CHAPTER THREE

3) ANALYSIS OF PURCHASING MANAGEMENT IN NECSEM

This chapter will focus on detail analysis for problems identification. Three areas with significant impact on Purchasing Management were chosen for analysis.

3-1) ANALYSIS OF ORGANIZATION STRUCTURE

The number of manpower in Purchasing section is relatively small with 6 persons comprising of a manager, and 5 material controllers, 2 males and 4 females without any technical knowledge. No additional staff is recruited for the past 6 years except for one inter - department transfer. Since then there is one person to go for maternity leave each year. Moreover none of them have any qualification in Purchasing Management including the manager who is graduated in Economics where as his staff joined the company after From 5 education. However most of them are very rich in experience as shown in Table 1. The company do not have any formal Programs to train them up and with the experience alone is not sufficient for them to handle problems which are getting more complicated as the company expand its investment. Counter measures taken are usually temporary in nature to get the job flow.

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Table 1 : Manpower Profile For Purchasing Section

Position	Sex	Age	Education	Working Experience		Nature Of Job In Purchase
				Purchasing Section	Others Department	
Assistant Officer	Female	33	SPM	1	13	controlling direct material
Clerk A	Male	31	SPM	7	-	Incharge of local in-direct material especially spare parts
Clerk A	Female	35	SPM	14	-	Incharge of packing material and purchases from Singapore
Clerk B	Female	31	SPM	7	1	Incharge of all matter related to Japan
Clerk B	Female	38	SPM	6	12	Incharge of local indirect material except spare parts

Source: Manpower profile from Human Resource Department.

As sales grow at such a high rate, the volume of job also increase tremendously. Total number of stock items has increased from 1,988 items in 1991 to 2,818 items in 1995. This increase is also reflected in the number of purchase requisition slips issued. In simple calculation the work load has increased by 50%, and is worsening as the MRP system is not functioning fully.

In addition of that, non stock items also increase more than 50% and the total purchasing amount has exceeded stock items by 150% . (excluding investment items and raw materials) reflecting that more requestors are buying the goods by themselves.

The nature of business in semiconductor is very dynamic especially when the company is moving towards high end products. Demand fluctuates significantly. It can be a 50% up or down in demand in just a day. Hence controlling of stock to meet

production requirement and the minimum inventory level is a tough job. In addition of that non of other departments can contribute ideas for improvement or cost down activities.

What happen to the purchasing manager ? Besides Purchasing he is also controlling Budgeting section as well.//Budgeting section is the smallest section in the company with only 4 members including him. The two budgeting officers are very new with less than 1.5 years of working experience and another staff is a clerk. Therefore he has to involve directly on most of the budgeting and costing jobs. In other words time spend on purchasing section is limited and priority has to be set on ad-hoc problems, cost down activities and introduction of new product line.

In respect of reporting, only one report has been issued monthly, that is Purchasing report on purchasing amount by type and destination.

3-2) ANALYSIS OF CONTROL SYSTEMS.

An item could be purchased through issuing of purchase order or without purchase order depending on how the item is classified whether it is a stock or non-stock item, the urgency of requirement and is it a contractual item or not?

Generally all NECSEM's staff inclusive of machine operators can place a purchase order or purchase directly from vendor as long as the department head approves the request. Control on purchasing in the company is decentralized and weak. Eventhough there is Purchasing section, many people still involve in purchasing and Purchasing section has no authority to rejectany purchases that are approved by department head because top management allow such a practice.

There are three junctions of checking invoices, when warehouse received the goods the invoices will be checked against physical goods and up dated into computer, then it will be handed over to purchasing section to counter check against PRS and authorized by purchasing manager before going for the final checking in finance department. In other words, invoices still have to be process manually. Since we have computerized the purchasing system, where purchase order is generated through computer, then ideally invoices should be checked by computer, especially the prices. Unfortunately, it is not.

There is still no written guidelines, procedures or policy on purchasing after 20 years of establishment. All the while top management sees the function of purchasing as a very simple system and is a of non value added activity because it involves cost and generate no monetary return. Another factor that does not create the need for management to put emphasis on purchasing is that so far there is no major shortage in material supplies and inventory is at the level reasonable for the company.

3-3) ANALYSIS OF MRP

Four years ago headquarter in Japan send a group of EDP staff from Japan to support local EDP members to develop the MRP system. A project team was set up and users' requirements, ideas and suggestions on a complete MRP system were clearly compiled for the new system. Japan could not accept local requirements fully because of the high complexity and their standard package is not capable of providing such informations. They came out with some modified version and was accepted by local members. The project lasted about a year and finally reports were generated. Unfortunately none of the reports successfully giving any accurate data. Reasons compiled by EDP members are :

1) Linkage   problem

   Coding under MRP system   is different   and   not consistent   with coding under   Production Control,   Purchasing,   Inventory and   Shipping   systems.

2) Inconsistency of data in master file

   Master coding for material could not be read directly   by other systems   because one   material   could be used   by a   few   products and one   product can use a   few materials.   A   product can   have many Rom-code up to   20 to   30   types.   Different   rom-code   uses different pellet and has   different   electrical   characteristics.

3) Production plan change frequently and recalculation of MRP is not efficient.

4) Automatic generation of purchase order through linkage of system is very complex.

All the above problems were not put forward to users for further counter measures to improve the system instead priority was set to other project or program.   Top management does not take the issue seriously as there is no serious material shortage and inventory level only increase slightly.   After a year passed, the issue was brought up again by users and they are requested to submit their requirements, ideas and suggestions once again.   The whole process repeat again with much argument than discussion between both EDP section and users.   Users include Purchasing and Finance staff.   Finally the project was called off.

Present MRP system is incomplete or not function fully for optimum results.   This is one of the major problem face in Purchasing   Management especially for a company which has been established for more than 20 years with such a high business transactions.   Basically there are three major problems why MRP could not function fully.

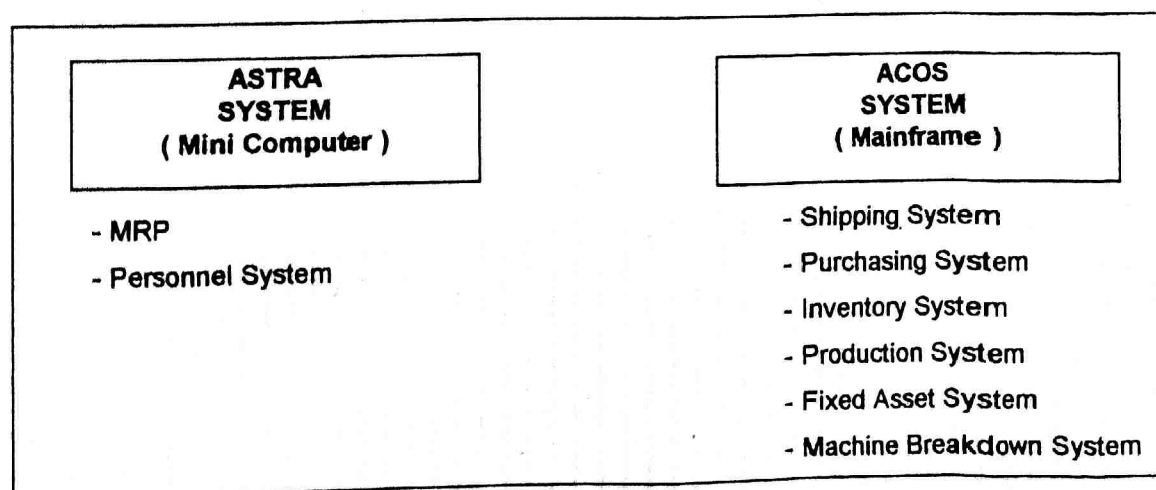1. There are two different operating systems which have no linkage.

2. Inconsistency in product naming.

3. Product-material relationship.

3-3-1) Two Operating Systems

The two operating systems are Astra System and Acos System. Astra System operates under minicomputer environment and Acos System runs in mainframe where the machines is shared by a few affiliates of NEC Corporation and located in Singapore. Astra System is presently used for the incomplete MRP and Personnel systems. Acos system has the Purchase Material Control System (PMCS), Production Control System (PCS) and Fixed Asset System (FAS). PMCS consists of sub-systems for Purchasing, Inventory and Shipping. PCS is used for control of work in progress at production floor and machine operation rate. FAS captures informations on investments, depreciations and actual location of assets in the company.

There is no linkage between Astra and Acos systems causes the incomplete of MRP system as shown in Figure 7.

Figure 7 : EDP Operating Systems.

ASTRA SYSTEM (Mini Computer)	**ACOS SYSTEM (Mainframe)**
- MRP - Personnel System	- Shipping System - Purchasing System - Inventory System - Production System - Fixed Asset System - Machine Breakdown System

The existing MRP system is only able to compute the standard material requirement as it has a field for " product-material relationship" without taking into consideration of material stock balance, finished goods stock and purchase order backlog status. Therefore in order to obtain the required stock plan, material controller has to input manually into the Astra base - MRP system informations on material stock balance and purchase order backlog for each product type. There are more than 500 types of material and almost 2,000 types of product. No consideration is taken over here for finished goods to simplify the calculation and with the assumption that all goods produced are according to plan and could be sold within the month. Any unsold goods are at the minimum level where excess order could be obtained in the following month.

Stock Plan is a table of simulation to calculate the amount of material required to purchase. Stock Plan is computed manually using Lotus spreadsheet which consists of four elements :

1. Consumption - computed using formula for material standard requirement in Chapter 3
2. Stock   - balance of material at warehouse plus safety stock.
3. Backlog   - Purchase orders that already issued to vendor and the goods is yet to
                 be received. There will always have backlog because lead-time from
                 purchase order issued to delivery is usually 3 months.
4. Purchase   - Amount to purchase equal to stock balance plus backlog minus
                 consumption.

Table 2 : Stock Plan For Computation Of MRP

	Stock	Backlog	April	May	June	July	August
Consumption							
Purchase							
Stock							

3-3-2) Inconsistency In Product Naming.

Product names use in Shipping system are different from that of other systems. Product names in Shipping system are external or market names where as internal names are applied to other systems. Therefore sales plan is done using external names and converted to internal names for computation of MRP. Why are there two names for one product ? The reason is that internal names have relation to silicon wafer or pellet names. This relation is required because the "Product-material relationship " was created base on material names that is wafer or pellet names. For example product ABC945X (external name) is identify as L-266 internally because it uses wafer 266.

The duplication of product name make it difficult for MRP to function fully. Besides that one wafer may have a few type of structures to provide the different classes of products required. For example there are 3 types of structure for wafer 266 which is called Ha, Ho and Ni. Each wafer type will produce 5 different classes for L-266 product namely class F,G,H,I and J. The distribution of classes varies for each Ha, Ho and Ni wafer. In order to meet the required classes for L-266 products, simulation is done in combining the 3 wafer types until the required classes are derived and the unwanted classes are minimized. Each product class has different electrical characteristic. Wafer 266 is not only use to produce L-266 but also SS-266 and

MT-266 products which complicate further the computation. All the above simulation and logics are not programmed into the present MRP.

3-3-3) Product-Material Relationship.

In order to ensure that materials are acquired at competitive prices and continuous supply of materials, there should be two sourcing or vendors to one material type. The practice of having two supplying vendors to one material has shown quite a substantial cost down eventhough much time has spend from evaluation to acceptance of vendor which take about 6 months.

The problem arise with present MRP is that there is only a direct relation of one material to one vendor. Inventory and Purchasing systems able to have multiple relationships of material to vendor through identification of stock code. Hence MRP could not be linked to other systems to complete the whole calculation of material requirement.

After the in depth analysis on the organization, control system and MRP of the company, the problem face in Purchasing Management is stated as below :

"The weak organization of Purchasing section and the failure to spell out the function of Purchasing Management to the departments together with the indiffences of top management to enhance the system technically through computerization has hamper the progress of Purchasing Management and bringing it to the present situation."