

Chapter 3

The Operation and Costing Systems

3.1 Introduction

In this chapter, the study will explain the costing system of the case company, and focused on the industrial market division (IMD), which the study information, the operation activities and costing, are collected from this division. The industrial marketing division is normally defined as a profit center in the case company and has a mission of building up the number of non-egat customer in order to boost up the volume sale of fuel oil and lubrication products of optimizing the profit. Therefore, the operating and its cost are focused to obtain the policy.

3.2 The General Operation

The company activities are ranging from refinery, marketing, delivering, and retailing. The organization chart of the case company is shown in figure 3-1. The structure is divided to 3 main functional groups and management office. First function is manufacturing group, responsible for producing petroleum products such as benzene octane number 95, 91 and 87, diesel, jet A-1, LPG, and fuel oil type A, B, D and FOVS.

Additionally this group also response for providing the crude oil to refinery and do supply sale for the finished products to other oil companies and international oil traders.

The second group is financial function, this group response on the operation of accounting, finance, procurement, and information system. The last is marketing group, consisting of 3 departments: marketing department, industrial & lube marketing department and marketing engineering service department. The marketing department responses on the retail market, community market, convenience stores and other services, which was operated in company's logo service stations. The marketing department is also response for the company's customer service center service.

Meanwhile, the industrial & lube marketing department are accounted on selling fuel oil, diesel oil, lubrication products direct to industrial customer (non-egat market) and local oil traders. Addition to the industrial and lube department, this department also provides petroleum technical services for all company's customer. And the last is engineering marketing service department, this department response for engineering support for marketing projects such as service station construction, equipment maintenance, decoration and distribution service such as transportation, warehouse, tanks terminal.

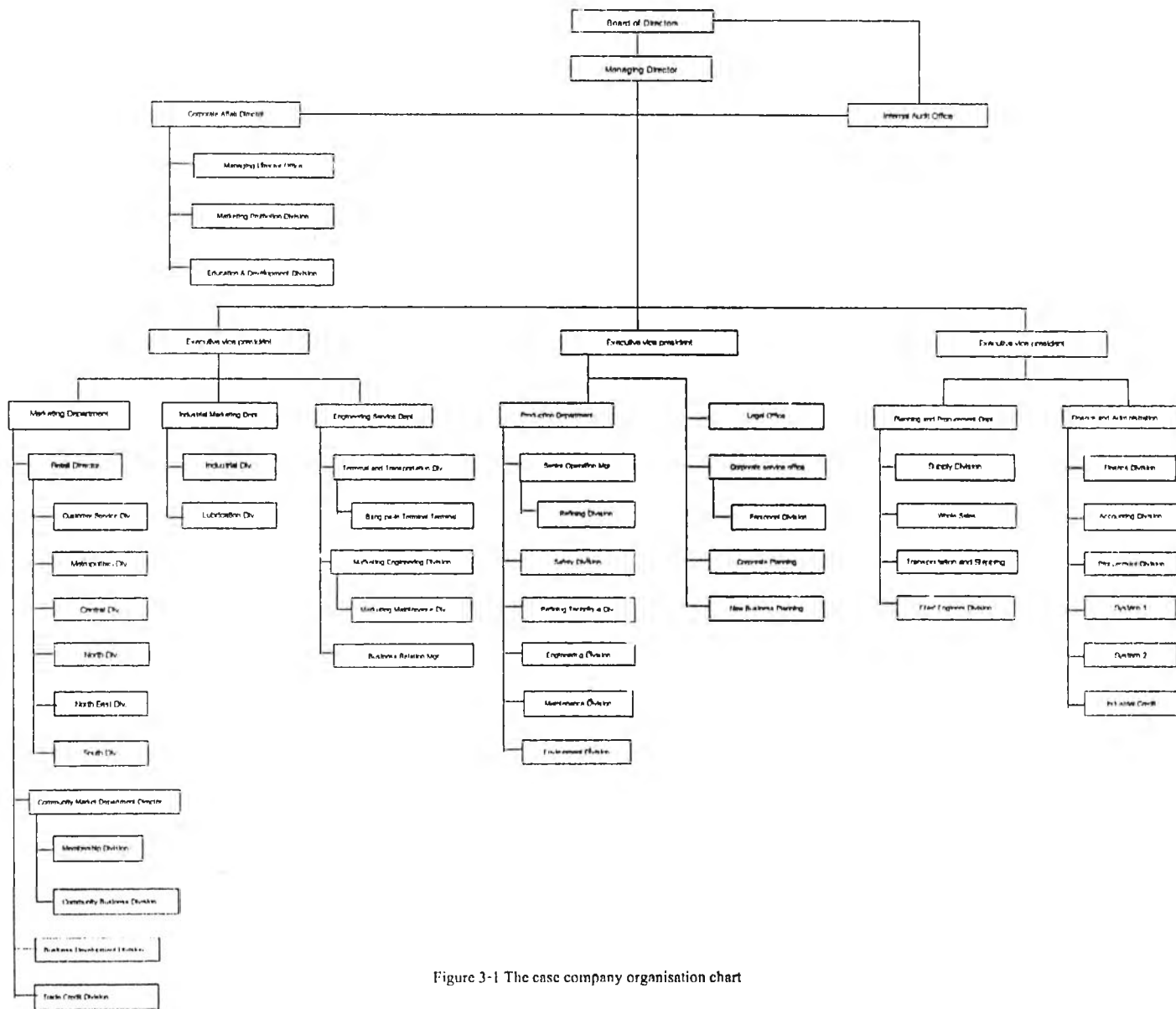


Figure 3-1 The case company organisation chart

Moreover, the management office is the last function that response on support management activities, budgetary, public relation.

3.3 The company costing system

3.3.1 The Responsibility Accounting

The case company uses a traditional costing system or responsible costing system to collect record and report operating cost from each function, which was known as responsibility center. The objective of the responsibility center is to control and to evaluate the operations of each function, which was accounted by management level. The case company use computerized accounting system (SAP) to record and report by categorize those cost of each function with cost element code and cost center code.

Due to the traditional costing system, the operation costs are allocated to responsible functions by the administrative and characteristics. After that the function or responsible centers were assigned to be a cost centers.

The cost center is the function in company that produces goods or services for other functions in the organization and also account on the cost generated from the production of those goods or services. At the end, cost of each function would be

evaluated for functional performances. The cost center of case company could be divided into 2 types:

1. Productive cost center

product cost center is the cost center that is directly concerned to the products, which are petroleum products. This includes refinery plant and their related equipment, service station construction project, convenience stores project. The operating costs are power supply, direct labor, transportation, refinery raw material such as crude oil, additive, etc. and other refinery expenses.

2. Service cost center

service cost center is the cost center that is not directly concern to the product. But service cost center response for the job generated from management policy or from the organization chart in order to control the operation of functions such as labor, energy, miscellaneous.

Management of each function is responsible for his or her authorize cost center to controlling expense within company plan or budgetary. The expenses of the functions

will categorize into the cost element (CE). for example when the functions in the case company brought some stationary to use in their operations, the cost of the stationary will be recorded in the cost element number 5400-510 or when the company paid monthly salaries to their employees of each functions, the salaries expense will be record to cost element number 5400-000 (Base Pay, Shift Premiums). For the cost element (CE) of case company there are about 141 types. And the case company was grouped into 17 main types (CG1-CG17) by its characteristics as follows;

Cost Element	Type of Expense
5400-0xx	Operation Expense-Administration
5400-1xx	Employee Benefit
5400-2xx	Maintenance & Repair
5400-3xx	Own Used Products Consumed in Operation
5400-4xx	Consumed in Operation Expense
5400-5xx	Administrative Materials Expense
5400-6xx	General Materials Expense
5400-7xx	Contract Service Expense
5400-8xx	Professional Consulting Expense

5400-9xx	Rental Service & Lease Right Expense
5410-0xx	Utility/Communication Expense
5410-1xx	Other Labor/Service Expense
5410-2xx	Product Transport Service Expense
5410-3xx	Travel Expense
5410-4xx	Tax Expense
5410-5xx	Public Relation & Development Expenses
5410-6xx	Advertising Expense
5410-7xx	Sale Promotion Expense
5490-0xx	Allocation Expense - Debit
5490-1xx	Allocation Expense - Credit
5500-7xx	Depreciation/Amortization/Insurance

Table 3-1 Cost Element Group of Case Company¹

3.3.2 Case Company cost concept

The case company uses a traditional cost concept (appendix A). Operation activities were ranged from production to retail marketing so that cost structure of the case company could be categorized to 2 parts that allocated to each cost centers of the

¹ For the detail of case company's cost element will illustrate on the appendix

company. First part, a huge part, is manufacturing cost or refinery cost. The other is marketing and service cost. Normally the traditional approach always assigns only manufacturing cost to products and for the case company, the petroleum plant, it uses liter as its unit-level driver. All of the operating costs of the case company are normally recorded as a mixed cost and allocate to each function by unit level method. But for analyze of the operation, it could be divide into 2 types:

- Direct Cost: This is a traceable and accurately cost that can allocate to cost objects. For the case company it structure from

- Raw Material: Crude oil, Additive, etc.

- Direct Labor: Refinery Contractor

- Assign Cost: Electricity, Maintenance utilities, etc.

- Overhead Cost

Overhead cost mean the cost generated by employee salary, fringe

benefit, depreciation, office supply and etc.

According to the case company cost structure consisted of 2 parts, manufacturing cost and marketing cost. So that the cost of operations are change to

1. **Variable Cost**, this cost generated and record from all cost centers that are directly concern to production. Generally this cost are occurred in the refinery plant

- a. Direct Material
- b. Variable Overhead cost
 - i. Plant Energy
 - ii. Plant Equipment and Tool
 - iii. Plant Maintenance
 - iv. Other expense
 - v. Direct labor expense

2. **Fixed cost**, this cost is an expense generated from marketing function or service function. This cost are recorded in the service cost center and there are:

- i. Fuel
- ii. Transportation
- iii. Tools
- iv. Spare parts
- v. Indirect labor expense

- vi. Employee welfare
- vii. Business Travel expense
- viii. Communications
- ix. Employee salary
- x. Depreciation
- xi. Tax, fees
- xii. Public relation

3.3.3 Cost allocation

The case company cost allocation illustrates on figure 3-2 there are 3 different type of cost and they are combined to cost of product for this case is an oil cost.

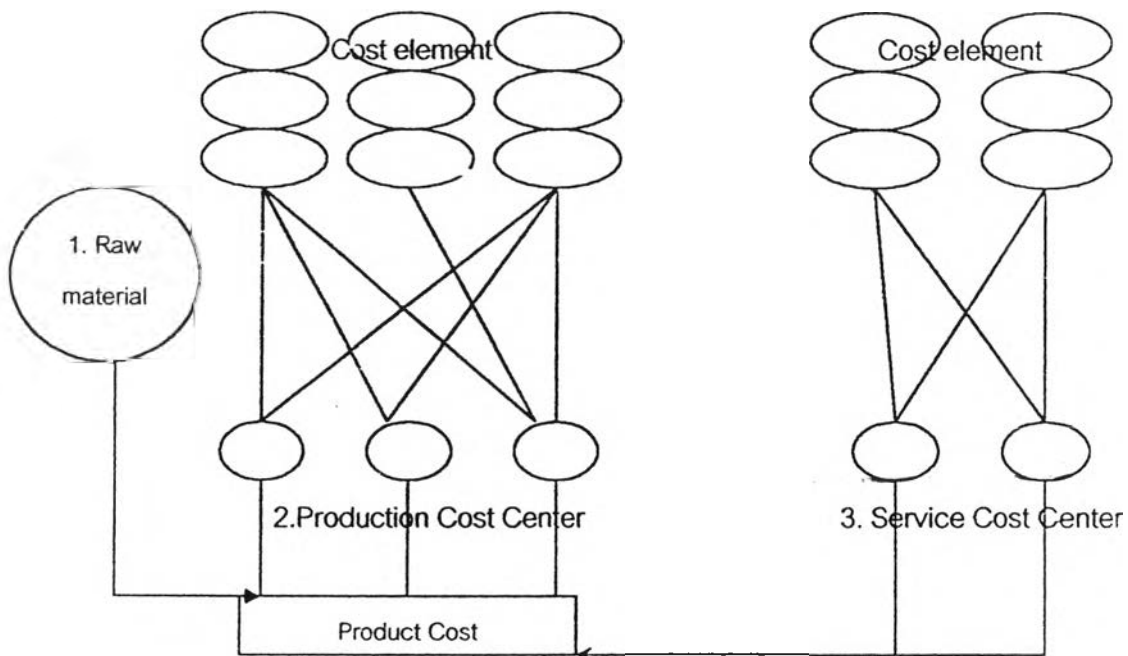


Figure 3-2 Case Company Cost Allocation

1. Raw Material cost

Raw material cost of the case company record on FIFO basis and use this cost to calculate as moving average actual cost.

2. Variable Overhead cost

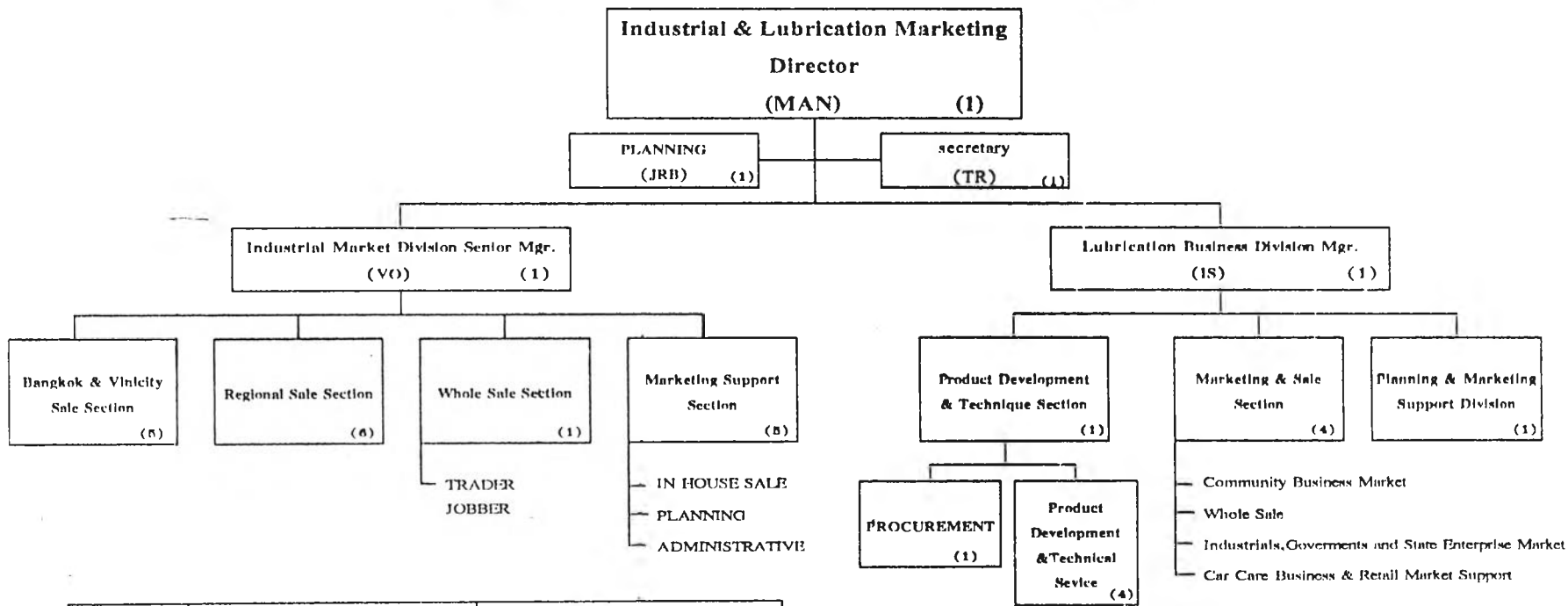
The variable overhead cost of the case company use an actual cost occurred on each period of time (about 1 month). The variable overhead cost is collect from the general ledger (G/L account) and present as an expense report by CE.

3. Fixed Overhead cost

The fixed overhead cost of the case company was estimate from budgetary of expense. There are 2 types of expense; first type is regular expense such as salary, depreciation, and employee wages. This regular expense is estimate from other function, for example salary and wage budget are requested by human resource division for all of the company or depreciation expense is calculated and requested by accounting department. The other is expense of each function in the company that was used on the operation of the function such as fuel, communication

The budgetary of the fixed overhead cost will allocated to product by the percentage of those product or service used.

ORGANIZATION CHART
Industrial And Lubrication Marketing Group



MANPOWER	PRESENT				AUTHORIZED			
	IMD	LBD	IM	TOTAL	IMD	LBD	IM	TOTAL
MPT	16	9	3	28	22	9	4	35
N-MPT	2	2	-	4	1	3	1	5
CONTRACT	1	2	-	3	-	-	-	0
TOTAL	19	13	3	35	23	12	5	40

Figure 3-3 Industrial and Lube Organization Chart

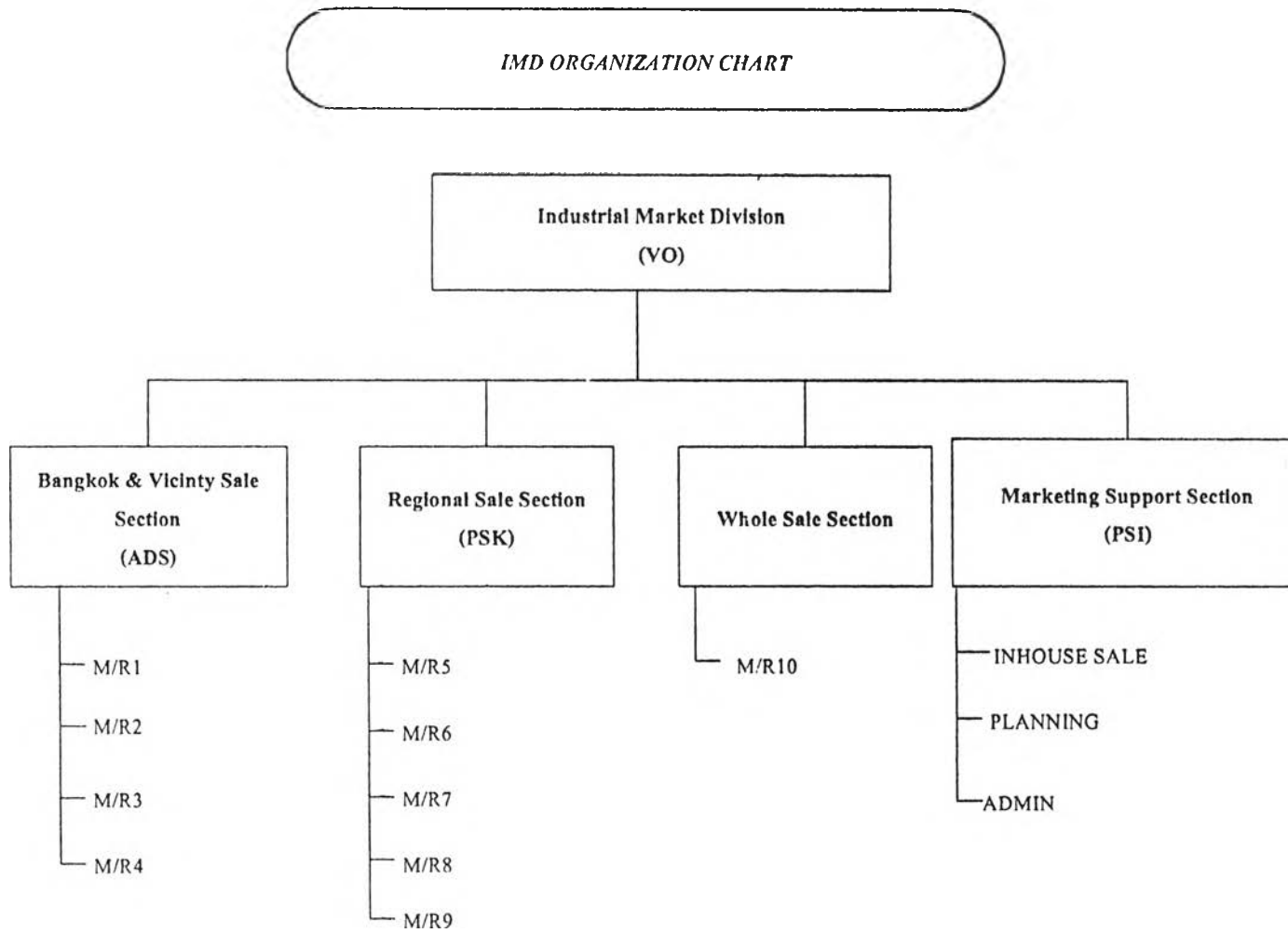


Figure 3-4: Industrial Marketing Division

3.4 The Industrial Marketing Division

The industrial and lube marketing department (IM) is accounted on develops the number of customer and volume sell of fuel oil, diesel oil and lubrication oil, which are directly sold to industrial customer all over the country. As shown on figure 3-3, the industrial and lube marketing department have two divisions that are response on different role, the industrial marketing division and the lubrication business division.

The industrial marketing division (IMD) (Figure 3-4) is accounted on developing the industrial market customers, traders/jobbers customers for diesel, fuel oil and lubrication products meanwhile lubrication business division (LBD) is accounted for procurement of lubrication product, product development, lubrication and petroleum product technical support, and also do marketing & selling for lube customer in retail shop channels, whole sale channel.

Thereby, this study objective is about to emphasis on the operation cost of Industrial marketing division (IMD) and the operation expenses of industrial marketing which were recorded by cost elements was shown in Appendix B cost center by cost element reports. further more the table 3-2 illustrate the industrial marketing division (IMD) operating cost, that was collected from the general ledger of cost center 4300 during the period of June2000 to December 2000. Almost of the IMD's operation are

concerned on marketing and sales activities and could be concluded that the operations of IMD are homogenous by itself. However the cost center by cost elements reports did not express the salaries and wages expense of IMD but the salaries were charged to Industrial & Lube Marketing department (IM) instead. For instance on the table 3-2 express that the total operation cost of IMD for the period of six months is 3.39 million baht and consist of 52 costelements.

Cost Center No.4300 ,Response XX/IMD

Baht

Cost Eleme	Description	YEAR 2000						Total	Total Budget
		July	August	September	October	November	December		
5400070	Medical Expense	9,649	5,023	6,026	5,121	2,893	4,612	33,324	93,900
5400080	Medical Expense Employee's Parent	1,345	439	166	850	801	493	4,094	25,600
5400130	Employees' Children Welfare Assist.							0	2,800
5400140	Employees' Children Education Assist.							0	41,100
5400200	M&R sevice payment		100		1,350		151,097	152,547	
5400210	M&R contract labour	139,363	6,120	187,175		3,454		336,112	
5400220	M&R contract labour-O.T.							0	
5400230	M&R vechicle	16,233	53,434	25,609	6,617	38,955	59,085	199,933	296,500
5400240	M&R Service Station		3,990					3,990	
5400310	Product Own Used - Vechicle	847					513	1,360	24,700
5400320	Product Own Used - For Operation							0	
5400480	Liquid Dye							0	
5400499	Other additives							0	
5400500	EDP Supplies		196		5,971			6,167	38,400
5400510	Stationery supplies	2,292	5,567	1,433	2,885	1,176	1,808	15,161	57,000

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Cost Center No.4300 ,Response XX/IMD

Baht

Cost Eleme	Description	YEAR 2000						Total	Total Budget
		July	August	September	October	November	December		
5400830	Professional Consulting- Engineer		-12,200					-12,200	
5400840	Professiional Consulting - Marketing							0	
5400899	Professional consulting-Other							0	
5400910	Equipment Rental							0	
5400930	Vehicle Rental (Excl Tank Truck)	71,924	71,924	71,924	71,924	71,924	71,924	431,544	2,400,000
5400940	Vechicle rental Non tax Claim							0	
5410000	Comunication & Postal							0	1,300
5410010	Mobile Telephone	46,617	40,236	41,499	35,801	25,876	42,067	232,096	325,700
5410015	Pager	168	561	561	168	561	561	2,580	8,400
5410110	omputer Hardware		3,000			400	3,400	6,800	
5410140	Bank Charge	126						126	
5410170	Product Surveyor Inspection		12,200	11,963	5,981	2,243	9,346	41,733	
5410190	Product Sale Deliverly							0	2,640,000
5410200	Transhipment-Product							0	
5410210	Customer Assistance	1,560		33,091	2,380	4,287	22,810	64,128	

Cost Center No.4300 ,Response XX/IMD

Baht

Cost Eleme	Description	YEAR 2000						Total	Total Budget
		July	August	September	October	November	December		
5410299	Other Labor/ Services							0	3,300
5410300	Business Travel	34,775	41,715	46,179	55,830	27,906	55,164	261,569	657,200
5410310	Training Travel						836	836	
5410410	Vechicle Tax		13,083	14,644			4,963	32,690	57,600
5410460	Exp. Government Fee	20	270	800	12,303	590	-15,169	-1,186	
5410499	Other Taxes		-1,883			1,053	1,103	273	
5410500	Entertainment&Representation	2,474	1,110	5,010	2,509	1,119	2,640	14,862	64,000
5410505	Entertainment&Representation (Non tax)							0	24,000
5410510	Publication							0	
5410520	Training		2,748	1,316	7,220			11,284	25,600
5410525	Employee Relations				1,093			1,093	137,200
5410530	Membership							0	10,000
5410599	Other Public Relations & Development							0	
5410700	Sale Promotion Cust Relation Activity			2,991	2,190			5,181	250,000
5410705	Sale Promotion Cost Of Sales				37		148	185	

Cost Center No.4300 ,Response XX/IMD

Baht

Cost Eleme	Description	YEAR 2000						Total	Total Budget
		July	August	September	October	November	December		
5410710	Sale Promotion Giveaway	2,434	5,765	4,262		1,932	13,185	27,578	
5410715	Sale Promotion advertising Mat.							0	
5410799	Sale Promotion Others	1,247	386	1,441	573	951	3,629	8,227	
5410700	Depreciation	174,628	173,875	173,853	171,927	171,163	206,265	1,071,711	1,443,100
5410710	Amortization	3,282	3,594	3,594	3,594	3,293	3,462	20,819	
5410719	Amortization Others							0	27,300
5410730	Insurance	10,362	74	352	39,381	13,271	19,641	83,081	247,100
Total expense		526,490	440,576	692,163	469,469	518,046	750,448	3,397,192	9,136,900

Table 3-2 : Cost Center by Cost Element Report of IMD