

CHAPTER 5

ANALYSIS AND RESULTS

Most pharmaceutical and medical products manufactured by the GPO are products by generic names accounting for about one-third of the NEDL list. The GPO produces 300-400 items of drugs, chemicals, dyes and preservatives which can be classified into 5 main groups as mentioned in Chapter 3. Products that GPO does not produce are purchased and distributed by specific brand names according to the order of customers. If the names are not specified, it is in the authority of GPO to purchase reliable products conforming to the specification of procurement and costing not more than the medium price from any local firms under GMP.

This chapter comprises in 2 sections. The first in the section describes GPO products which can be divided in subsections of market share, price and competitiveness, sales promotion and advertising, customer services, delivery system and the policy, which results to the earning of GPO. The second section, is the GPO's structure which is divided into subsections of product range mentioned earlier in Chapter 4, the production part which is the main part of the factory including R&D and technology which are important tools for the products' innovation, and lastly, the GPO organization whether it is appropriate or not in the new situation compared to existing policy and supports.



5.1 GPO products

5.1.1) Sales and Market Share

Table 5.1 indicates the proportion of the value of drug manufactured by the GPO and the value of drug manufactured in Thailand at wholesales price which increase every year from 1988 at 12.25% to 1995 at 14.05% particular in 1987 which the proportion is 15.17%. Because GPO has adopted the medium prices set by MOPH which become effective since in August 1986 (near the end of the fiscal year). About 93% of GPO product prices were increased close to medium prices according to the 1987 study by Chulalongkorn University, Faculty of Pharmaceutical Science. Product prices were increased not only by GPO, but also by member companies of PPA (75% of their products) and for the TPMA companies (31% of their products). Therefore, the total value of drug manufacturing in Thailand increased.

Table 5.1 shows the value of GPO's drug manufacturing compared to the total drug value in Thailand. GPO's market share averages 8.98% from 1987 to 1995. In 1987 its market share was 10.45% because of the announcement of medium prices. However comparing the GPO's manufactured drug value to the local manufactured drug value in Thailand, the former averaged 12.94% during 1987-1995.

The total value of GPO's sales at wholesales prices from 1987-1997 is presented in Table 5.2

Table 5.1 Value of GPO's Drug Manufacturing and Total Drug Manufacturing in Thailand, 1986-1995

Fiscal Year	GPO's Manufacturing (million Baht)	Local Manufacturing (million Baht)	GPO : Local Manufacturing	Total Value of Drugs in Thailand * (million Baht)	GPO : Total Value
1986	706.42	-		-	
1987	780.76	5,145.75	15.17%	7,471.18	10.45%
1988	821.90	6,708.85	12.25%	9,279.83	8.86%
1989	945.33	8,372.85	11.29%	11,680.45	8.10%
1990	1,077.79	8,886.02	12.13%	12,335.10	8.74%
1991	1,182.97	9,657.54	12.25%	13,873.95	8.53%
1992	1,375.74	10,696.54	12.86%	15,379.15	8.95%
1993	1,531.49	11,831.03	12.94%	16,906.34	9.06%
1994	1,754.00	12,964.68	13.52%	19,056.31	9.20%
1995	2,223.00	15,820.87	14.05%	25,097.34	8.92%
		average	12.94%		8.98%

Note : * means value of drug manufacturing and drug importation in Thailand

Sources : 1) Government Pharmaceutical Organization (GPO)

2) Drug Control Division, FDA

Table 5.2 Value of GPO and Non GPO Products, 1987-1997

Fiscal Year	GPO (million Baht)	% Growth	Non GPO (million Baht)	% Growth	Total Value (million Baht)	% Growth
1987	780.70	-	615.70	-	1,396.40	-
1988	821.90	5.28	584.90	-5.00	1,406.80	0.74
1989	945.30	15.01	470.70	-19.52	1,416.00	0.65
1990	1,077.80	14.02	686.10	45.76	1,763.90	24.57
1991	1,183.00	9.76	827.40	20.59	2,010.40	13.97
1992	1,375.70	16.29	983.10	18.82	2,358.80	17.33
1993	1,531.50	11.33	991.70	0.87	2,523.20	6.97
1994	1,754.00	14.53	1,110.00	11.93	2,864.00	13.51
1995	2,223.00	26.74	1,025.30	-7.63	3,248.30	13.42
1996	2,389.20	7.48	1,170.00	14.11	3,559.20	9.57
1997	2,624.80	9.86	1,119.50	-4.32	3,744.30	5.20

Source : The Government Pharmaceutical Organization

The total value comprises the sales of GPO products and products purchased from private manufacturers which is categorized as non-GPO products. The highest growth rate in total value was 24.57% in 1990 which mostly resulted from antibiotic drugs purchased this year valued at 686.1 million Baht or 45.76% of growth rate which was almost 40% of total sales (686.10 out of 1,763.90 million Baht). In 1992 the 17.33% growth rate in total value came from the increase in both GPO product and non-GPO products at 16.29% and 18.82% growth rates respectively. This was due to the GPO's availability in production of Amoxicillin and Cloxacillin capsules which are high priced drug with high utilization volume since people tend to use these products instead of Ampicillin.

The highest growth rate of GPO product manufacturing in the last decade (during 1987-1997) was 26.74% in 1995 or 2,223 million Baht which made the growth of the total sales 13.42%. The reason was in this year GPO generated production night shift and hired qualified companies under the quality assurance of GPO to produce some products, which GPO could not catch up the orders.

The growth value went downwards from 13.42% in 1995 to 9.57% and 5.20% in 1996 and 1997 respectively. One of the reasons was budget utilization of GPO in the 7th (1992-1996) and 8th (1997-2001) National Economic and Social Development Plan by the committee of the GPO managing-director and the senior executives. The policy is to save the budget by purchasing some raw materials, equipments and machines produced in the country in order to use the budget in joint venture with MNCs and local drug companies in the production expansion policy. So the growth rate of GPO products manufacturing dropped drastically from 26.74% in 1995 to 7.48% and 9.86% in 1996 and 1997 respectively.

Considering the GPO product sales to customers during the past eleven years from 1987 to 1997, it is found that the total drug sales to public health sector rose from 82.49% in 1987 to 91.59% in 1997 as shown in Table 5.3. In contrast, drug sales to the private sector went downwards from 17.51% in 1987 to 8.41% in 1997 which might derive from the effects of economic growth, the boom of private hospitals, polyclinics and health insurance schemes.

People's lifestyles change into a more consumption-oriented society. People have higher purchasing power and expect to get higher quality of goods and services. Private medical and health services becoming more popular caused the trend of non-GPO products sales through GPO to decrease.

Overall, the sales of GPO products to the public sector is in the range of 82-92% of the total value and the sales of GPO products to the private sector ranges between 8-18%. The average of the last five years sales to the public sector is 90% of the total value which the remaining 10% belonging to the private sector.

From Table 5.4 the non-GPO products sales to public and private sectors following the same trend GPO products in that most of the sales, an average of 95%, is sold to the public sector during 1987 to 1997.

By comparing the proportion of GPO products sales to non-GPO products sales, the trend is seen to be increasing from 56:44 in 1987 to 70:30 in 1997 as shown in Table 5.5 and the average proportion during 1987 to 1997 is 63 : 37.

Table 5.3 GPO Products Sales to Public and Private Sector, 1987-1997

(Wholesale price)

Fiscal Year	Public Sector						Private		Total
	Under MOPH (million Baht)	% Share	Non MOPH (million Baht)	% Share	Total (million Baht)	% Share	Sector (million Baht)	% Share	Sale (million Baht)
1987	554.07	70.97	89.97	11.52	644.04	82.49	136.72	17.51	780.76
1988	598.43	72.81	88.14	10.72	686.57	83.53	135.33	16.47	821.90
1989	694.78	73.50	100.93	10.68	795.71	84.17	149.62	15.83	945.33
1990	814.86	75.60	99.49	9.23	914.35	84.84	163.44	15.16	1,077.79
1991	911.99	77.09	95.96	8.11	1007.95	85.21	175.02	14.79	1,182.97
1992	1,066.80	77.54	129.98	9.45	1196.78	86.99	178.96	13.01	1,375.74
1993	1,254.44	81.91	114.90	7.50	1369.34	89.41	162.15	10.59	1,531.49
1994	1,466.50	83.61	109.13	6.22	1575.63	89.83	178.44	10.17	1,754.07
1995	1,918.88	86.32	111.81	5.03	2030.69	91.35	192.23	8.65	2,222.92
1996	1,979.39	82.85	176.84	7.40	2156.23	90.25	232.97	9.75	2,389.20
1997	2,234.18	85.12	169.89	6.47	2404.07	91.59	220.76	8.41	2,624.83
					average	87.24	average	12.76	

Source : The Government Pharmaceutical Organization

Table 5.4 Non-GPO Products Sales to Public and Private Sectors, 1987-1997

Fiscal Year	Public Sector						Private		Total
	Under MOPH (million Baht)	% Share	Non MOPH (million Baht)	% Share	Total (million Baht)	% Share	Sector (million Baht)	% Share	Sale (million Baht)
1987	486.33	78.99	104.72	17.01	591.05	95.99	24.67	4.01	615.72
1988	492.55	84.21	66.87	11.43	559.42	95.64	25.50	4.36	584.92
1989	380.07	80.75	61.85	13.14	441.92	93.89	28.77	6.11	470.69
1990	592.62	86.38	64.60	9.42	657.22	95.79	28.87	4.21	686.09
1991	699.75	84.57	92.65	11.20	792.40	95.77	35.02	4.23	827.42
1992	861.77	87.66	80.16	8.15	941.93	95.82	41.13	4.18	983.06
1993	873.74	88.10	74.78	7.54	948.52	95.64	43.23	4.36	991.75
1994	1,001.95	90.27	56.73	5.11	1058.68	95.38	51.24	4.62	1,109.92
1995	898.37	87.62	77.02	7.51	975.39	95.13	49.91	4.87	1,025.30
1996	1,004.57	85.86	111.23	9.51	1115.80	95.37	54.17	4.63	1,169.97
1997	984.50	87.94	77.81	6.95	1062.31	94.89	57.18	5.11	1,119.49
					average	95.39	average	4.61	

Source : The Government Pharmaceutical Organization

Table 5.5 Proportion of GPO Products Sales to Non GPO Products Sales

Fiscal Year	GPO's (million Baht)	Non GPO's (million Baht)	Total (million Baht)	GPO's : Non GPO's (million Baht)
1987	780.7	615.7	1396.4	56 : 44
1988	821.9	584.9	1406.8	58 : 42
1989	945.3	470.7	1416	67 : 33
1990	1077.8	686.1	1763.9	61 : 39
1991	1183	827.4	2010.4	59 : 41
1992	1375.7	983.1	2358.8	58 : 42
1993	1531.5	991.7	2523.2	61 : 39
1994	1754	1110	2864	61 : 39
1995	2223	1025.3	3248.3	68 : 32
1996	2389.2	1170	3559.2	67 : 33
1997	2624.8	1119.5	3744.3	70 : 30
average				63 : 37

Source : The Government Pharmaceutical Organization

The theory of market structure as explained by many economists, one of them being Shepherd (1985), states that the main condition of a pure monopoly market is that it has 100 % market share whereas the main condition of a pure competitive market is that it has over 50 competitors- all with negligible market shares, or it should be monopolistic competition with many effective competitors, none with more than 10 % of the market. The economists rely on other evidence to judge the monopoly power by two main indicators (Shepherd, 1985) :

1. Market share, which is measured by its own sales , taken as a percentage of all sales in the market. A 10 % share or lower usually gives the firm little market power. The degree of monopoly power rises as the share rises. GPO sales shares only 8.9% of total drug value in Thailand, thus it is not a monopoly.

2. Barriers to entry-anything that makes it difficult for new firms to enter the market will enhance the market power of the firms already established there. In the Thai drug market, there are no entry barriers because there are currently 172 drug companies.

So it can be concluded by the two indicators above that GPO has no monopoly power in the drug market in Thailand although it seems to be a monopoly due to the privilege by procurement regulation.

The study by Tangcharoensathien et al (1997) on the issue of drugs purchased by hospitals under MOPH in 1996, showed the total amount of 5,710 million Baht. 50-87% of the budget of district hospitals, (small level hospitals) was used to purchase both essential and non-essential drugs. Regional and general hospitals, the revenue budget (non-government budget) rather than the government budget. It is noted that large hospitals purchased non-essential

drugs (NED) in the range of 39-52% of the drug purchase value with the revenue budget and only purchased essential drugs (ED) in the range of 28-41% by the government budget instead of 80% as determined in the procurement regulation. At the same time small hospitals have taken to the procurement regulation because they have small revenue budget in contrary to large hospitals. The majority of patients in small hospitals are low-income people whose health expenses are subsidized by the government, therefore it is necessary to purchase generic drugs in the NEDL. It is worth nothing that most of the hospitals that followed the procurement regulation are small hospitals while large hospitals tried to avoid the regulation by using their revenue budget instead of the government budget. This conclusion is supported by the sales of GPO products to regional and general hospitals in Table 5.6, which averages less than 20% of the total value of drugs purchased by regional and general hospitals during 1993-1996.

Table 5.7 shows the value of GPO's drugs purchased with low in-come budget by public hospitals under MOPH during 1993-1996. The proportion of drug purchase value to the low-income budget ranges between 45.86%-51.33% with an average of 47.51%

Table 5.6 Proportion of GPO's Sale to Regional / General Hospitals and Value of Drug Purchased
by Regional / General Hospitals

Fiscal Year	GPO's Sale	Hospital Purchase	%
1993	513.1	2601.8	19.72
1994	520.3	3050.7	17.06
1995	609.3	3150.1	19.34
1996	671.8	3554	18.90
		average	18.76

Sources : 1) Hospital Purchase data comes from the Provincial Hospital Division, MOPH

2) GPO's Sale data comes from the Government Pharmaceutical Organization

Table 5.7 Value of Drug Purchased by Public Hospitals under MOPH with the Low Income Budget *

Fiscal Year	Low income budget *	Drug purchased value	Drug purchased value : Low income budget
	(million Baht)	(million Baht)	(%)
1993	3109.58	1425.9	45.86
1994	3578.2	1667.9	46.61
1995	3604.6	1850.3	51.33
1996	4365.7	2018.5	46.24
		average	47.51

Note : * means government budget used for low income patients

Source : The Government Pharmaceutical Organization

Table 5.8 represents the value of drugs purchased by regional and general hospitals in average cost per hospital. This data was obtained from The Provincial Hospitals Division of MOPH (PHD) during 1993-1996. There are 92 regional and general hospitals all over the country. Not all of them sent their figures to the PHD each year. Only 72 hospitals did so in 1993, 74 hospitals in 1994, 66 hospitals in 1995 and only 55 hospitals in 1996. Because of this limitation, the drug purchase value is calculated from the average cost per hospital and then multiplied by 92. This is confirmed by the data compiled by Tanchareonsathien et al (1997), which states the value of drugs purchased by regional and general hospitals in 1996 to be 3,559.8 million Baht (Table 4.1) compared to the value of 3,553.96 million Baht calculated by the PHD in the same year as shown in Table 5.8.

This table indicates that government budget was spent on ED on an average of 11.79 million Baht per hospital compared to 4.41 million Baht of revenue budget. In contrary, government budget spent on NED drugs was only 2.94 million Baht per hospital while revenue budget for these drugs averages 14.44 million Baht per hospital. This means that the trend for purchasing drugs by generic name according to NEDL by large hospitals is going downwards which conforms to the result from the study of Tangchareonsathien et al (1997) and the data in Tables 5.5, 5.6 and 5.7. Moreover, results of the opinion survey on the abolishment of the procurement regulation both from Tangchareonsathien et al (1997) and the Legal Affairs Division similarly show that most hospitals under MOPH agree with the deregulation with the following reasons :

Table 5.8 Value of Drug Purchased by Regional and General Hospital.

Fiscal Year	ED purchase value		Non ED purchase value		Total in average	Total * Value
	Gov. budget	revenue budget	Gov. budget	revenue budget		
1993	10.03	4.16	2.06	12.03	28.28	2601.76
1994	11.28	4.96	3.19	13.73	33.16	3050.72
1995	12.37	4.29	3.33	14.25	34.24	3150.08
1996	13.48	4.23	3.17	17.75	38.63	3553.96
average	11.79	4.41	2.94	14.44	33.58	3089.13

Notes : * The figure obtained is average cost per hospital multiply by the total number of regional and general hospitals in Thailand (92 hospitals)

1993 average for 72 hospitals

1994 average for 74 hospitals

1995 average for 66 hospitals

1996 average for 55 hospitals

Source : Provincial Hospitals Division, MOPH

1. GPO faces problems in the managerial administration, services, production capacity, prices and welfare given to customers.
2. Deregulation will improve pharmaceutical managerial administration and budget management of the hospitals.
3. Deregulation will improve the pharmaceutical competitiveness leading to lower drug prices while maintaining good quality.

Only a few hospitals agree with the procurement regulation for the following reasons:

1. Deregulation does not guarantee that the quality of drugs with lower prices will be as good as the higher priced one.
2. Purchasing drugs from GPO supports government activity and save the government budget.

Unfortunately, the value of drugs purchased by small hospitals all over the country could not be collected because of limitations in gathering the drug value by the Rural Health Division at present. However, existing data from GPO's survey on the hospital willingness to use GPO products in the case of deregulation is useful in the analysis and forecast of future sale.

From Table 5.9, the survey results of 458 samples (336 doctors and 122 pharmacists) can be concluded as follows:

1. 43% of the total population is willing to use GPO products.
2. 36% is indifferent, which means that they may be willing or unwilling to use.
3. 12% is unwilling to use GPO products.
4. 9% has no comment or does not answer.

Table 5.9 Degree of Willingness to Use GPO Products

Willingness	Doctors	Pharmacists	Total
	N=336 %	N=122 %	N=458 %
Completely willing	4	2	3
Willing	39	41	40
Indifferent	36	34	36
Unwilling	7	10	8
Definitely unwilling	3	5	4
No comment / No answer	11	8	9

Note : Survey conducted only on doctors and pharmacists working for MOPH

Source : Questionnaires done by GPO in 1997

The opinions of both doctors and pharmacists are in the same direction.

The top three reasons expressed by 196 persons (43% of total 458 samples in Table 5.9) which consists of 143 doctors and 53 pharmacists in favor of GPO products are as follows: (see Table 5.10)

1. standard products with good quality and reasonable prices.
(40% of total samples, 38% of doctors and 45% of pharmacists)
2. local products under the government and to support the government.
(19% of samples, 22% of doctors and 12% of pharmacists)
3. some products have better quality than those of private firms.
(5% of total samples, 4% of doctors and 7% of pharmacists)

The indifferent group of 163 persons (36% of the total 458 samples in Table 5.9) consists of 122 doctors and 41 pharmacists. Their opinions as presented in Table 5.11 are as follows:

1. The authority of drug purchasing must go along with the policy of the hospitals or the purchasing committee (31%of total).
2. Some products of GPO are better than those of private companies or as good as the original ones (10% of total).
3. There is no difference between GPO products and those of the private companies (6%of total)

The last group unwilling to use GPO products (12% of the total 458 samples) stated the following reasons as shown in Table 5.12

1. 24% pointed out that the quality of GPO products is not as good as the private companies'.
2. 19% claimed that private companies have better services and more benefits than GPO.

Table 5.10 Reasons of Willingness to Use GPO Products

Reason	Doctors N=143 %	Pharmacists N=53 %	Total N=196 %
To be standard with good quality and reasonable price	38	45	40
To be local product under the government/support government	22	12	19
Some products are better quality than other firms	4	7	5
Some products are good for therapeutic treatment	4	6	5
To be products that no firms produce	2	5	3
Reliable	1	6	3
Others	9	5	7
No comment / No answer	20	14	18

Source : Questionnaires done by GPO in 1997

Table 5.11 Reasons of Indifference to Use GPO Products

Reason	Doctors N=122 %	Pharmacists N=41 %	Total N=163 %
No authority of purchasing / Hospital policy, Drug Purchase Committee	30	35	31
Some of GPO's are better than the other firms	11	8	10
All products are the same, no difference	6	6	6
Prices should be compared before purchasing	5	10	6
Some private products are better in quality	5	12	6
Others	20	10	19
No comment / No answer	23	19	22

Source : Questionnaires done by GPO in 1997

Table 5.12 Reasons of Unwillingness to Use GPO Products

Reason	Doctors N=35 %	Pharmacists N=18 %	Total N=53 %
The quality of GPO products are not as good as private ones	26	21	24
Private companies have better services and benefits	17	21	19
Delayed delivery, Complicated process	11	29	18
Higher prices	4	7	5
Monopoly / Enforcement	9	-	6
Others	24	15	20
No comment / No answer	9	7	8

Source : Questionnaires done by GPO in 1997

3. 18% stated that GPO's process is complicated and always delay in delivery.

In 1997 GPO products sales, which is divided into 4 groups according to BCG Portfolio Matrix, has a total value of 1,946 million Baht. The value of each group is categorized as follows;

- Group 1 has total sales for 960 million Baht or 49.3% of total value.
- Group 2 has total sales for 296 million Baht or 15.2% of total value.
- Group 3 has total sales for 345 million Baht or 17.7% of total value.
- Group 4 has total sales for 345 million Baht or 17.7% of total value.

These value do not include the sales of biological products and some other products, for instance, AZT 100 mg, which are special orders from the public sector such as the Communicable Diseases Control Department of MOPH. Therefore, the number of items and volume of these products are varied each year. In 1997 the sales value of biological products and special orders are 678 million Baht. Hence, the actual total sales of GPO products in 1997 is 2,624 million Baht. The items of GPO products classified in 4 groups are shown in Appendix B.

Considering each group, it can be described that the top 5 ranking of product sales in group 1 which exceed 50 million Baht / item / year are Amoxicillin 250 mg capsule, Amoxicillin 500 mg capsule, Amoxicillin dry syrup, Cloxacillin 500 mg capsule and Glibenclamide 2 mg tablet. The products sales in the level of 40-50 million Baht / item / year are Cotrimoxazole, Albendazole and ORS. The level of 30-40 million Baht / item / year belongs to Multivitamin tablet, Rifampicin 450 mg capsule and Cloxacillin 250 mg capsule. The remainder of 16 items in this groups are in the level of 10-30 million Baht / item / year.

The sales of top 5 ranking products in-group 1 is 390 million Baht out of 960 million Baht in this group. These products are also produced by many local companies and MNCs since they are the most popular drugs prescribed by physician and has a high profit. Pharmaceutical companies try to sell their products by using all selling efforts such as promotion, advertising including some tactics, which give abundant benefits to the purchasers, to pursue the customers to buy their products. The price competitiveness for these products is very intensive and is always expressed as price-cutting among the pharmaceutical companies especially on bidding in the public health sectors. GPO is obliged not to do so because of the fixed prices except only the welfare benefit for 5% of purchase value, which is little benefit compared to the private sector. Therefore, the share of this group will certainly decrease after deregulation to about 43% of the previous sales according to the degree of willingness to use GPO products in Table 5.9. For other products in group 1, of which prices are equal or lower than the private companies such as Cotrimoxazole, ORS, Multivitamin, etc., considering the size of production and quality of products, GPO has the advantage to compete by persuading customers in the group of indifference to use GPO products (36%) and the group of no comment or no answer (9%). For positive forecasting, 45% of these two groups will use GPO products if GPO improves and develops the organization management in every channel such as product expansion, customer service, reduction of marginal cost in order to decrease the price of some products, etc. The other 12 % unwilling to use GPO products will probably change their mind and buy GPO products if GPO can improve and use new strategies to compete in the drug market.

There are 103 items in group 2. The total sale of this group in 1997 is 296 million Baht, which is the lowest among 4 groups. Only 20 items of these products exceed 5 million Baht / item / year. The remaining 83 items sold under 5 million Baht / item / year. Considering the price of drugs in this group, most of them are lower than the private companies. Some products are in the process of quality, stability and packaging improvement. Most of GPO products are unattractive to the consumers because of their packaging although the quality of products is reliable. GPO should improve the products and solve the problems of this group immediately and pay more attention to them than the other groups because this group gives high profit but has low demand and the lowest sales.

Group 3 comprises 143 products with total sales of about 345 million Baht in 1997. The capital investment of the products in this group is higher than the other groups especially injections and sterile products, which have strict control requirement. Some liquid preparations such as antacids also have high control requirement and sanitation to stabilize the physical and biological properties of the products. Moreover, the raw materials for these products are scarce and expensive. All these reasons added up to high costs for the products in this group. Another kind of products in this group is the outmoded products such as Buchu, Compound Benzoic Acid ointment, Scabicide emulsion, Kaopectin and household remedies, which are seldom prescribed by physicians now. Because products in this group have low profit and low demand, GPO has to consider quitting some products if possible and research for new products instead. In case that it is the government policy to produce these drugs, GPO has to take the responsibility and convince the MOPH of the need to price increase.

Most of the products in this group are not produced by the private companies for the reasons mentioned above, particularly the household remedies and the sterile products. Hence, GPO can retain the sales of this group because of low competitiveness. Therefore, strategies for the products in this group are: firstly, for sterile products since GPO invested so much and has high potential of production, it is necessary to increase the capacity of production in terms of number of items and quantity of products by improving and developing the skill and competency of manpower. This will lower the cost of production and give higher profit in return. Secondly, for the outmoded products, GPO has to decide to quit or to increase the prices in accordance with the high cost of production.

Group 4, which is the group of low profit and loss but high demand, the sales in 1997 is 345 million Baht or 17.7% of the total sales. This group comprises only 16 items of products. The first ranking is Paracetamol 500 mg tablet with sales of 100 million Baht. The second is Penicillin V 250 mg tablet for 62 million Baht and the third is 24.5 million Baht from Paracetamol syrup 60 ml. The remaining 13 items are Paracetamol and Penicillin in other dosage forms, vitamins and some new products. Since Paracetamol and Penicillin are the drug of choice for analgesic and antibiotic respectively, GPO has to realize this fact and improve the formula and processing of each product in order to reduce the cost and lower the price to compete with private companies after deregulation.

For the new product in this group, which has just been launched into the market, GPO has to put efforts in advertising and providing information about the drug's bioavailability and quality to the customers to increase the demand, which will lead to reduction of production cost.

After deregulation, the revenue of GPO will probably decrease in the first year but should not be less than 43% of the former sales in the 4 groups of products mentioned above. The sales of biological products and some special orders such as AZT 100 mg, DDI, and other products, which are in trial process will replace the sales loss after deregulation. The improvement and development of GPO strategic planning with preparation to face problems after deregulation, will increase GPO's sales to the same level as before or higher if GPO can manage successfully in its structure (see section 5.2 GPO's Structure) of GPO products already mentioned.

To forecast GPO's earnings after deregulation, it can be calculated by using data in Table 5.9 and the GPO's sales in 1997. Since the questionnaire did not survey in detail for each group of products, it is assumed that the results in each group are the same. The results are used to forecast the GPO sales after deregulation, which can be divided into 5 cases and compared to the earnings or sales before deregulation as follows :

Case 1 : The situation that GPO can sell to only the group willing to use GPO products (43% of customers), which is the minimum sale.

Case 2 : The situation that GPO can convince half of the indifferent group to use GPO products, therefore, the total percentage of customers in this case is 61%

Case 3 : The situation that GPO can convince all of the indifferent group of to use GPO products. The total percentage of customers in this case is 79%

Case 4 : The situation that besides the indifferent group, GPO can also convince half of the no comment or no answer group to use GPO products. The total percentage of customers in this case is 83.5%

Case 5 : The situation that GPO can convince both the indifferent group and the no comment or no answer to use GPO products. The total percentage of customers in this case is 88.0%, which is the maximum earning.

The results are shown in Table 5.13. From the table, it is obvious that if GPO tries its best to reach Case 5, it will lose about 36.13% of its earnings but if not, it has to lose up to 59.53%. In addition, after deregulation, the total sales of GPO will comprise only GPO products since the customers, which mostly are the public health providers under MOPH, will be able to purchase drugs by themselves from any suppliers. The GPO will absolutely lose the sales in this section. This will result in a high percentage of lost of earnings. By using results from Table 5.13, GPO will be able to set the amount of budget or expense in the first year after deregulation in order to acquire some profit or minimize the loss. This can be done only if GPO could manage for some changes of its present structure. Detail is described in the next section.

Table 5.13 GPO's Sale Before and After Deregulation

Products	Sales Before Deregulation * (million Baht)	Sales After Deregulation				
		Case 1 (43%)	Case 2 (61%)	Case 3 (79%)	Case 4 (83.5%)	Case 5 (88%)
Group 1 Products	960.00	412.80	585.60	758.40	801.60	844.80
Group 2 Products	296.00	127.28	180.56	233.84	247.16	260.48
Group 3 Products	345.00	148.35	210.45	272.55	288.08	303.60
Group 4 Products	345.00	148.35	210.45	272.55	288.08	303.60
Biological Products or Special Order	678.00	678.00	678.00	678.00	678.00	678.00
Total GPO Products	2,624.00	1,514.78	1,865.06	2,215.34	2,302.91	2,390.48
Non GPO Products	1,119.00	-	-	-	-	-
Total Sales	3,743.00	1,514.78	1,865.06	2,215.34	2,302.91	2,390.48
Lost of earning (%)	-	59.53	50.17	40.81	38.47	36.13
GPO's expense	3,427.00	n.a.	n.a.	n.a.	n.a.	n.a.
Gross Profit	316.00	n.a.	n.a.	n.a.	n.a.	n.a.

Note : Sales before deregulation used here is GPO's sales in 1997

5.1.2 Price/Competitiveness

Price and profit effect are closely related. A monopolist raises price above cost by some degree, given some ratio of price to cost. This results in "excess profits". The price-cost margins and rates of return are both parts of the same basic effect (Shepherd, 1985). In the 1960s Miles Laboratories set the price for a medical kit at 43 times the cost. The kits, for diagnosing mental retardation in infants, were produced under an exclusive license for about \$6 and were priced at \$262 each. The drug industry offers scores of instances in which patented drugs, protected against effective competition, are produced at costs of 5 cent or less per pill but are priced above \$ 1 per pill. Such price-cost multiples are 20 and above.

There were economical pressure from other countries, especially the United States, forcing Thailand to revise their patent laws to give full protection on pharmaceutical products. Therefore, in the future if more patents are granted, the pharmaceutical market will be monopolized by patent holders resulting in higher drug prices. Although the policy of the government in using the drugs in generic names included in NEDL instead of brand names, which mostly are patent-expired but abundant profitability of drug still remain, the competition in the drug market is high and pricing is used as one of the strategies. If there is no policy, law or regulation for the appropriate drug price in the name of "Drug Pricing Policy" (Academic Assembly, 1986), it will be difficult to ensure fair and reasonable price because of product differentiation and the consumers cannot evaluate the quality of drug as with other goods. The consumers thus cannot bargain because the market belongs to the supply side. Moreover, companies will use greater promotion to create the false demand.

The National Drug Committee faced a problem in setting up the medium price because all the drug companies declare only the wholesale price and keep their production costs confidential so the Committee tried to use the import price and sales price list to calculate for mode price in comparison with to the purchasing price of the public hospitals and United Nations Children's Fund (UNICEF). The medium price finally set by the Committee is higher than price purchased by the hospitals, so the medium price is not to be low as the MNCs or the foreign firms will be against the price. The Committee comprising health personnel of the MOPH, GPO and private drug companies met many times to set up the medium prices. It would be better if there is some continual improvement or development to follow the economic situation in a period of time. Because of the lucrative drug business which gives high profit rates to the firms'owners as previously mentioned, there is high degree competition in drug market by lowering the drug price as much as possible (while still having profits) in order to get their products into the hospitals at first and use some strategies on making relationships by proposing some benefits, advertising and promotion to increase demand and later increase the price. The prices in drug price lists of each firm are not fixed. They can be decreased and changed depending on the consumer's bargaining power. This is advantageous over GPO whose price fixed to all buyers. GPO has to focus on this point for the non-essential drugs after deregulation.

GPO ought to have a more important role in determining the medium prices in the National Drug Committee because GPO is a government instrument which supports the health policy in drug price control.

5.1.3 Sales Promotion/Advertising

Advertising emerged in the 1920s, boomed in 1945-1950 period and has grown rapidly ever since. It has now become an important cultural fact. Competition works best when products are identical. The buyers can compare goods directly and switch freely among them. The whole flood of advertising indeed, seeks to tie people to their "favorite" brands, so that sales (and profits) on each one will be higher.

There are many ways to promote sales. Advertising is the most visible device, and it is often important. Sales forces are another major technique. A third form of selling effort is the use of promotional discounts, samples and special pricing. These methods are substitutable in varying degree. In pharmaceutical industry, the companies use all three of them all the time. Selling expenses add to costs in order to add to demand. They are an alternative to price cutting as a competitive tactic. Optimal advertising choices are similar to those governing other inputs. From social viewpoint, advertising's social value is to be lower than that of other inputs because it contributes little or nothing to the product. GPO is in this situation. Nevertheless, GPO has advertised through various media e.g., radio, television, billboard, printed material and some publicity, e.g., exhibition, seminar, workshop and symposium.

There are two basic points of selling effort of informational and persuasive advertising. The information goes to consumers and adds available knowledge. At present GPO uses this selling effort less than private companies. The other of persuasive advertising, is merely trying to change consumer preferences or to

divert attention from facts to images. After deregulation GPO needs to use these selling effort.

Advertising expenditure is different in each business. It is defined as a percentage of sales such as 15.3% in perfumes industry, 2.2% in diary products and 9.9% in drugs industry (Shepherd, 1985 quoting Comanor and Wilson, 1975). For GPO, the advertising and promotion budget is around 2% of sales. But for the well-known private companies as interviewing some marketing managers, the expenditure is around 10-40% of sale.

5.1.4 Customer Services/Delivery System

GPO has tried to improve its service system all the time but limitation of budget and other resources like the other government section causes GPO many problems to GPO, particularly the shortage and delayed delivery of products. The over 10,000 customers of GPO are spread nationwide. GPO has the delivery system in:

- Bangkok and surrounding areas. The products are delivered by GPO's own trucks and rapid motorcycle service for purchases of over 500 Baht in near places. In general, the delivery is completed within 48 hours after receiving the orders.

- Regional areas. The products are sent by many ways, mainly by the Express Transportation Organization of Thailand (ETO) under the regulation of transportation and also by trains, airplanes and private transportation companies within 45 days after receiving the orders.

GPO has determined to pay back to the public sector that purchased products from GPO 5% of purchased value as the welfare benefit with

permission from the GPO Committee Members along the criteria of delivery pay within 45 days. For government budget used, the buyer will get a 4% welfare benefit of drug purchased value, the other 1% will be given to the Office of Ministry Secretary. For the hospital's own revenue budget, the hospital will get the full 5% welfare payment of drug purchased value. This welfare benefit is useful for individual welfare activity of each public section which is not set in the annual budget and for small urgent expenses.

Another service is the product exchange service which is provided to the customers along the following criteria:

1. Biological products are allowed to exchange if proven to be the fault of GPO.
2. Expired products are allowed to exchange at least 6 months before expiration except those combined with neomycin which are allowed not less than 3 months before expiration.
3. All the products exchanged must be purchased from GPO.

Today information technology is rapidly developing with an extensive scope of use. To increase the efficiency of data processing and utilization, GPO has cooperated with the National Electronics and Computer Technology Center (NECTEC) to develop internal information systems including production control, sales & distribution, inventory, accounting & finance, retail sales, and data links to regional branches upcountry which will speed up customers services. Furthermore, for technical services, GPO provides a drug information search to accommodate medical professionals by setting up databases such as Computerized Clinical Information System (CCIS), Medline to grant access to outsiders to search for information directly on-line from the CD-ROM.

5.1.5 Policy and Support

The main objective of GPO according to the policy set in the GPO Act 1966 is to be responsible for manufacturing and distribution of drugs and medical products to support national public health care and to be a government instrument in maintaining the price of drugs in Thailand, helping consumers to receive quality and safe drugs at fair and economic prices. GPO has to implement plans and projects in response to the policies of the government and the MOPH and prepares for future endeavors to meet changing situation in the globalization era.

The government emphasizes drug policy in order to reach "Health for All by the Year 2000", by implementation in the following important aspects: (Tatiyapaiboon, 1995)

a. to supply safe and good quality drugs at reasonable prices to rural areas especially on primary health care, including the improvement of the logistics of drug supply and promotion of local drug production both in the private and public sectors.

b. to strictly adhere to the NEDL and disseminate comprehensive information to medical personnel regarding drugs and treatment regimens in order to prevent the wastage of drugs.

c. to augment drug analytical facilities in the quality assurance scheme, including the testing of biological products and development of a responsible organization for drug standards, drug analysis and reference substances.

d. to survey indigenous raw materials available in the country and to investigate the feasibility of developing bulk drug production utilizing local resources for the country's self-reliance

e. to explore intensively the therapeutic potential of "Traditional Drugs" for safe and efficacious use.

Many projects and campaigns are used as strategies in policy planning set by the MOPH in each of the National Plan (GPO Annual Report, 1994, 1995, 1996).

1. Campaign for poliomyelitis vaccination of children nationwide in 1993 in order to eradicate poliomyelitis from Thailand. GPO has fully supported this campaign by producing the vaccines sufficiently to provide to children all over the country.

2. Campaign against Iodine Deficiency. The MOPH has addressed this issue in its policy and set up the 1995-2001 Iodine Deficiency Control and Prevention National Plan. GPO has participated in this campaign by presenting iodized salt to HRH Princess Sirinthorn for distribution to the target population. GPO has produced iodized or capsules for supporting this campaign by using imported raw material since it cannot be produced in Thailand now.

3. AIDS treatment project. AIDS has become an increasingly significant issue in the country's public health care each year and it costs highly to import drug for treatments. GPO prompted the research for drugs to treat this disease such as AZT 100 mg. capsule which was successfully developed in 1996. GPO manufactures and supplies AZT to the Communicable Diseases Control Department and other government offices at cheaper prices than imported drugs to save the government budget.

In 1995 flood caused trouble and distress to people in over 60 provinces nationwide. People suffered from diseases brought along with the flood. GPO

has alleviated the distress and trouble by urgently producing medicinal sets comprising essential drugs for immediate use.

All of these activities are only some examples to prove that GPO is the institute for supporting and assistance for all activities of the government and the MOPH policies. Moreover, according to the 1966 GPO Act, GPO, as other state enterprises, has to contribute the state on-profit to the Finance Ministry every year. From the year of 1994 to 1996 the state on-profit contribution of GPO are 112, 138 and 154 Million Baht respectively (35% of net profit)

The government and the MOPH should become concerned and focus seriously on the raising issue of procurement deregulation by private and public sector, particularly strategic plans to serve the policies on the intervention projects. The government and the MOPH have to support and subsidize GPO in another regulation instead to maintain the GPO as the instruments for the National Drug Policy.

5.2 GPO's Structure

5.2.1 Product Range

As previously mentioned, the products of GPO are classified into 4 groups. Each group has action plans to operate following the strategic planning set by the managing director and GPO's executives to provide in sufficient and efficient products and service in line with the customers' demand as detailed in the section of Price/Competitiveness. GPO has to expand the production capacity and increase the items of new products according to market surveys while reducing outmoded products after deregulation.

5.2.2 Production

GPO has developed and installed a new internal information system to facilitate production process and increase the productivity. Realizing the importance of quality, the GPO has introduced ISO-9000, which is a quality system implemented worldwide to the GPO's working system and has successfully been awarded the ISO-9002 certificate from BVQI in February, 1997 for injection preparations and will expand to another categories, e.g., Penicillin plants.

The strategic plan to reduce production costs is very important since it can result in more profit particularly in products of group 2 and 3, which contains more items than the other groups. Group 2 and 3 comprise around 100 items each. Thus processing is necessary to operate strictly to GMP and ISO-9002 guidelines to prevent rework and to save cost in production and quality control analysis. It is necessary to apply higher technology in production by inviting experts from several Faculties of Pharmacy to improve the process of production and to formulate the products in high quality and stability. Also needed are joint-ventures with private companies to produce some products that GPO cannot produce in time for the high order of the customers nationwide because it is more profitable than producing with GPO's limited of capacity and resources. Nowadays GPO uses full capacity of installation in some sections because in the last few years of 7th National Plan, GPO changed the budget to joint venture with private investors of vaccine production which is the big project supporting the Expanded Program on Immunization with regards to "Health for All in the year 2000" and the National Vaccine Policy of MOPH.

GPO stopped purchasing machinery and equipment from abroad because of budget limitation and used machines produced locally which are cheaper than imported ones, especially from Europe, even though the quality of local machine is lower and the life of machine is shorter than foreign machine. Moreover, pharmaceutical raw material at present are purchased from developing countries around Thailand such as India, Korea and China because they are cheaper than Europe, USA and Japan. All the raw materials which are not active ingredients must be purchased locally if possible. Although the quality of local raw materials are not as good as the ones from abroad, GPO must try to choose the best ones according to the GPO high quality specification of raw materials in order to produce quality products.

5.3.3 R & D/Technology

Benefits from the patent act are development of new technologies and transfer of technology from abroad. However, the scale of science and technology development in Thailand is small due to certain limitations, e.g., lack of fund and modern equipment, lack of qualified personnel in the field of research and development, lack of investment motivation. GPO is unavoidably affected by the patent law. The degree of impact depends on the structure and preparation in various aspects. Since the early phase of the 7th GPO Development Plan investment in research and development has been given great consideration. A support fund was set up to provide interest for use in research work. Furthermore, continual attention on the development of herbal medicines will increase the potential of the pharmaceutical industry to adapt to the change caused by patent holders

Since the Research and Development Institute has allocated 185 million Baht for establishing in 1992 with the main subject to find out and develop herbal medicine from local herbs, to conduct researches to develop and improve new formulas for pharmaceutical and new biotechnological to be used to produce biologicals, chemicals or reagents, therefore, in the last few years R & D has developed and finished the 2 products of Fathalaichon capsule used as antipyretic and a throat inflammation, and another one of Citronella Mosquito Repellant in 1994

Lingzhi has been used as a herbal medicine in China for over two thousand years, and clinical trials have been conducted mostly in China, Japan and Korea. GPO decided to develop Lingzhi as health supplementary products on realizing the benefits and safety of this mushroom in 1992 and co-ordinated with Ramathibodi Hospital in studying the effects of lingzhi in patients and has been manufactured in many dosage form of tablet, instant tea, slice and beverage in 1995

There are several herbal medicines which R & D has studied and researched such as Betel Pepper, Guava, Phaya Yo and Bitter Cucumber, etc. For the modern drugs, R & D has already researched and developed Zidovudine (AZT) 100 mg and has sold to public hospitals as previously mentioned, and will go on to study other products according to the Organization objectives set for GPO policy.

5.2.4 GPO Organization

The GPO Organization chart is shown in Figure 5.1. This organization structure is set by the Board of Committee Members as the GPO Segmentation

and Job Description Regulation 1992 and is used up to present. The organization structure has been divided into 9 departments under the responsibility of the four senior executives.

From the chart in Figure 5.1, the managing director, the secretary of the Board of Committee Members, controls the GPO by dividing some authority and responsibilities to his 3 deputy managing directors and 1 senior expert. These 4 senior executives have responsibilities in 9 departments in the following :

1. Office of the Managing Director. The responsibility is the management administration of the Board, the managing director, senior executives, secretarial works, documents of the administrative management of GPO, legal affairs, planning and evaluation, public relation and computer system.

2. Personnel Department is responsible for employee salary, the promotion of the position, security, training, welfare, etc.

3. Marketing Department is responsible for the sales administration, promotion, delivery system, retail sales, and regional depot.

4. Accounting and Finance Department. The responsibility is to control and manage all accounting and financing relevant to the activities of GPO.

5. Logistic Department is responsible for the purchase of all the inputs used in GPO and keeping stock of finished products.

6. Technical Department is responsible for the maintenance of buildings, machines, equipment, vehicle, power supplies determining the specification, etc.

7. Production Department is responsible for all the production of the GPO' drugs of around 300 items including chemical raw materials.

8. Biological Department. Its responsibility is to produce and control the 19 items of biological products such as vaccines, sera, and toxoids.

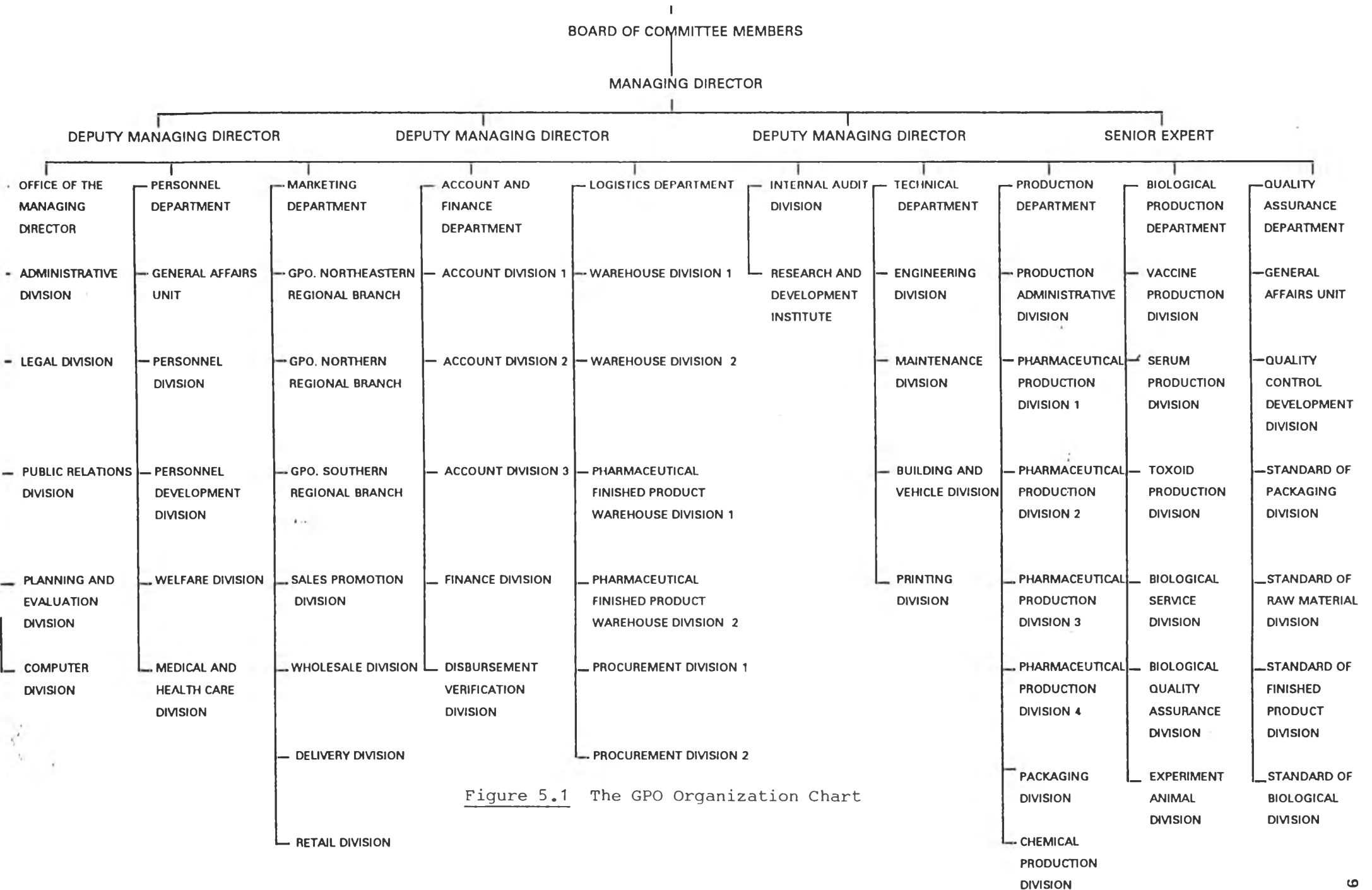


Figure 5.1 The GPO Organization Chart



9. Quality Assurance Department. The responsibility is concerned with sampling, specification and with the organization, documentation and release procedures, which ensures the qualities of products.

This organization structure is not appropriate to the present economic situation in the rapidly changing international trade. The impact of AFTA (ASEAN Free Trade Area) on the pharmaceutical industry caused expansion both in trade and investment since 1993. The drug market became larger and drew both internal and external investors to increase their investments both in the production of pharmaceuticals and raw materials. Furthermore, the effect of the AFTA on the reduction of import duty on finished products and raw materials caused fiercer trade competition of pharmaceutical products among member countries than ever before. In order to compete with private pharmaceutical companies both in terms of quality and production cost, the GPO has to improve its operation including production capacity expansion, administrative structure, manpower, accounting system and work processes to become more efficient. GPO has thus hired an expert consultancy firm to conduct the feasibility study for privatization by considering management restructures in 1996. The present structure is divided into 9 Departments, which is too broad for effective operations. The cooperation of work processes is in more steps generating the delay of works. Thus, it needs to improve by merging some departments, which have closely-related work processes e.g. Technical Department and Production Department should be controlled by the same director because their work involved one another. Moreover, it is necessary to improve the accounting

system in precisely calculation of all the costs in GPO to improve the receivable account from the customer

5.2.5 Policy and Support

In order to promote application of appropriate technology to enhance productivity, increase international competitiveness and develop basic services in science and technology to be conducive to indigenous technological development, the 7th National Plan (1992-1996) has set targets to achieve the above objectives. One of them is to increase budget for research and development to 0.75% of GDP, representing 0.50% of annual budgetary allocations, while the remaining 0.25% of GDP will be accounted for by the private sector. Thus, in the 7th GPO Development Plan, GPO had allocated the annual budget to R&D for the technological promotion and development following the 7th National Plan policy up to present and this plan has set the policy to improve and develop the competency of human resources. This prompted GPO to set the training budget to improve and develop the knowledge and skill to its employee through both inside and outside training and especially the training of new technology in the pharmaceutical field in foreign country with the training budget for 3% of the GPO annual budget in the 7th GPO Development Plan.