that further study is needed to make a more detailed analysis.

The MIS used at the PIC seems to be orderly and systemic within the given environment. It might be due to the long experience of the BPI in the use of modern accounting

methods and procedures.

There is little or no direct use of external information like market research or competitive data at the PIC level. However, internal information is more important to the PIC. The Corporation uses the 20-year perspective plan as the basis for drawing up the medium-term and short-term plans. While shorter range planning and control are more important to the PIC, the existing MIS seems to be oriented for that purpose. Therefore, the internal information plays a more significant role in the system.

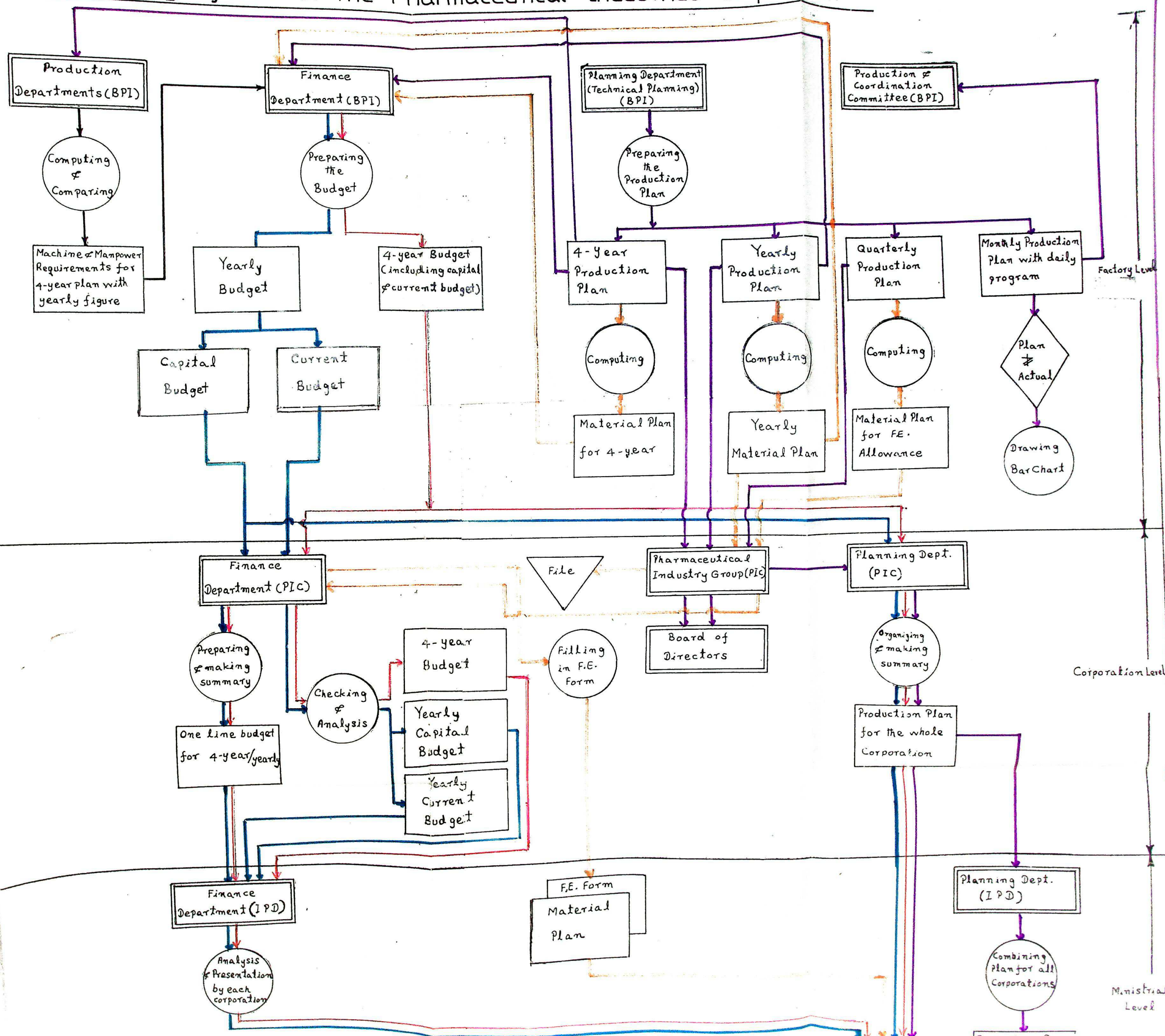
However, there is a need to ascertain whether there is an overabundance of documents and reports. In the reporting system, the documents contained in the various reports are found to be too many, and many of the documents have been heaping up in document files. We found that certain items of information are received in more than one report and also that the distribution of certain forms and papers extends over sections and departments which apparently may not require or use them.

Further analysis to be suggested is on the contents of the reports and the recording system. The excessive use of tables and figures should be checked to save time and energy. Moreover, multiple preparation and distribution of identical data should be scrutinized and eliminated.

The volume of information to be handled by the PIC could be an adequate justification to start computerize the MIS. At present, the hand calculators are the only tools of computing. In order to save time and energy modern tools of computing in planning and control is essential.

Production Planning System of the Pharmaceutical Industries Corporation

Figure(3-6)



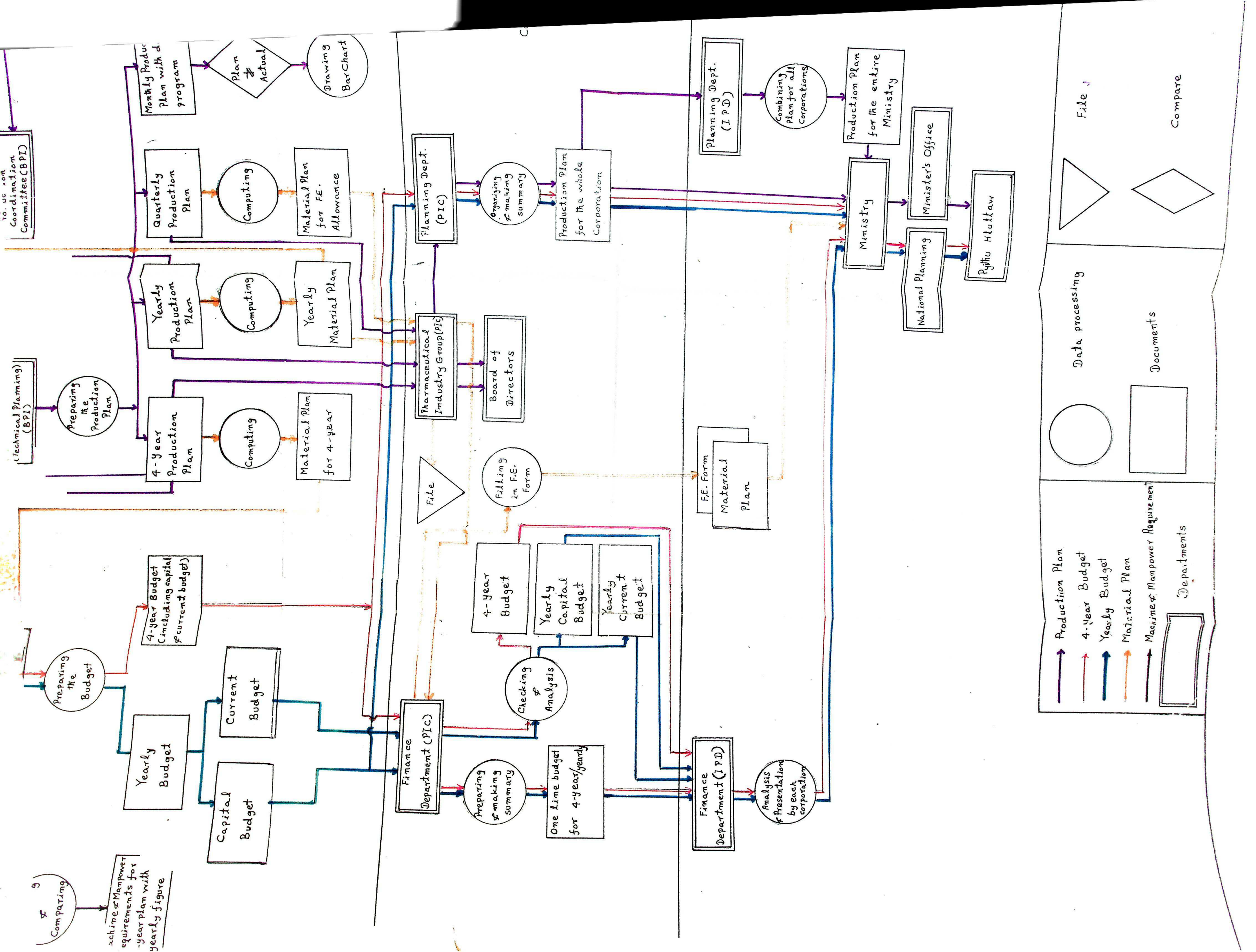


Table (1)
Analysis of Information Requirements, Sources, and Organizing for Four-Year Plan

Serial No.	Information Requirements	Information Sources	Information Organizing			
			User	Collection Time	How Received	Storage
1	<u>Production Plan</u> Annual and cumulative rates of increase in production for 4 - years.	Hluttaw, Planning & Finance Ministry, PIC, and Ministry (1).	Assistant General Manager of Technical Planning Department.	Before the preparation of the plan.	By instructions and through meetings.	Documents files, meeting minutes and notes in personal diaries.
2	Existing machine capacities by types and products, manpower requirement for present capacity.	Respective production departments.	Manager of the Technical Planning Department.	"	By phone	Files of forms relating to machine capacities.
3	Value and quantity targets of production by medicine group for the base year.	Technical planning Department.	"	Any required time	In statements and forms.	Filed by year.
4	<u>Budget</u> Regulations, restrictions, titles of statements and forms, and heads of accounts.	Hluttaw, planning & Finance Ministry, PIC, and Ministry (1).	Manager of Budget Section in Finance Department.	April of every 4 year.	By instructions and directives.	Stored in policy and directives file.
5	Yearly values & quantities of production by medicine group for 4 - years.	Technical planning Department.	"	At the time of preparing the Budget.	In statements and forms.	Stored in drafts files.
6	Information relating to the capital and current budgets of the last financial year.	Budget Section of Finance Department.	"	Any required time	"	"
7	<u>Machine Capacity</u> Yearly rate of increase in production for 4 years.	Technical planning Department.	Managers of the production departments.	At the time of meeting for the preparation of 4 year plan.	By discussion	Noted in personal diaries.
8	Volume of daily production by machines, total volume of production for the year, the number of workers and rate of absenteeism.	Respective production department.	"	Any required time	By calculating from daily production record.	Filing the forms.
9	<u>Material Plan</u> Yearly values & quantities of production by medicine group for 4 years.	Technical planning Department.	Assistant General Manager of the Technical planning department.	Any required time	In statements and forms.	Filing the forms.
10	Quantities of material required by alphabetical and raw material group for the base year.	"	"	"	"	"

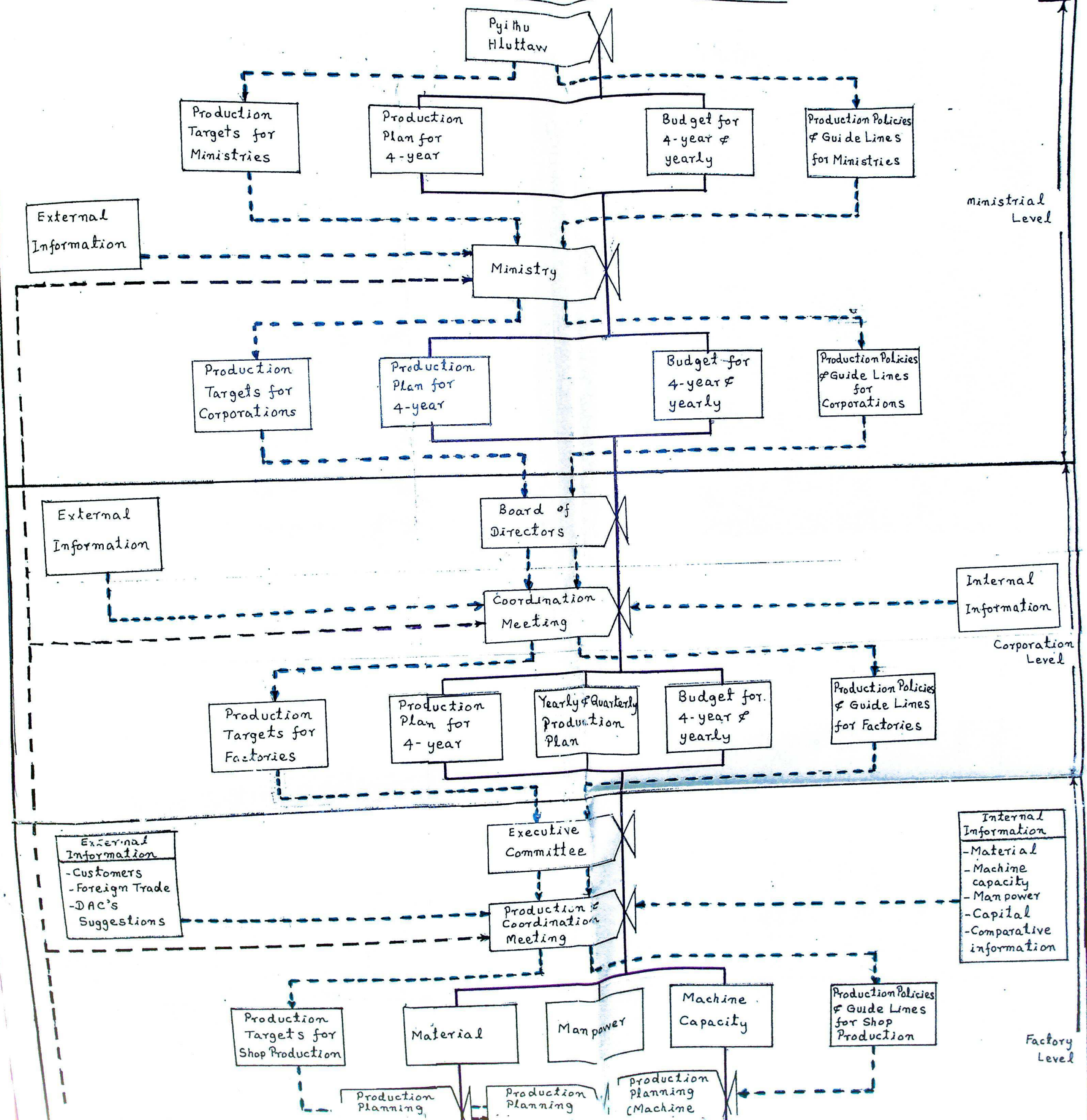
Serial No.	Information Requirements	Information Sources	Analysis of Information Requirements, Sources, and Organizing for Yearly Plan.			
			User	Collection Time	How Received	Storage
1	<u>Production Plan</u> Kinds of medicines, trade names, sizes, demanded from each customer.	Five main customers through the PIC.	Manager of the Technical planning department.	Requests made in May and June, replies received in June and July of every year.	By completed demand forms prescribed by the factory.	Filing the forms in yearly file.
2	"The production targets for 4-year plan" and "Report to the Pyithu Hluttaw," in book-form.	Planning & Finance Ministry through the PIC.	Assistant general Manager of the Technical planning department.	At the time of the preparing plan.	Discussions at the meeting for annual plan.	Noted in personal diaries and official minutes.
3	Priority Customers, prior products, products which should cease production, changes in products made case-wise according to the diseases, essential and complementary products.	Customers coordination meeting, weekly production & coordination meeting, DAC.	"	At the time of the corporation meeting, at the weekly production & coordination meeting.	Discussions at the weekly and monthly meeting.	Noted in personal diaries and meeting minutes.
4	Information relating to the material balances, manpower, and machine capacities.	Planning Department, Administration Department, respective Production Departments.	Manager of the Technical Planning Department.	At the Executive Committee meeting at BPI.	By discussions, coordination with the representatives of the concerned departments.	Storage in the stock card, filing the forms, record the discussion of meeting in the personal diaries.
5	<u>Capital Budget</u> Regulations, restrictions, titles of statements & forms, heads of accounts.	Planning & Finance Ministry through the PIC.	Manager of Budget Section in Finance Dept.	April of every year.	Instruction documents	Stored in policies and directives file.
6	Value & quantity of yearly production by medicine group for 4 year plan.	Technical Planning Dept.	"	At the time of preparing the Budget.	Statements and forms.	Stored in draft file.
7	Information about the investments relating to extensions, renewals replacements of capital assets and new projects.	Budget section of Finance Dept.	"	Any required time.	Base year figures, discussions, reconciliation with the 4 year plans, and proposals of personnel concerned.	Filing the forms.
8	<u>Current Budget</u> Values & quantities of the estimated products for coming year and next year, based on the last 3 or 4 year production.	Technical planning Dept.	"	At the time of preparing the budget.	Forms and statements.	Filing the forms.
9	Present machine capacity by medicine group planned production for relevant year, machine capacity utilization rate.	"	"	"	"	"
10	Values & quantities of planned sales by medicine group, planned incomes from sales of used property, house rents, etc.	Technical Planning Dept., Material Planning Dept.	"	"	"	"
11	Opening balance by medicine group, value of production, value of sales, closing balance.	"	"	"	"	"
12	Present strength of staff and expected new appointments by posts/pay scales during the relevant financial year.	Administration Dept.	"	"	"	"

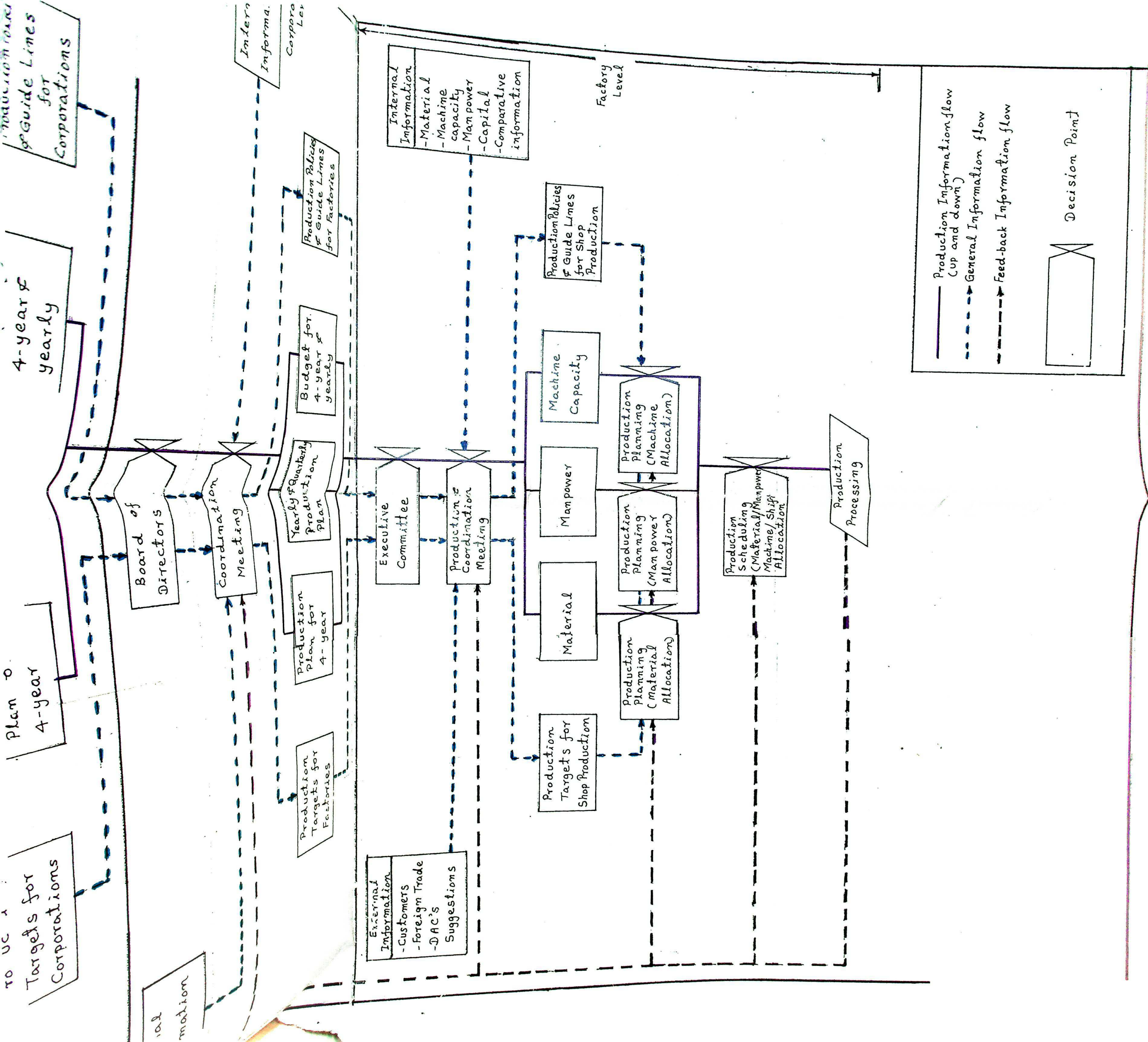
Table (3)

Analysis of Information Requirements, Sources, and Organizing for Quarterly and Monthly Plan.

Serial No.	Information Requirements	Information Sources	Information Organizing			Storage
			User	Collection Time	How Received	
1	<u>Production Plan & Material Plan</u> Estimated total values by product and medicines group.	Technical Planning Department.	Assistant general Manager of Technical Planning Dept.	Any required time	Statements and forms	Filing the forms.
2	The number of working days during the year and the quarters, the number of holidays during the year and the quarters.	"	"	"	By calculations from the calendars published by the Information Ministry.	Posted on Bill boards and notice boards.
3	Values of actual production by product/medicine group for the month/the quarter.	"	"	"	Statements and forms.	Filing the forms.
4	Opening balance by medicine group receipts, usages, and closing balance.	"	"	"	Extracted form stock cards.	Stored in Card Index Store.
5	Information like names of raw materials ordered, dates of order, number and quantities of each raw material, country of origin.	Procurement Section of the Material Planning Dept. in PIC.	"	At the time of preparing the plan.	Firm orders obtained from the procurement section of PIC.	Filing the forms.
6	Expected time of arrival of the ships, raw materials, and other particulars.	Clearance Section of PIC.	"	Before the arrival of the ships.	Clearance information	"
7	Information of names of the ships the countries of departure, times of departure, and the estimated times of arrival.	Five Star Corporation	"	At the time of sailing	Sailing schedule	Posted on the notice-board.
8	Total estimated grants.	Finance Dept. of PIC.	"	Before submission of the applications	By phone and by directives.	Recorded in personal diaries and files of directives.
9	Priority products, essential and complementary products, products which should cease production.	Customers coordination meeting DAC, Weekly production coordination meeting.	"	At the time of the meeting for weekly and yearly plans.	Meetings and by directives	Recorded in personal diaries and filing the forms.
1	<u>Monthly Plan</u> Total values of production for the month as estimated in the quarterly plan.	Technical Planning Dept.	"	Any required time.	Statements forms.	Filing the forms.
2	The number of working days and the number of holidays during the month.	"	"	"	Calculations from the calendars published by the Information Ministry.	Posted on Bill boards and Sign boards.

Information flow for Production Planning and Control





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