

## CHAPTER 2

### ENGINEERING CONSULTING FIRM'S COMPANY PROFILE

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#### **2.1 Minconsult Sdn. Bhd.**

##### **2.1.1 Company Background and History**

In 1962, Ir. P. Ganendra, founder of Minconsult Sdn. Bhd., set up an engineering consulting firm under the title of P. Ganendra and Associates. Within four years, the firm required restructuring due to the expansion of its services, with a name change to Ganendra, Ahmad and Associates. However, in 1971, PERNAS (the Malaysian Government-owned National Development Corporation) decided to provide financial support and enter into a collaborative relation with it due to its proven engineering expertise and reliability, together with a widening of its engineering disciplines. This enlarged and vigorous consulting firm was renamed Malaysia International Consultants Sdn. Bhd., known widely as MINCO.

In 1973, policy changes arising from the implementation of the Engineers Registration Act, prompted PERNAS to release its shares to individuals in the firm, thus reverting it to an independent engineering consulting firm. The next seven years witnessed rapid national development, in which MINCO played a vital role, principally in infrastructure development of a wide range of projects utilising the most advanced engineering practices.

In 1980, MINCO was restructured in recognition with its important linked role with the Government and in response to the desire to contribute more positively to Malaysia's New Economic Policy. With 62% Bumiputera equity participation, MINCO became known by its present name of Minconsult Sdn. Bhd.

### **2.1.2 Scope of Services and Expertise**

Minconsult offers its clients the whole range of engineering services for a project from developing and idea to its design, undertaking the necessary feasibility studies, project planning, tendering and ultimate construction management of the project. It also offers specialist consulting services on project segments to complete a whole project. Minconsult has fifteen specialised divisions to provide a wide range of engineering services. The write-up of the divisions is attached in Appendix A.

The consulting services offered span a wide range of disciplines including the carrying out of engineering surveys, geotechnical investigations, feasibility studies, planning, design and construction of projects in the fields of highways and roads, airports, ports and harbours, land reclamation, bridges, marine works, high-rise buildings, thermal power stations, sewerage, drainage, irrigation, environmental and transportation engineering and in all other works involving civil, structural, mechanical and electrical engineering. Minconsult also offers consulting services for urban and regional planning, master plan studies, traffic and transportation studies, in addition to housing development schemes and tourism development studies and reports.

Authorisation and financing for a number of these projects have been done by national and state governments, statutory bodies and international funding and financing organisations such as the World Bank, International Bank for Reconstruction and Development and Asian Development Bank. Oil and gas related projects, both on- and off-shore, are handled through a separate joint venture company licensed by Petronas, KE-Minconsult Sdn. Bhd, in which Minconsult holds a majority interest.

Minconsult has also various international involvement which began as early as 1966. The countries involved in are such as Africa, China, India, Sri Lanka, Nepal and the South East Asian countries. Besides international involvement in projects, Minconsult has also professional connections with professional engineering bodies in Malaysia and internationally, such as in the United Kingdom, USA, Australia and Singapore. The company has continuously built up its affiliations with these bodies to help keep it in the forefront of development in the engineering field. With the new globalisation phenomena, professional associations have become closer and even more important to engineering consultation.

Minconsult's pioneering spirit has enabled the company to meet new challenges and stay well ahead in the field of engineering consulting. In many instances, it has become the first engineering consultant to be entrusted with projects that not only called for ingenuity and innovation, but also the use of the latest technology and equipment. In its pursuit of engineering excellence, Minconsult achieved MS ISO 9001 certification by SIRIM and the United Kingdom (UKAS) Accredited Certification in 1998.

For 1991, the total construction cost of the various projects handled by Minconsult exceeded RM 800 million. Since its formation, Minconsult has been responsible for implementing projects in which the total cost exceeded RM 12 billion.

**2.1.3 Overview of the Human Resources**

Minconsult has a total staff of more than four hundred trained personnel, including close to two hundred and fifty professionals qualified in various engineering disciplines and trained in many countries. The professionals include those who have had experience and have held high public offices related to their discipline in Malaysia. Minconsult also has a bank of young, dynamic and highly qualified professionals.

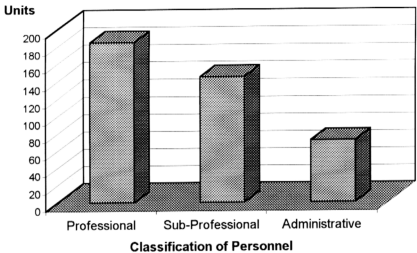
Currently, the staff numbers 402. Out of this, civil, structural, mechanical, electrical, environmental and resident engineers number 172, geotechnical specialist 10, geologist 2, town and transport planners 4, and economists 2. There are 14 technical assistants, 79 draughtpersons, 4 librarians, 2 accountants, 28 clerk-of-works, 9 technicians and 83 administrative personnel. There are 19 ex-government service engineers, 5 ex-directors of government engineering departments, 12 PhD's and 40 master-degree holders.

**Table 2.1 Minconsult – Classification of Personnel**

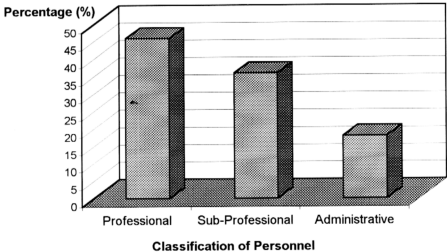
Classification of Personnel	Numbers	Percentage (%)
Professional	185	46
Sub-Professional	145	36
Administrative	72	18



**Figure 2.1    Minconsult – Classification of Personnel (Units)**



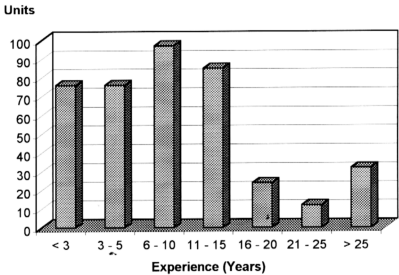
**Figure 2.2    Minconsult – Classification of Personnel (Percentage)**



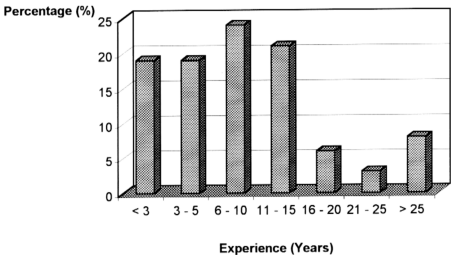
**Table 2.2     Minconsult – Experience of Professional Staff**

Experience (Years)	Numbers	Percentage (%)
< 3	76	19
3 – 5	76	19
6 – 10	97	24
11 – 15	85	21
16 – 20	24	6
21 – 25	12	3
> 25	32	8

**Figure 2.3     Minconsult – Experience of Professional Staff (Units)**



**Figure 2.4    Minconsult – Experience of Professional Staff (Percentage)**



Engineers and other technical staff are regularly sent for training to enhance their knowledge and skills, and to ensure that they are well versed and up-to-date with the latest technology. In-house training are also conducted where specialists are invited to provide training in various fields to the staff.

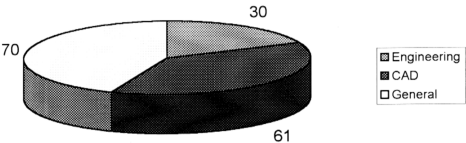
**2.1.4            Availability of Computer Resources**

Minconsult has been investing in the use of computers and information technology since 1982. Currently, the firm has over 161 computer systems comprising of a mix of,INTEL based personal computers and UNIX based computer workstations. A variety of computer peripherals are available for use with these computer systems. They include laser printers, ink-jet & pen based plotters, digitisers, dot-matrix printers, colour printers, scanners and modems. To complement the computer hardware available, there is a comprehensive software library which is regularly expanded and updated so that the latest application programmes are available for use by staff on projects carried out by the firm.

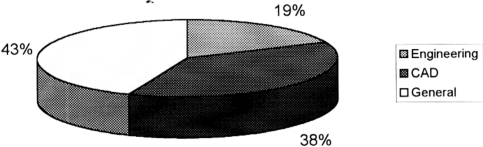
**Table 2.3    Minconsult – Computer Workstations / PC's – Area of Usage**

Area of Usage	Numbers (Units)	Percentage (%)
Engineering	30	18.6
CAD	61	37.9
General	70	43.5

**Figure 2.5    Minconsult – Computer Workstations / PC's – Area of Usage (Units)**



**Figure 2.6    Minconsult – Computer Workstations / PC's – Area of Usage (Percentage)**



To improve on its computer resources, Minconsult has spent over RM 2.5 million in the last five years. Computers and information technology are used in such areas as :

- Computer Aided Draughting (CAD)
- Engineering Analysis & Design
- General Administrative Work
  - Word Processing & Spreadsheet
  - Graphics & Presentations
  - Programming
  - Information Research

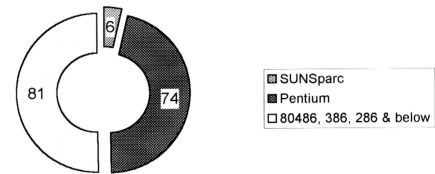
Besides AutoCAD, which is used extensively in the firm to produce highly detailed engineering drawings within short time frames, Minconsult was one of the pioneers in Malaysia to utilise MOSS, a powerful computer based design system which creates three dimensional models of ground surfaces, development projects and engineering works.

In the ASEAN region, Minconsult pioneered the use of advanced computer and airborne survey technology for terrain modelling purposes of master planning, preliminary design and detailed design of infrastructure. The DGV (Digital Video Geographic) systems use satellites, helicopters and computer-linked laser survey equipment for fast and accurate topographical surveys.

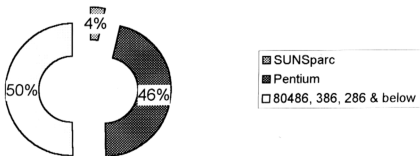
**Table 2.4     Minconsult – Classification of Computer Types**

Classification	Numbers (Units)	Percentage (%)
SUNSparc	6	3.7
Pentium	74	46
80486, 386, 286 & below	81	50.3

**Figure 2.7     Minconsult – Classification of Computer Types (Units)**



**Figure 2.8     Minconsult – Classification of Computer Types (Percentage)**



### **2.1.5 Provision of Reference Resources**

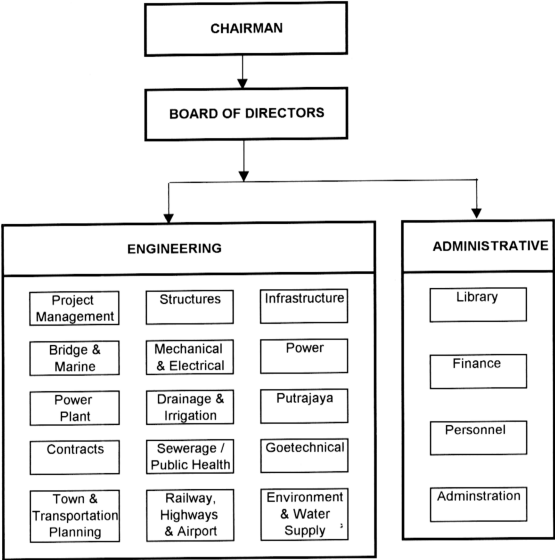
Minconsult has a comprehensive technical library which is among the largest of its kind in South East Asia. It boast of about 18500 books covering all fields of engineering, a collection of 3000 technical publications and 4500 international standards and codes of practice. Currently, the library subscribes to more than 160 journals and publications. The library contributes to the main business of the company by keeping the engineering divisions fully informed of the relevant references available at any one time.

### **2.1.6 Organisational Chart**

Minconsult has an experienced and influential board of directors to oversee the management aspects of the company. It has fifteen specialised divisions to render the comprehensive engineering services to the clients. These divisions vary substantially, from structural designs to mechanical and electrical system designs and etc. To support these engineering divisions, there are divisions such as the library, finance, personnel and administration divisions, to ensure the smooth progress of the company.

Figure 2.9

Minconsult - Organisational Chart





## **2.2 Ghazali & Associates Sdn. Bhd.**

### **2.2.1 Introduction to the Company**

Ghazali & Associates Sdn. Bhd. is a newly established company providing services in engineering design and project management for the construction industry. Although new, the principals of the company are very experienced and have been involved in the construction industry, in particular in the provision of engineering and construction management services, in well over fifteen years. The company is wholly owned by Bumiputera professionals committed to provide excellent and value-added engineering services to the industry.

### **2.2.2 Scope of Services and Expertise**

Ghazali & Associates provides design services in civil and structural engineering disciplines. Particular expertise of the principals and staff of the firm are in the area of infrastructure and utilities, township and housing development, low and high rise buildings, industrial buildings and institutional buildings. In these types of projects, the company provides a comprehensive range of services including project identification, planning, feasibility study, preliminary and detailed design, documentation, contract management, construction supervision, construction management, procurement of goods and services, commissioning, operation, maintenance and inspection and review.

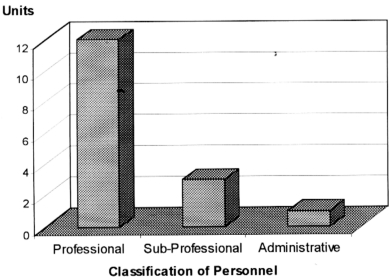
**2.2.3 Overview of the Human Resources**

Ghazali & Associates has 16 employees, where 9 personnel are based in the office and 7 others at site. The board of directors are the key personnel in the company, and were previously directors in Ranhill Bersekutu Bhd. The company also has three experienced associates in various engineering fields such as mechanical and electrical engineering (M&E), and environmental planning.

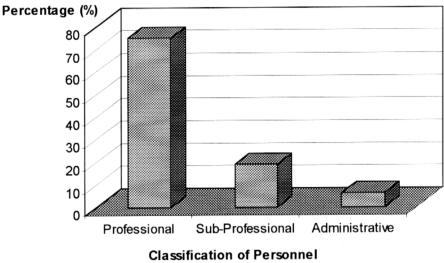
**Table 2.5 Ghazali & Associates – Classification of Personnel**

Classification of Personnel	Numbers	Percentage (%)
Professional	12	75
Sub-Professional	3	19
Administrative	1	6

**Figure 2.10 Ghazali & Associates – Classification of Personnel (Units)**



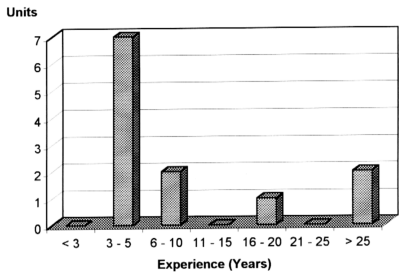
**Figure 2.11 Ghazali & Associates – Classification of Personnel  
(Percentage)**



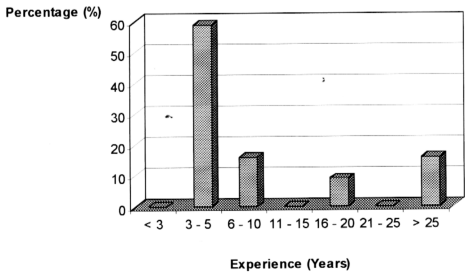
**Table 2.6 Ghazali & Associates – Experience of Professional Staff**

Experience (Years)	Numbers	Percentage (%)
< 3	0	0
3 – 5	7	59
6 – 10	2	16
11 – 15	0	0
16 – 20	1	9
21 – 25	0	0
> 25	2	16

**Figure 2.12 Ghazali & Associates – Experience of Professional Staff (Units)**



**Figure 2.13 Ghazali & Associates – Experience of Professional Staff (Percentage)**



The engineers and other technical staffs are regularly sent for training to enhance their knowledge and skills, and to ensure that they are well-versed and up-to-date with the latest technology. Engineers are also required to work as resident engineers at site, if required, to supervise the project. This will provide the junior engineers with a better understanding of the actual construction situation. It is one of the best on-the-job training, that not many consulting firms in Malaysia offer to their engineers.

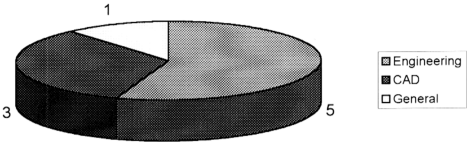
**2.2.4            Availability of Computer Resources**

Ghazali & Associates has been investing in the use of computers and information technology since it started its operation. Currently, the firm has over 9 computer systems comprising of INTEL Pentium III-based personal computers, and all the computers are linked with Local Area Network (LAN). A variety of computer peripherals are available for use with these computer systems. They include laser printers, ink-jet & pen based plotters, digitisers, dot-matrix printers, colour printers, scanners and modems. The management will upgrade the computer software from time to time to keep up with the latest technology.

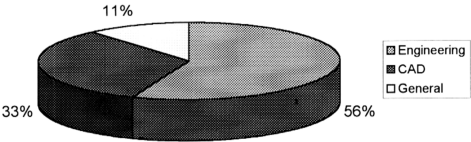
**Table 2.7      Ghazali & Associates – Computer Workstations / PC's – Area of Usage**

Area of Usage	Numbers (Units)	Percentage (%)
Engineering	5	56
CAD	3	33
General	1	11

**Figure 2.14 Ghazali & Associates – Computer Workstations / PC's –  
Area of Usage (Units)**



**Figure 2.15 Ghazali & Associates – Computer Workstations / PC's –  
Area of Usage (Percentage)**



Since Ghazali & Associates started its operation, a total of over RM 100,000 has been spent on purchasing various engineering software. Computers and information technology are used in such areas as :

- Computer Aided Draughting (CAD)
- Engineering Analysis & Design
- General Administrative Work
  - Word Processing & Spreadsheet
  - Graphics & Presentations
  - Programming
  - Information Research

Besides AutoCAD, which is used extensively in the firm to produce highly detailed engineering drawings within short time frames, the company also purchased the latest integrated structural design software called the 'Orion' which can produce designs and drawings at the same time, hence shortening the time of design, compared to the traditional process.

#### **2.2.5 Provision of Reference Resources**

Ghazali & Associates has a small library for resources reference. The company purchases the latest reference to ensure that the latest information are always available for the engineers.

#### **2.2.6 Organisational Chart**

Ghazali & Associates has a board of directors that are very experienced and have been involved in the construction industry for well over fifteen years. It has three divisions to provide the basic engineering consulting services in project management, structural and infrastructure works. An administrative division supports the engineering divisions, by providing the financial, administrations and personnel-related services.

Figure 2.16

Ghazali & Associates - Organisational Chart

