

## **CHAPTER V**

### **FINDINGS OF THE STUDY**

This chapter discusses the findings of the study. The secondary data is examined and analysed. In addition, the outcomes of the personal interviews are also discussed.

#### **5.1 Contracts**

The list of the Control and Instrumentation contracts awarded in the financial year 1995/96 is shown in the appendix D. These data were extracted from the database of contracts awarded by the Generation Division which was maintained by the Procurement Section. The data for the years financial year 1994/1995 and before could not be obtained for analysis. The contracts awarded were above the authority limit of the individual Power Station which is RM 50,000 in most of the cases. For the purchases of products and services within the authority limit of individual power station, the orders were issued by the respective power stations. Therefore, the expenditures incurred in purchasing the Control and Instrumentation products and services at power stations level were not included in this study.

The value of the contracts awarded in financial year 1995/96 was RM 8.4 million. This represents 4 % of the total value of contracts i.e. RM 210.25million. The total number of contract was 81 of which 59 was awarded to Bumiputera companies, 4 to Tenaga Nasional Berhad (TNB) subsidiaries, 13 to Original Equipment Manufacturers(OEM) and 5 to non-bumiputera companies. Table 5.1 shows the detailed of the distribution of the contracts.

TABLE 5.1  
CONTRACTS DISTRIBUTION

	No.	Percentage
Bumiputera	59	72.84
OEM	13	16.04
Non Bumiputera	5	6.17
TNB Subsidiaries	4	4.95
Total	81	100.00

**Source:** List of the Control and Instrumentation Contract 1995/96.

It can be seen that 72.84 % of the contracts was awarded to the bumiputera companies and 16.04 % to the OEM companies. Thus, we can conclude that the policy of the government on the procurement whereby it requires the participation of bumiputera companies is adhered to by TNB. The contracts that were awarded to OEM is also quite substantial i.e. 16.04 %. This is, among others, due to the fact that TNB still require the expert services from them, especially on the supply of critical spare parts and skilled manpower.

The contracts can also be divided into two categories i.e. Supply and Services Contracts. The supply contracts normally supply of equipment and sometimes works but the service contracts are only supplying manpower and expertise. Table 5.2 shows the breakdown of the category of contracts.

TABLE 5.2  
CATEGORY OF CONTRACTS

	No.	Percentage
Supply	74	91.36
Services	7	8.64
Total	81	100.00

**Source:** The list of the Control and Instrumentation Contract 1995/96.

From Table 5.2, it can be seen that 91.36 % of the contracts was supply contracts to while services contracts were only 8.64 %.

Thus, we can deduce that, bumiputera companies are only involved mainly in supplying equipment and did not have the capacity to supply expertise. Therefore, TNB is still dependent on Original Equipment Manufacturers for expert services.

## 5.2 Major Supplier and Manufacturers

From the interviews carried out, it was found that there are five major supplier and manufacturers of Power Plant Control and Instrumentation (PPC&I).

### Siemens AG

This company operate all over the world and its headquarters is located at Germany. It manufactures its own products and also offers expert engineering services. The company have complete expertise in the power plant including Control and Instrumentation. Their Asian operations headquarters is located in Kuala Lumpur. It participates in the power plant project in Malaysia, Thailand and Singapore.

The company had carried successfully the Conversion and Rehabilitation Project for TNB in Pasir Gudang, Port Dicksons and Prai power stations. The company is now offering their expertise in the modification of PPC&I for other stations.

### Asea Brown Boweri (ABB)

The company headquarters is located in Switzerland and has its subsidiary at Kuala Lumpur. It offers products and expert services for power plants. Their involvement in TNB is mainly via Gas Turbine Project in various power stations and project in transmission and distribution sectors.

At the moment their involvement with TNB is on the supplying of expert services for maintenance of ABB gas turbines and including control and instrumentation.

#### Yokogawa Electrics.

The parent company is located in Japan. It offers mainly the PPC&I products and the services related to their products. Their products were installed in various power plants in TNB by Japanese contractors that got the contracts in late seventies and early eighties. This company can be regarded as an PPC&I company since it only offer PPC&I products and services.

Their present dealing with TNB is to promote their new products to replace the aging existing installed equipment.

#### Endress+Hauser

The company headquarters is located in Germany. It offers their own brand of products and supporting products services. The company can be regarded as PPC&I company since it only offer PPC&I product and services.

#### Fisher Controls - Rosemount

The company offer a wide range of PPC&I products and related services. The parent company is located in United States. The regional headquarters is located in Singapore.

### **5.3 Source of The Technology**

From the interviews, it was found that the source of the technology of Control and Instrumentation is mainly from Germany and USA. This can be explain due to the fact that industry revolution had started from these two continents. Japanese companies, to some extent, develop their own technology but it originated from USA. The Japanese companies are now enhancing their technology by carrying out their research and development extensively.

### **5.4 Investment Viability**

From the discussion above, it can be deduced that all the major products used in PPC&I were imported. From the interviews, the manufacturing of the products is not viable due to the economies of scale. The PPC&I products are not a consumable product and thus, the market is limited. It is also noted that the technology to manufacture is not available in Malaysia. The technology posses by the manufacturers is normally under proprietary protection.

It can be concluded that it is not viable to manufacture the PPC&I products in Malaysia due to economies of scales and the absent of the technology.