UNIVERSITI PUTRA MALAYSIA

MANAGEMENT INFORMATION SYSTEM AT HUME CEMBOARD FIBRE CEMENT DIVISION

VICKNESWARAN SUBRAMANIAM

GSM 1997 30

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ABSTRACT

This case study is about Hume Cemboard Fibre Cement Division which is facing problems of poor information flow system and high staff turnover. A few scenarios and operations in each department has been used to describe the problem.

The alternatives are :

1) Hire more staff
2) Develop a Management Information System and motivate current staff

Developing a Management Information System and motivating the current staff has been proposed to overcome the problem.

TABLE OF CONTENTS

PAGE

CASE ANALYSIS

TABLE OF CHARTS

SCENARIO

Scenario 1 (Rejects)

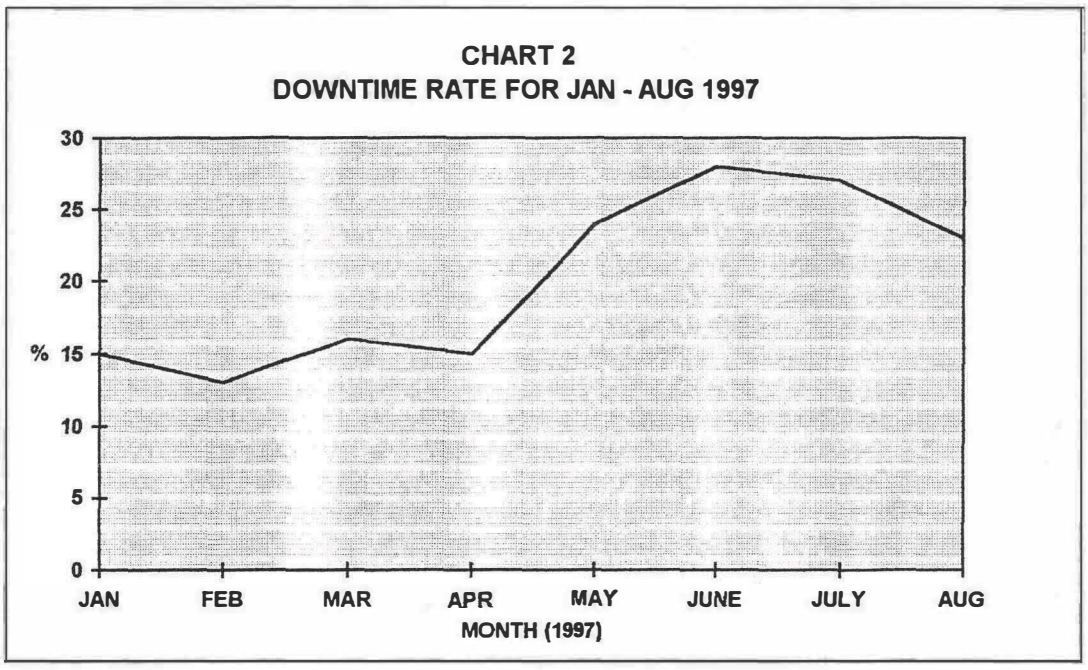
The main constituents of corrugated roof sheets are cement, asbestos, kraft and other recycle material. The proportion is around 85% cement, 10% asbestos and 5% of other materials. These material are mixed and compressed at a pressure of 7 bar to obtain sheets of specific gravity (compactness) of 1.5. If the specific gravity is low, it means the materials are not compacted well. This causes the sheets to have lower strength and break easily.

Specific gravity can only be measured after sheets are hardened (24 hours after manufacturing). Yield is a function of specific gravity and thickness. Yield can be measured more frequently, so yield is used to monitor specific gravity.

$$\text{Yield} \propto \text{Specific gravity} \times \text{Thickness}$$

Yield is measured once per shift (8 hours once) and the figure is filled in the shift log. The shift log is passed to the Production Engineer and Plant Manager at 8.00 o'clock every morning.

On the 24/7/97, all 3 shift had high yield. Action was only taken after 24 hours when the Plant Manager got the shift log. It was found that the pressure applied to compact the sheets was 5.5 bar due to a leak in the hydraulic system. This caused rejects of 100 tonnes which amounts to RM70,000. The reject rate is quite alarming from the month of May 1997. Refer to Chart 1. 1% reject amounts to RM30,000.



Source : Management Report for August 1997

Hume Cemboard Fibre Cement Division

Scenario 2 (Downtime)

Since the Maintenance Engineer, Mr Hii left the company in May 1997, no proper records were kept on the maintenance and machine breakdown.

Recycle water is pumped to the cone tank for storage before being used back in production. One of our raw material is cement, so the chances of pipeline getting choked with cement is high.

When recycle water cannot be pumped to the cone tank, it must be released to the drain and stored in a specified area before sending for disposal at Kualiti Alam Sdn Bhd. Each tonne of waste sent to Kualiti Alam Sdn Bhd cost RM600. During the recent problem with the recycle water, RM45,000 was used to dispose the waste.

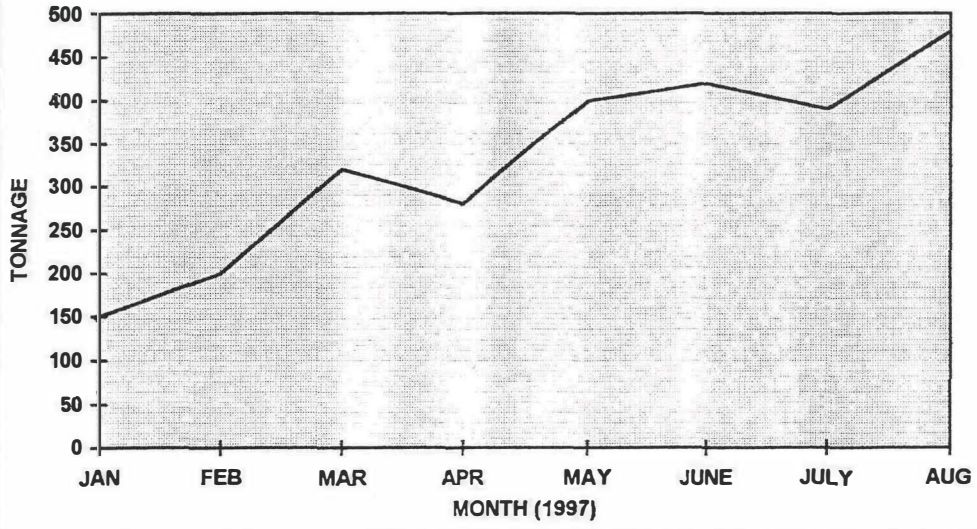
There can be two reasons for the drop in efficiency of pumping recycle water to the cone tank :

a) The recycle water pump needs repair.

b) The pipeline from the recycle water pit to the cone tank is choked with hard cement.

Six months ago, similar problem occured and the reason was pipeline choke. It took 7 days to solve the problem. On the 19/8/97, the same problem occured and the maintenance crew took 7 days to solve the problem because they were trouble shooting again. The downtime rate is also alarming from May 1997 onwards. Refer to Chart 2 for the trend. 10% downtime cost RM35,000.

CHART 3
STOCK VARIANCE FOR JAN - AUG 1997



Source : Management Report for August 1997

Hume Cemboard Fibre Cement Division

Scenario 3 (Finished Goods Management)

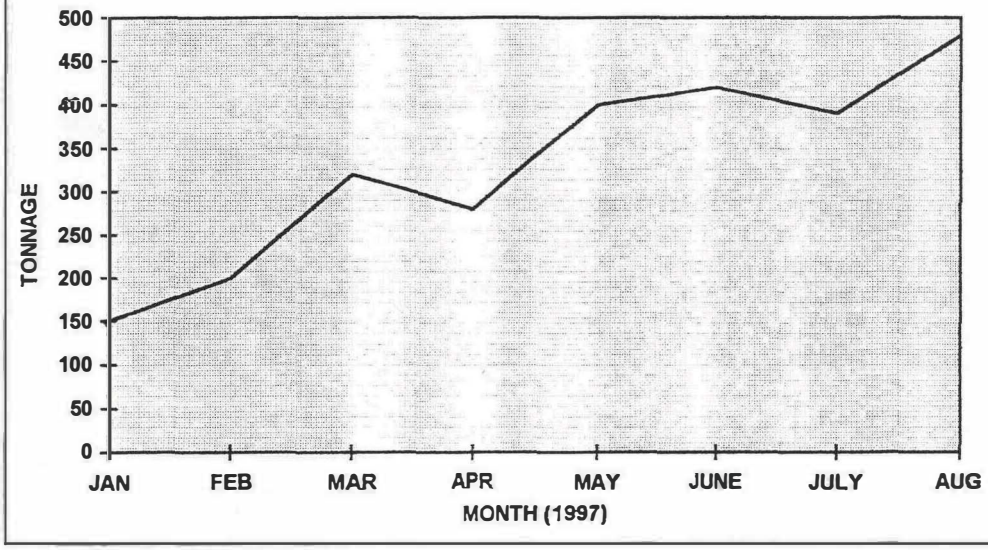
Every product (stack of 100 sheets) manufactured will have a move ticket attached to it for identification. When it is transfered from the production area to the Finished Goods Store area (yard), the FGS staff will tear one part of the ticket from the stack and enter the total transfer into the computer.

These figures will be compared to the production figures given in the shift log. The reconcillation of these both figures is only done 5 days once because of manpower shortage.

On the 5/7/97, Mr Pannir found that there were differences between the move ticket and shift log. When he tried to check at the yard, he couldn't find the stacks, probably the sheets has been delivered. At the despatch side, no move ticket numbers are recorded.

At the end of each month, stocktake will be taken to compare physical stock with book figures. If there is a variance of 100 tonnes, factory need to keep a buffer stock of the equivalent to avoid delivery problems. Keeping 100 tonnes of stock means holding cost of RM500 a month. Refer to Chart 3 for the trend of stock variance.

CHART 3
STOCK VARIANCE FOR JAN - AUG 1997



Source : Management Report for August 1997

Hume Cemboard Fibre Cement Division

CASE STUDY

CASE STUDY

"The way the company reacts to technology depends on the situation, our needs and requirements. So sometimes we take a wait-and-see attitude and sometimes we move to adopt new technologies more quickly. We don't necessarily wait and watch others test out a technology before we use it ourselves. It is important to keep close to the leading edge of technology because in the present context of business, Information Technology drives competition."

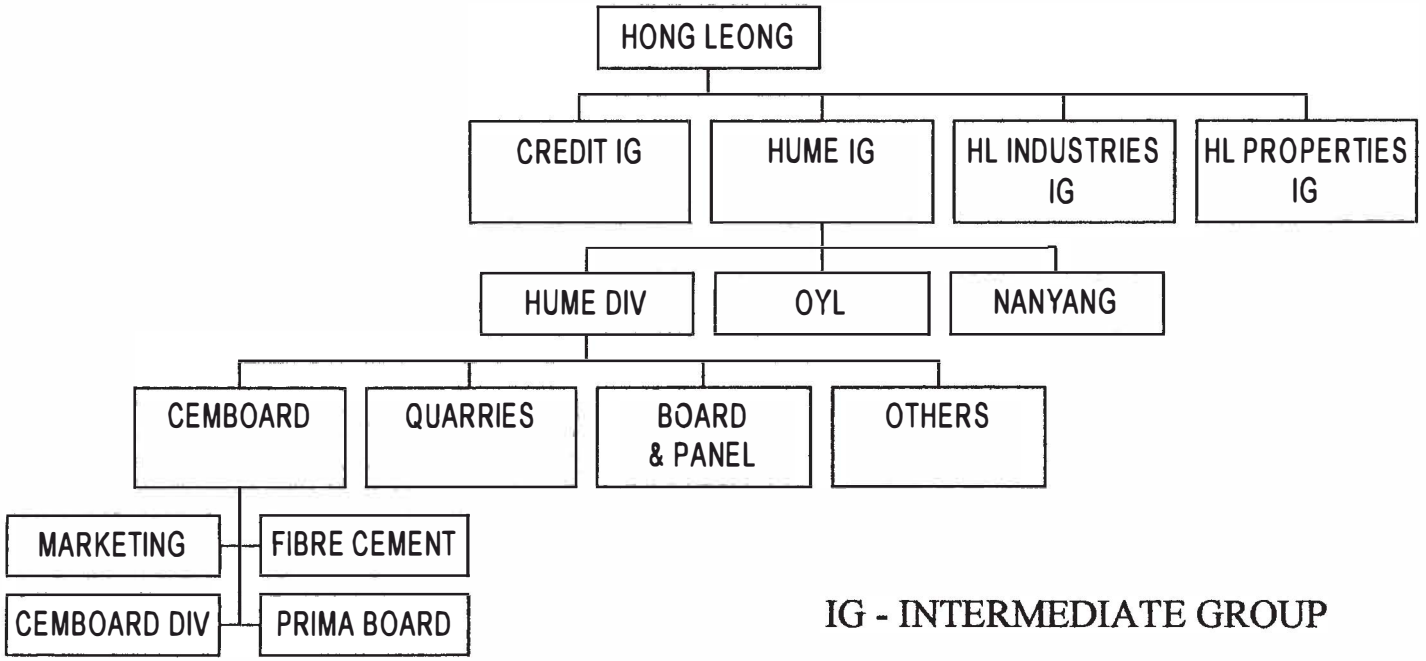
- Peter Lim, Chief Operating Officer, Hume Group

1.0 INTRODUCTION

Hume Cemboard Bhd is a subsidiary of Hong Leong Group which has a market capitalisation of RM 16 billion. It is situated at Jalan 219 off Federal Highway. An Australian started the company in 1967 but Hong Leong took over in the year 1981.

Hong Leong is a conglomerate with 4 IG (Intermediate Group) ; Hume, Hong Leong Industries, Guoco and Hong Leong Credit. Each IG manages around 50 companies. Hume is dealing with the construction industry. Companies under Hume are Hume Cemboard, Hume Readymix, Hume Concrete, Hume Steel and others. Hume Cemboard has 4 division; Fibre Cement Division (PJ), Prima Board Division (Kanthan), Cemboard Division (Chembong) and Marketing Division. (Refer to Chart 4)

CHART 4
HONG LEONG STRUCTURE OF COMPANIES



IG - INTERMEDIATE GROUP

Hume Cemboard Bhd Fibre Cement Division (HC FC) produces asbestos cement corrugated roof sheets and asbestos cement flat ceiling sheets. HC FC consists of 7 departments. The departments are Human Resource Department (HR), Research and Development Department (R&D), Production Department, Engineering Department, Quality Control Department (QC), Finance Department and Purchasing Department.

2.0 ORGANIZATION STRUCTURE

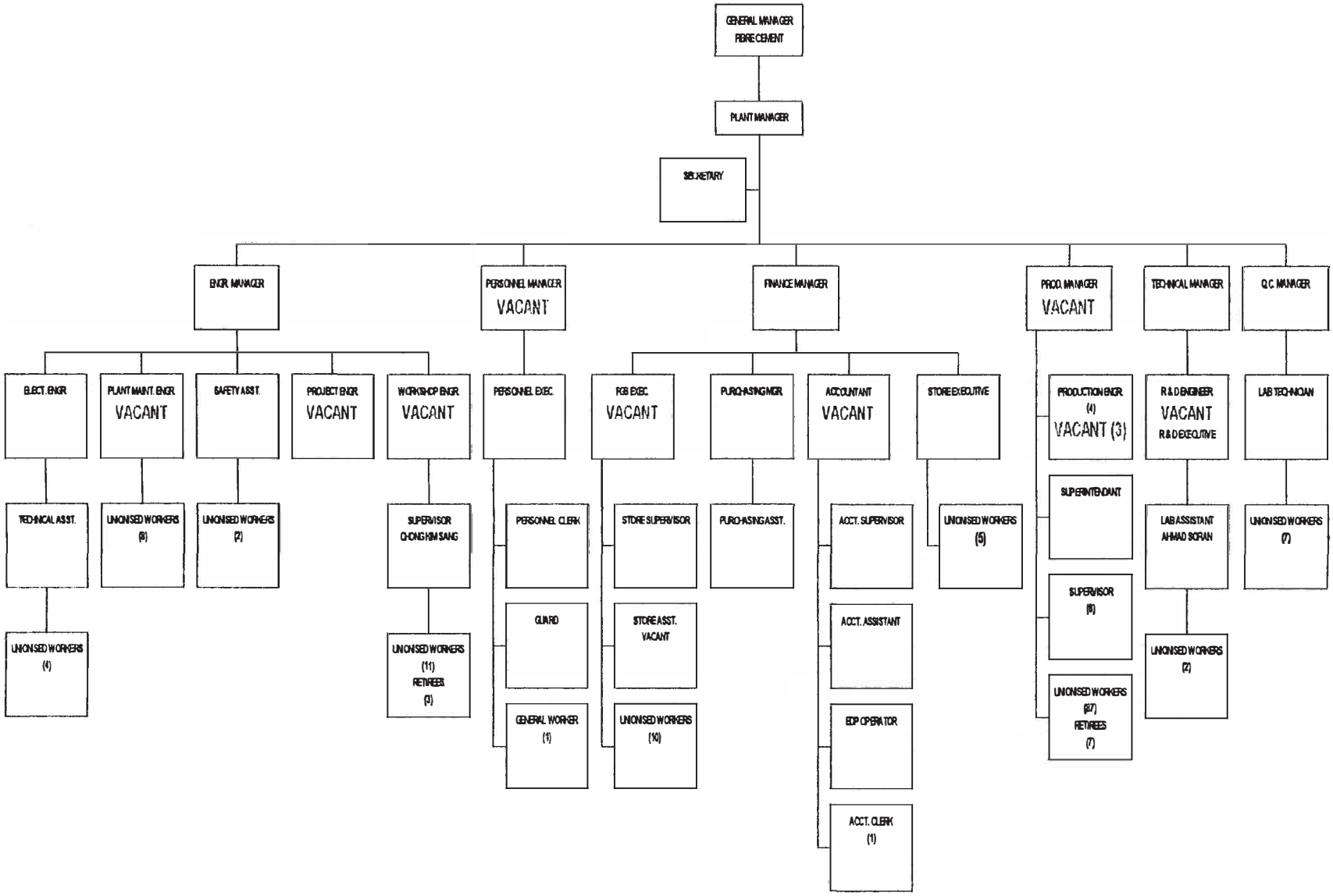
The General Manager heads the organization. Under him is the Plant Manager. Plant Manager is assisted by 6 Head of Departments (HOD) under him. Each HOD has a number of Executives under them to assist them. The actual organization is shown in Chart 5.

From the month of May 1997 onwards turnover was high in the Executives and Managers level (48%) due to the increased job oppurtunities. So the vacancies created are shown in Chart 5. The Human Resource Department has been trying to find replacement but couldn't find suitable candidates yet.

3.0 OPERATIONS

In this factory we have two main production lines. One of them produces asbestos cement corrugated roof sheets. The other line produces asbestos cement flat ceiling sheets. There are 144 workers in this factory working on three shifts. Our annual net profit is

CHART 5
ORGANISATION CHART FOR HUME FIBRE CEMENT DIVISION



around RM10million. All the workers are male because it is considered a heavy industry which requires hard labour.

4.0 MARKETING DIVISION

Marketing Division consists of 25 staff and they have 5 branch offices all over Malaysia. Their job function is to study the market condition, find sales, arranging transportation of sheets, attending customer complaint and provide daily outstanding orders for production. Daily outstanding orders are faxed to the Production Department.

Normally marketing staffs get their information from newspapers and dealers. This information is used by them to forecast sales. Their function also includes finding customers and promoting our product domestically and internationally. This may include promotion strategies such as advertising. We normally sell to 25 selected dealers (hardware) who acts as middlemen to the end users. We also sell to big projects like schools, mosques, new housing areas and other large orders (without going through dealers). When Marketing Division gets their sales order, they communicate to Production Department to cater for their needs. If there is any non-standard product, they may need production advice on it's capability to produce this products. Marketing also has a few transporters (lorries) which they need to coordinate to transfer sheets to customers.

Sometimes there will be functional defects (longitudinal crack, transverse crack, soft) and cosmetics defects (bits, indent, watermark). When this happens, customer will send a customer complaint form to the branch manager. Branch sales personnel will go to the site and evaluate the damages taking photos if necessary. These evaluation will then be

forwarded to the Marketing Department in PJ for necessary actions. If the damage is not clearly described or if it is an unusual problem, then Marketing will send a Marketing Executive with a QC staff to the site. Customer complaint will be prepared by these personnel with an estimate of cost that will be incurred to overcome this problem. Then Finance Department will look into the Customer Complaint Report and issue Credit Note to compensate those customers involved.

5.0 PRODUCTION DEPARTMENT

Production department consists of a Production Manager, Production Engineer and a Superintendent. There is also Supervisors for each shift. So for the existing two production lines, there will be 6 Supervisors.

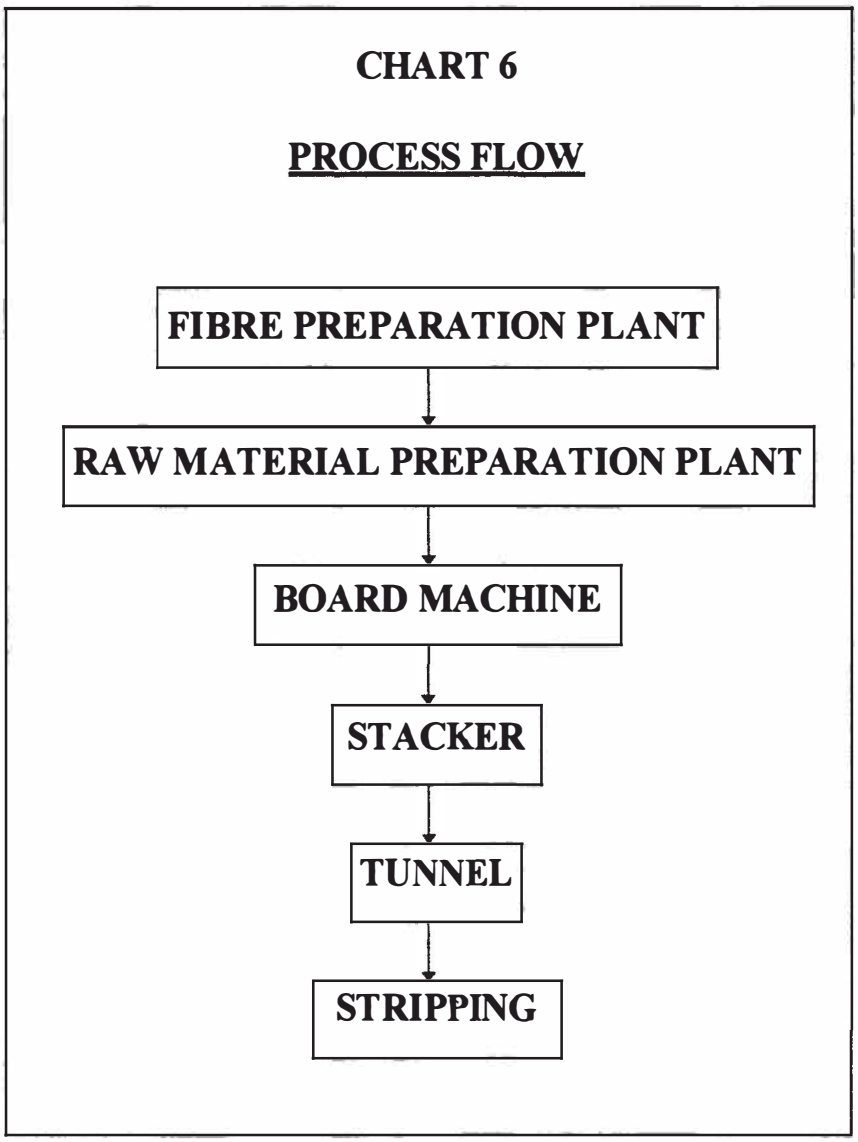
Raw material used are asbestos fibre, cement, recycle kraft, calcium carbonate and recycled sludge. Formulation to be used will be given by R&D Department to the Production Department. Different formulation is used for different products. The formulation also change when there is quality problem with the asbestos fibre or the cement.

The first section is the Fibre Treatment plant where asbestos fibres will be 'opened' to increase surface area by using Kollergang. The next section is the Preparation Plant where formulated amount of raw materials are mixed. Then the mixed solution (slurry) goes to the third section, board machine where the slurry is compressed to produce sheets of specified thickness. The fourth section is the stacker where flat compressed sheets are cut into required size and corrugated (made into wavy form) and templates (steel plates)

are placed in between the sheets so that the wet sheets don't stick on each other. The corrugated sheets then go through a tunnel at 38 C where it hardens. The fifth section is the stripping (destacker) section where sheets are separated from the templates and are stacked into 100 sheets per stack. Refer to Chart 6.

CHART 6

PROCESS FLOW



Source : Familiarisation Report by Vickneswaran , 1995

Hume Cemboard Fibre Cement Division

Checklist are filled at every section: fibre treatment plant, raw material preparation plant, board machine, stacker and stripping. Each shift operator is responsible to fill in the forms every hour. They are supposed to be filled in every hour. Operators normally fill the forms at the end of the shift because no one seems to check these checksheet or take any action based on these checksheet. The shift supervisor will then transfer data from the checksheet to the Shift Log (in four copies) which is then passed to the Plant Manager, Finance Department, Quality Control Department and EDP Section.

The Shift Log is prepared at the end of each shift but it is only distributed every 24 hours (at 8.00 am). The Production Engineer is required to verify the correct transfer from the checksheet to the shift log. The Plant Manager uses the Shift Log to monitor yield, output, downtime and other machine running condition. High yield means the specific gravity (compactness) is low and the sheets can break easily.

The Finance Department is interested in the yield, efficiency and quality which have financial implications. QC Department will relate the machine running condition with the quality of the sheets produced. The EDP Section will key in the quantity sheets manufactured on that day in its database.This figures will then be compared to the actual physical stock at the yard (yard is considered as the store for storing the sheets). Each stack is labelled with tickets by the stripping machine operators which will be collected by the FGS personnel to verify with the figures in the database at EDP Section (from the Shift Log). If the FGS personnel doesn't turn up on a day, then the tickets will only be collected on the next day. Reconcillation with the Shift Log is only done after 5 days because we are short of staff. When there is some errors, it is very hard to trace because by 5 days the sheets would have been mixed with other sheets produced earlier.