
The Successful Management of a State-Owned Company - A Case Study of Gulf Petrochemical Industries Co. (GPIC)

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Abstract

This study is based upon a detailed empirical investigation into the development of the petrochemical industries in the GCC¹ region in general and on the transformation of Gulf Petrochemical Industries Company, Bahrain (GPIC) in particular.

GPIC, a government owned company, faced serious financial difficulties arising from a crash in global market prices, impairing its ability to repay bank loans. In addition, the company was forced to employ a contract workforce at exorbitant costs due to non availability of skilled local personnel.

The research addresses the decade from 1988 to 1997 when under a unique style of leadership and management approach, strategic organisational changes were undertaken to improve morale and control costs. The study also identifies key elements which had a strong impact on the creativity and motivation of employees and also upon the organisational culture which eventually transformed the organisation into a world class enterprise.

The company's historical narrative is supported by:

- 1) Technical and financial performance data.
- 2) Staff surveys assessing employee morale, motivation and organisational culture.
- 3) Results of benchmarking surveys highlighting technical competence of the company.

¹ *Gulf Cooperation Council Countries (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates).*

The focus of this dissertation is to ascertain how creativity, motivation and culture contributed to GPIC's performance.

It highlights the fact that any organisation, be it private or government owned, can be made to work effectively and efficiently provided the organisational culture can nurture creativity and motivate the workforce.

The study concludes that when an organisational culture is transformed, where the workforce is motivated and creativity is nurtured, business performance is bound to improve.

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Other Abbreviations Used

ADIP	Predesulphurising Unit
ALBA	Aluminium Bahrain
ARC	Advanced Radial Converter
ASRY	Arab Ship Repairing Yard
BAFCO	Bahrain Aviation Fuelling Company
BALEXCO	Bahrain Aluminium Extrusion Company
BANAGAS	Bahrain National Gas Company
BANOCO	Bahrain National Oil Company
BAPCO	Bahrain Petroleum Company
BD	Bahrain Dinar
BMA	Bahrain Monetary Agency
C&F/CFR	Cost and Freight
CH ₃ OH	Methanol
CIF	Cost Insurance and Freight
CIS	Council of Independent States (Formerly in Soviet Union)
EMS	Environment Management System
EOR	End of Run
et.al	and others
ETC	Engineering Training Committee
etc.	etcetera (and the rest)
FOB	Free on Board
GARMCO	Gulf Aluminium Rolling Mill
GCC	Gulf Co-operation Council
GDP	Gross Domestic Product
GPIC	Gulf Petrochemical Industries Company
HAZOP	Hazards and Operability
i.e.	that is
ISO	International Standard Organisation
JLC	Joint Labour Committee
LNG	Liquid Natural Gas
MT	Metric Tons
MTBE	Methyl-tertiary-Butyl-Ether
nAch	Need for Achievement
nAff	Need for Affiliation
NH ₃	Ammonia
nPow	Need for Power
OBUs	Offshore Banking Unit
OMS	Operating Management System
OPEC	Organisation for Petroleum Exporting Countries
PF	Primary Factors

PIC	Petrochemical Industries Company, Kuwait
ppm	parts per million
pPow	Personal Power
PSV	Pressure Safety Valve
ROSPA	Royal Society for Prevention of Accidents
RRI	Rate of Return on Investment
SABIC	Saudi Basic Industries, Saudi Arabia
SMIs	Small & Medium Scale Industries
sPow	Social Power
TQM	Total Quality Management
TV	Television
UK	United Kingdom
USGC	United States Gulf Coast
viz	namely

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Chapter One

Introduction

This study presents a framework for the analysis of management performance and demonstrates how various theoretical concepts can be integrated into the practical aspects of managing a major petrochemical industry, in this case Gulf Petrochemical Industries Company (GPIC) in Bahrain. The researcher uses this framework to identify and analyse the steps taken to transform GPIC from a losing enterprise to a successful world class business.

This chapter consists of three main sections. The first presents some general concepts used in the study. It attempts to highlight the role of leadership and management in using motivation, creativity and organisational culture to enhance the performance of a petrochemical industry in a developing country such as Bahrain. The methodology and model of this study are presented in the second section. An outline of the study is presented in the third section.

1. General Concepts

Industrial development plays an essential role in the economic progress of developing countries where there is usually heavy dependence on a single resource, such as gas or oil, which is the case in Bahrain. The main components of industrial development in this region depend on the setting up of industrial projects, such as an petrochemical industry based on the availability of natural gas, as the feedstock for such industries.

GPIC was the first industrial joint venture among GCC Countries, with shareholders from Bahrain, Kuwait and Saudi Arabia. Political decisions usually has a strong influence on the formation of such joint ventures. Management and organisational issues are left for consideration at a later stage.

Therefore, this attempt to evaluate the performance of GPIC and to document its history with a view to examining the effect that the organisational culture development, motivation and creativity had on its performance in the past decade, is of great local significance. Simultaneously it is of more general interest from the point of understanding the internal processes of industrial organisations and the relationship of these cultural and economical processes to business performance.

2. Aim, Methodology and Model of the Study

This study is based on the detailed recording of the history of GPIC's development and a comprehensive evaluation of its performance over a ten year period from 1988-1997. It includes an investigation into a hypothesis that organisational culture and management tools such as creativity and motivation have a significant bearing on business performance of an organisation. The research will cover different issues such as:

- i) The company structure.
- ii) Areas of deficiency experienced by the company prior to 1988.
- iii) An investigation of the commercial performance of GPIC upto 1987 and during the period 1988-1997.
- iv) An investigation of the technical performance of GPIC upto 1987 and during the period 1988-1997.

- v) An investigation of the management approach in steering the company through the period 1988 to 1997.
- vi) The combined effects of motivation, creativity and organisational culture development on the morale of the workforce and their influence on the performance of the company.
- vii) A comparison of the performance of GPIC with similar industries in the regional and international arenas.
- viii) Making recommendations for the adoption of key success factors and key management tools to improve the technical and commercial performance of a company in a developing country.
- ix) Identification of areas for further study.

Under ideal conditions, a study of this kind would be based on a comparison of a sample of successful and less successful companies to determine the factors which are associated with, or lead to, success or failure. However, research in the field of organisations, for reasons of time, confidentiality and cost, usually fall short of the ideal in terms of research design.

Therefore, this study is based on a general review of similar petrochemical plants in the region but with an in depth analysis and diagnosis of one particular company of which the researcher has been the General Manager for the past twelve years and in which he was responsible for numerous strategical changes outlined in this thesis. During this period the company has moved from facing business difficulties to being a successful petrochemical complex by internationally recognised standards.

When the researcher undertook the programme of change in GPIC he had his own views on what management approach might change the

course of events in the company and lead to improved business performance. In this sense, he was working with a theory, not well articulated, of how the latent forces within a large social group can be mobilised to achieve successful outcomes. The development of this company, its exceptional production performance and the number of significant milestones it has reached and continues to reach, identifies it as one of the best petrochemical plants in the world. The study is able to identify a number of successful management tools and techniques that have been utilised to achieve this position.

Moreover, it is important to discuss the theoretical aspects of human resource management and the state of the art approach to managing successfully as well as putting that knowledge into practice to sustain growth and success over a relatively long period of time. In reality this requires using management theories with adjustments to suit practical situations.

The study aims to achieve the following objectives:

- ♦To make a quantitative and qualitative investigation into the performance and development of petrochemical companies with emphasis on GPIC which faced serious financial and human resources difficulties.
- ♦To identify and analyse the steps taken to transform GPIC from a losing enterprise to a successful world class business.
- ♦To look at theoretical management concepts and how they can be integrated into the practical aspects of transforming a company to a successful business enterprise.

- ♦To make recommendations for adopting key success factors and key management tools to improve the technical and commercial performance of a company in a developing country.
- ♦Study the combined effects of motivation, creativity and organisational culture development on the morale of the workforce and their influence on the performance of the company.

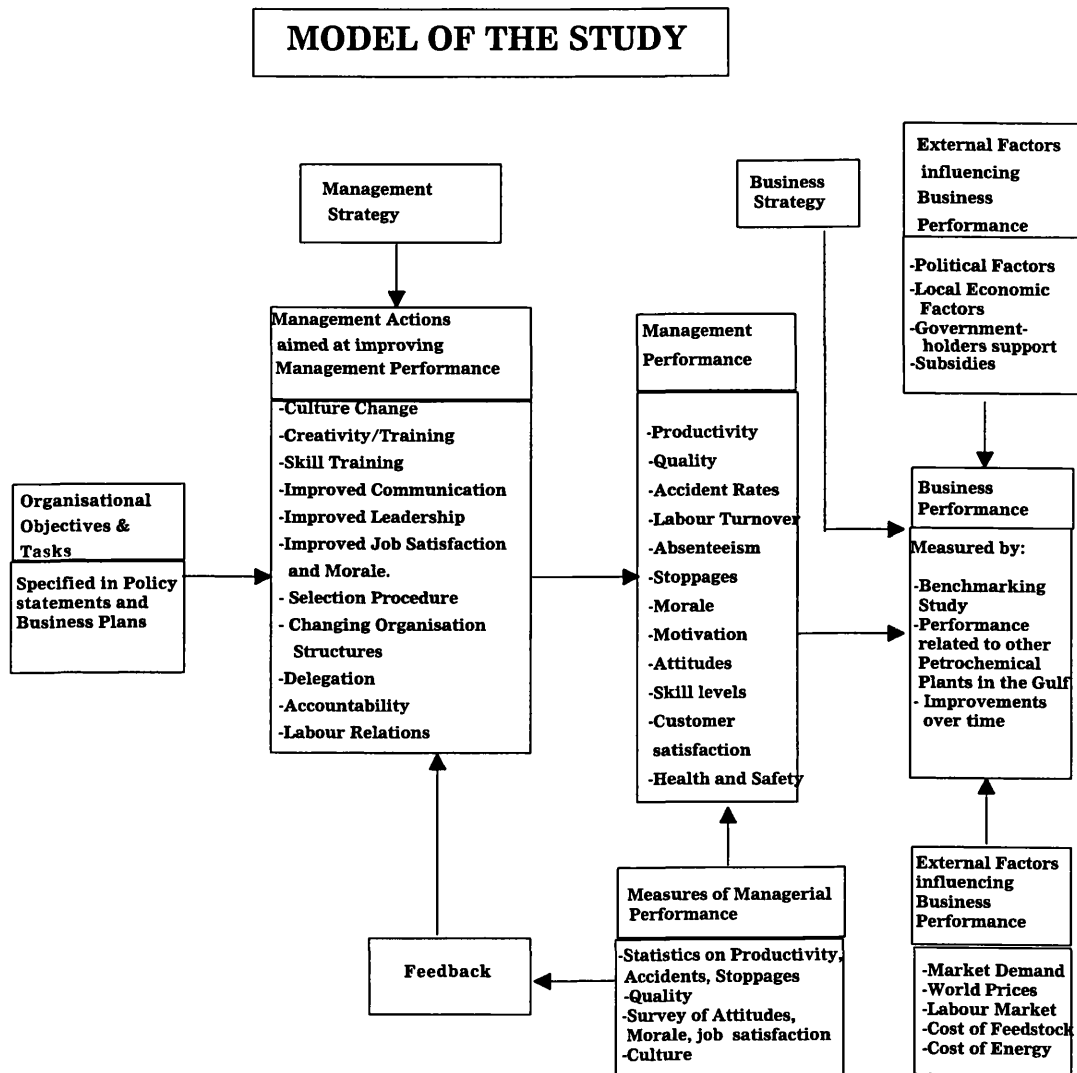
One of the most important challenges that face corporate management in the business world is the effective means of coordinating corporate resources that include human, financial and physical assets.

A model of key corporate factors and their interrelationship are shown in Figure 1. This figure clearly shows some of the multiplicity of variables impinging on any one organisational situation and hence the challenge in managing them. Such a complexity provides management science with the challenge to determine specific laws or theories that govern the behaviour of people in the work environment.

The most significant concept of this model are the three important components that are reviewed during the course of this study. How does Creativity, Motivation and Organisational Culture affect the business performance of a company? How do these components fit together to allow management to develop strategies, policies and tactics for success and how do they help to maintain that level of success?

The external influence will be considered but the emphasis will be placed on management actions aimed at improving management performance (internal factors) since that is controllable. The model identifies the main variables and some of their inter-relationships that were examined in this study.

Figure 1



The variables involved in this model will be studied in order to determine their impact on the business performance. This should result in the design and plan of a management system that is developed based on knowledge of external and internal forces and resources in order to achieve the organisation's goals and objectives. It uses measurement and feedback to monitor performances and provide the

necessary alternatives for making future plans. An outline of this approach is illustrated briefly in the following section.

3. Outline of the Study

This thesis has been divided into several sections, each concentrating on a separate aspect of the investigation. A uniform format for the presentation of the majority of these sections has been adopted. Each commences with an introduction, then discusses the main issue and ends with an overview/discussion.

Chapter 2: Background Information and Data

This chapter discusses the industrial development in Bahrain. It commences with highlighting the broad industrial structure in Bahrain and gives a description of its economy prior to and after the period when the economy boomed due to the high oil prices of the 1970's. It also gives an overview of the petrochemical industry from worldwide, regional and local perspectives and in particular the petrochemical industry pertaining to the manufacture of Ammonia and Methanol.

Chapter 3: History of GPIC's Development

This chapter sets the scene for the whole study. It contains a detailed write-up about GPIC's historical developments and is a compilation of facts in a chronological order to afford an overview of the company since its inception, including technical parameters as well as financial and managerial aspects. It summarises the important events that occurred and key decisions which were made during the study period.

Chapter 4: GPIC's Business Performance

This chapter covers in greater detail GPIC's Business Performance under the umbrella of technical and financial performance. The technical performance is presented very comprehensively by covering the various performance factors for the individual Ammonia and Methanol plants and these performance aspects are further extended to a regional and international performance comparison.

The financial performance is described by projecting the rate of return on investment, profitability and cost of production.

Chapter 5: Literature Review - Creativity, Motivation and Organisational Culture

This Chapter covers the researcher's review of the literature and provides a detailed outline of work carried out in the field of Creativity, Motivation and Organisational Culture.

The work of pioneers, key researchers and scholars have been comprehensively covered in this chapter which provides the basis and reference work of this study.

Chapter 6: Managing Creativity, Motivation and Organisational Culture

This chapter covers the researcher's work with GPIC's organisation. The chapter outlines the work that has been carried out at GPIC in the field of developing a creative environment, motivated workforce and a culture that encompasses these tools for a sustained and maintainable system and performance.

Chapter 7: Creativity, Attitude and Culture Surveys

This chapter covers the field work regarding the surveyed part of the research. Two surveys are covered in detail as part of this study. The results of the researcher's findings in the field of Creativity, Motivation and Culture are presented, analysed and discussed.

Chapter 8: Conclusions and Recommendations

This chapter covers the conclusion of the study, highlighting the summary of the findings in the three crucial areas of the GPIC management system, namely Creativity, Motivation and Organisational Culture. Further, the important and prestigious achievements made by the company are highlighted along with various recommendations including the use of management tools to improve and sustain business performance of an organisation. It highlights the positive influence of a dynamic and innovative management team on a company's performance. It stresses the importance of developing and training human resources to create a motivated and creative workforce.

The study concludes that clear vision, appropriate policies, sound management practices and effective leadership are vital in transforming a losing enterprise into a world class business.

Chapter 9: Bibliography

This chapter contains a bibliography of literature and references used during the course of this study.

Chapter Two

Background Information and Data

In order to give this work and case study significance, it is important to give a relatively detailed review of the environment within which the case study took place, not only in the international arena, but more importantly in the prevailing regional background.

In attempting to do so it is important to understand Bahrain, its cultural background and the development of its economy and industrial base.

1. Bahrain - General

Bahrain is one of the United Nation's smallest independent member states, an archipelago of some 36 near-desert islands nested in a bay of the Arabian Gulf, close to Saudi Arabia.

The State of Bahrain (706 km²) is primarily made up of two groups of islands that converge on the main islands of Bahrain (586 km²) to the North, and Hawar to the south east. The area expands constantly with land reclaimed from the sea. The archipelago's 36 islands range from the tiniest islet to sizeable areas. Only 13 deserve to be called islands; Muharraq, Sitra, Nabi Saleh and Umm Nasan are linked to the island of Bahrain by a causeway. The others are mere desert islets that beautifully speckle the Gulf of Salwa between Qatar and Saudi Arabia.

There are today 550,000 inhabitants in the State of Bahrain. One third of the population is of foreign descent, essentially people who have come from India and Pakistan, Iran, Oman, Yemen and the West. This

population blend is a perfect reflection of Bahrain's past, of its seafaring vocation, and of its power of attraction on neighbouring people and major maritime nations (Portugal and England) who were the masters of the Indian Ocean and the Gulf for most of the past four centuries.

Strategically located between East and West, Bahrain has always been a very enterprising nation occupying a vital position in the Arabian Gulf and Indian Ocean for over five thousand years. Its commercial expertise has enabled the nation to readily adapt to the changes and needs of an evolving economy. Its geographical situation has always been a major asset, and today, Bahrain is once again a leading financial and trading centre at the crossroads between the East and the West.

Bahrain was one of the first Arabian Gulf Countries to discover oil. The first well was drilled at the foot of Jebel Dukhan in 1931 and oil gushed on 2nd June 1932, producing 400 barrels a day. Bahrain began exporting oil as early as 1934, ships loading the crude oil in Sitra. An oil refinery was built in 1936, whose production doubled within the first year, going from 25,000 barrels a day in 1937 to its present rate of 250,000 barrels as early as 1955. The discovery of oil brought changes to Bahrain earlier than in any other Gulf country. Under the rule of H.H. the late Amir, Shaikh Isa bin Sulman AlKhalifa, the present government carried out the different steps of these changes which led Bahrain to become a major oil, financial and trading centre.

Bahrain's proven oil reserves are limited in comparison with the extensive oil fields of Kuwait and Saudi Arabia. As early as 1965, Bahrain Petroleum Company (BAPCO) estimated that one-half of the

island's total oil had been depleted. Oil production peaked in 1977 at 77,000 barrels per day and steadily declined thereafter to 40,000 barrels per day. Although Bahrain has had an oil-based economy since 1935, its proven reserves were estimated at 200 million barrels in 1993, and the government anticipated that all oil would be depleted by 2005. By 1965, the Bahrain government recognised that the island's long-term prosperity could not depend on the limited extent of its oil reserves. Accordingly, the government adopted industrial diversification as a primary objective of its economic policy. The government encouraged private entrepreneurs to develop small scale industries by giving tax incentives and low interest loans and also assumed a more active role in the establishment of large -scale industries like:

- 1) ALBA (Aluminium Bahrain)
- 2) BANOCO (Bahrain National Oil Company)
- 3) GPIC (Gulf Petrochemical Industries Company)
- 4) ASRY (Arab Shipbuilding and Repair Yard Company)
- 5) BANAGAS (Bahrain National Gas Company)
- 6) BAFCO (Bahrain Aviation Fuelling Company)

The decline in oil reserves in the early 1970's encouraged the State to embark on a programme of diversification of the economy. In implementing government policy to seek alternative sources of income for the country, increased attention to industry has been given over the last three decades. The main goals set by the government were geared towards the following:

- a) Diversifying the economy and national income, especially through the development of small and medium scale enterprises.
 - b) Encouraging the services sector, notably commercial services.
 - c) Developing offshore banking and tourism, and removing obstacles to foreign investments.
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- d) Encouraging the contribution of the private sector in economic development.

The extent of the transition of the economy of Bahrain away from dependence on oil is reflected in the fact that the contribution of such production to the gross domestic product fell from 36 percent in 1975 to 17 percent at the beginning of 1990's. Over the same period, the share of services increased by a third, mainly due to banking and insurance, which increased their contribution from 3 to 12 percent.

The industrial sector partially embodies the efforts of the government to bring about a diversification of its sources of income. The industrial sector contribution increased sharply to 19 percent in the 1990's representing one of the highest contributors to total domestic product.

The industrial policy and orientation in the State of Bahrain could be summarised as follows:

- Maximising the supportive industrial facilities and minimising direct protection and physical subsidies (open market strategy).
- Attracting capital and energy intensive industries.
- Encouraging small and medium scale industries (SMIs).

A major element of industrial policy has been the focus of utilisation of hydrocarbon products. This has led to investments in capital and energy intensive industrial projects such as the oil refinery (BAPCO), aluminum smelter (ALBA), gas production unit (BANAGAS), petrochemical complex (GPIC), ship building and repair yard (ASRY),

and aluminium intermediate industries such as extrusion (BALEXCO), rolling (GARMCO) and powdering (BAHRAIN ATOMIZER).

Small and medium industries (SMI's) in Bahrain have also been expanded and developed within the existing industrial infrastructure. They have played an influential role in the economy since they have catered to the demand of the fast-expanding consumer markets of both Bahrain and its neighbours.

Small and medium industries in the State of Bahrain continue to grow and meet the demands for those down-stream products needed by the existing primary oil, gas, petrochemical and metal industries. They are also processing and packaging various food products and assembling a wide array of mechanical and electrical equipment. SMI's have already substituted several imported consumable petrochemicals, garments, furniture and home appliances, amongst many other products.

SMIs located in Bahrain are well placed to supply the Gulf region with quality manufactured goods, such as high-technology products and processes, electronics, pharmaceuticals, educational media, health-care materials, leisure goods and boats.

2. Bahrain's Economy²

The State of Bahrain was the first producer of oil in the Arabian Gulf region. However, it was not until the quadrupling of oil prices between October 1973 and January 1974 - as a result of the action by OPEC

² *Bahrain Centre for Studies & Research - Bahrain's Economy and Total Factor Productivity Working Paper No: 11 Economic & Social & Management Research Programme 1990s.*

members to raise the price of oil - that substantial financial capital became available and provided the potential for rapid economic development. Bahrain's oil revenue rose in real terms (constant prices of 1980) from Bahraini Dinars (BD) 71.7 Million in 1973 to BD 391.4 Million in 1981. The government enjoyed a virtual five-fold increase in its revenues over the period 1973 - 1981. The share of oil revenues in total public revenues increased from 65 percent in 1973 to a peak of 85 percent in 1974, but then decreased to 70 percent in the early 1980's, and then decreased further to about 60 percent in the second half of the 1980's. However, oil revenues remain highly significant in the Bahrain economy.

A large part of the oil earnings were made available to the government, substantially increasing its financial resources. These were used by the Bahraini public administration to launch an ambitious investment programme to provide the economy with a supporting physical infrastructure and to embark upon industrialisation through joint ventures with regional and international investors.

This era of a booming economy also coincided with a number of measures to encourage private foreign investment. As a result, the offshore banking industry expanded rapidly and by 1980 Bahrain had become an important financial centre in the region. The acceleration of investment spending and the continuous growth of various economic sectors also led to a rapid inflow of foreign labour, which comprised more than half of the labour force by 1981.

Like most of the Gulf countries, Bahrain's economy has fluctuated along with oil price. The collapse of the oil price in the mid 1980's caused Gross Domestic Product (GDP) to decrease, with negative real

GDP growth in 1985 and low positive growth rates in the following two years. However, with the end of the Iran-Iraq war in 1988. Bahrain's economic prospects were revived. From 1988 onward, there was a recovery with positive real GDP growth.

Increase in financial resources after 1973/1974 led to a rapid inflow of foreign labour, which comprised more than half of the labour force by 1981 and this ratio remains upto the current time.

The data for sectoral break down of GDP and its annual growth between the years 1988 - 1997 is tabulated in Table 1 below:

Table 1 ³

GDP GROWTH
(US \$ Million at constant prices)

Year:	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Oil Sector	610	620	660	647	745	838	790	806	864	888
Non Oil Private Sector	2515	2655	2883	2944	3159	3665	3692	3848	3994	4129
Govt. Sector	800	822	853	885	896	901	898	941	970	989
Total	3925	4097	4396	4476	4800	5404	5380	5595	5828	6006
Annual GDP Growth %		4.4	7.3	1.8	7.2	10.9	-0.5	4	4.2	3
oil sector growth %		1.7	6.4	-2	15.2	12.5	-5.3	2	7.2	2.8

Apart from oil production, import and refining, natural gas production and utilisation remained the mainstay of Bahrain economy. The data for production and utilisation under various sectors is given in Table 2.

³ National Accounts 1997, Directorate of Economic Planning, State of Bahrain.

Table 2 ⁴

Natural Gas Production & Utilisation

(all quantities of gas are in Billion Cu.ft.)

Year:	1989	1990	1991	1992	1993	1994	1995	1996	1997
Gas Production billion Cu.ft.	273	291	288.6	333.4	346.0	351.3	355.0	360.6	375.4
-whereof GPIC billion Cu.ft.	36.9	39.8	40.3	39.1	40.4	39.1	40.8	37.5	41.6
% of Total	13.5	13.6	14.0	11.7	11.7	11.1	11.5	10.4	11.1

Bahrain adopts a very pragmatic and prudent fiscal policy for managing its economy and Government finance. While attempting to match its expenditure with its revenues, it ensures that the year end deficits if any, are tightly controlled. Table 3 below, gives the data for the revenues and expenditures on Government account.

Table 3

Bahrain Government - Revenue & Expenditure

(all figures are in US \$ Million)

Year:	1989	1990	1991	1992	1993	1994	1995	1996	1997
Revenues:	1161	1320	1357	1357	1489	1397	1487	1678	1871
Oil	-	-	811	766	920	755	845	1042	1121
Non-oil	-	-	546	591	569	642	642	636	750
Expenditure:	1315	1423	1415	1548	1662	1741	1659	1662	1866
Current	1039	1100	1150	1245	1362	1402	1381	1389	1466
Capital	276	323	265	303	300	339	278	273	400
Surplus/(Deficit)	-154	-103	-58	-191	-173	-344	-172	+16	+5

⁴ Bahrain Monetary Agency- Annual Reports.

3. Bahrain's Banking & Finance⁵

Bahrain's first commercial bank, a branch of the British owned Eastern Bank, opened in 1921. Two decades passed before a second bank, the British Bank of the Middle East, set up an office. It was not until 1957 that the first bank wholly owned by Bahraini citizens - the private National Bank of Bahrain - commenced activities. Prior to 1965, the Indian Rupee had functioned as the most commonly accepted currency for local transactions. The lack of an indigenous currency probably impeded the development of the banking sector. The Bahrain Dinar replaced the Indian Rupee in 1965 and was pegged to the US Dollar @ BD 1 = US \$ 2.65 and remains so to date. Once the Bahraini Dinar was recognised and accepted as a strong internationally convertible hard currency, banks began to find the island a more attractive location; by 1974 fourteen commercial banks operated in Bahrain.

The increase in the number of banks after independence prompted the government to consider creating a central monetary authority to regulate banking activities. In 1973 H. H. Shaikh Isa bin Sulman AlKhalifa, the late Amir, issued a decree that established the Bahrain Monetary Agency (BMA) as a legal entity possessing the powers of a central bank. In addition to its regulatory responsibilities, BMA issues currency, sets the official exchange rates for the Bahraini Dinar, serves as a depository for government funds from petroleum production and its foreign currency reserves, and manages the government's investments.

⁵ *Bahrain Monetary Agency - Annual Reports*

As of end 1997, nineteen full commercial banks, including two Islamic banks operated in Bahrain with a consolidated balance sheet exceeding BD 3 Billion.

In 1975 BMA promulgated regulations for the creation of offshore banking units (OBU's) modelled on those operating in Singapore. OBU's are branches of international commercial banks exempted from foreign exchange controls, cash reserve requirements, taxes on interest paid to depositors, and banking income taxes that are required of other banks in Bahrain. In return for these privileges, OBU's pay the government annual license fees, are prohibited from accepting deposits from citizens and residents of Bahrain and must refrain from transactions involving Bahraini Dinars. The OBU programme has been successful; twenty-six OBU's were established during the first year. The civil war in Lebanon probably stimulated the OBU boom because several international banks based in Beirut transferred their Middle East operations to Bahrain after 1975. By the early 1980's, a total of seventy-five OBU's having assets in excess of US \$ 62 billion were operating out of Bahrain.

Beginning in 1985, falling oil prices and a corresponding decline in oil revenues dramatically reduced the funds deposited in both onshore banks and OBU's. Several banks decided not to renew their OBU licences, resulting in a net loss of OBU's. Nevertheless, a majority of OBU's, including those that are branches of leading United States, Arab, European and Japanese Banks, continue to operate from Bahrain-based offices. As of end 1997 a total of forty-five OBU's operated in Bahrain with aggregate assets/liabilities exceeding US \$ 72 Billion.

Despite the fluctuations in gulf financial markets of the 1980's, Bahrain is well established as the principal banking and financial centre of the Arab Gulf region. 70% of the deposits with OBU's, amounting to US \$50 Billion is denominated in US \$ assets, a relatively small fraction (12%) are denominated in regional currencies, reflecting a strong weightage towards hard international currencies.

4. Bahrain's Industrial Growth ⁶

During 1997, several expansion projects were launched by existing factories, in addition to various new industrial projects. Table No:4 shows the summary of the expansions and various new industrial projects that were undertaken in the Petrochemical and Plastic sectors.

Table - 4
Petrochemicals & Plastics Sector : Projects Implemented
and under Implementation in 1997

Project Name	Investment US \$	Products	Annual Production Capacity	Manpower Added	
				Bahraini	Non Bahraini
Urea (GPIC)	180,000,000	Urea	610,000 tonnes	100	-
Al Romaih Sponge Factory	851,064	Sponge Production	24,000 M ³	8	12
Universal Plastic Factory	1,329,787	Various Plastic Products	1,660 tonnes	5	10
Gulf Power Beat	15,957,447	Car Batteries (50-70 amps)	350,000 units	61	6

⁶ *Oil & Industry 1997, State of Bahrain*

5. Petrochemical Industry - A General Overview

In early days, it was easy to define petrochemicals as they were relatively pure identifiable substances from petroleum and used in the chemical trade. Now conversion processes have advanced in making the original products more complex that depending on the definition and the number of conversions permitted, over three thousand individual petrochemicals have entered the commercial market.

Fundamentally, most organic chemical substances (compounds containing carbon) could be considered petrochemicals. Petrochemicals can also be defined as those chemicals that are derived from petroleum or natural gas products, viz. olefins, aromatics and their first line derivatives.

The first petrochemical (organic chemical) made on a large scale from a petroleum base was Isopropyl Alcohol (ISOPROPANOL) first produced by Standard Oil Company of New Jersey, U.S.A. in 1920.⁷

The Petrochemical business is a diverse one with large product range and indeed it is also a truly global business with strong regional characteristics. Petrochemicals are building blocks between a variety of suitable raw materials and an enormous range of end products used in almost every industry.

a) Global Petrochemical Market

The Organic Chemical Industry worldwide produces about 800 million tonnes of organic chemicals yearly. 90% of these are petrochemicals.⁸

⁷ George T. Austin- Shreve's Chemical Process Industries Vth edition, Page 747

⁸ Organic Chemical Industry - Chemistry and Economics Seminar - Chem Systems

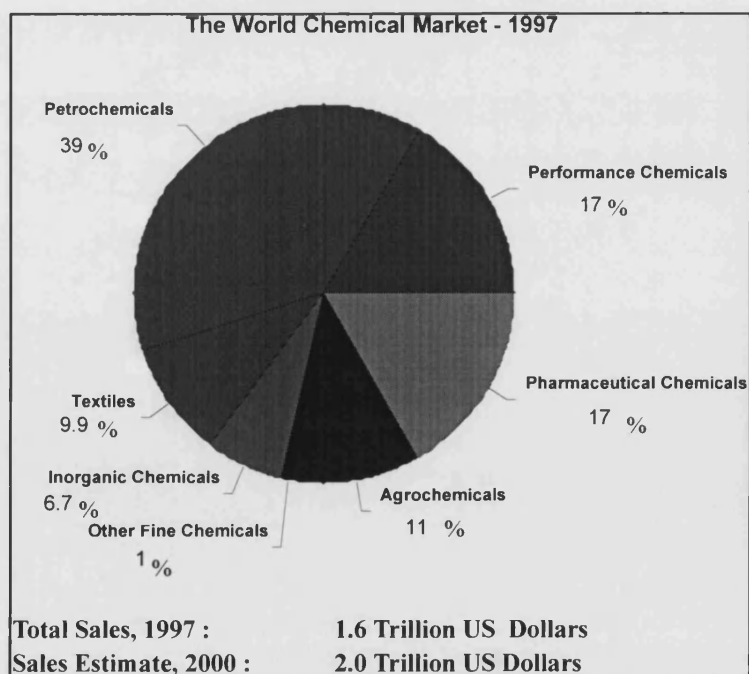
The manufacture of these petrochemicals depends on 7 simple raw materials. These are:-

- *Ethylene, Propylene and C4 Olefins*
which are mostly produced from steam cracking;
- *Benzene, Toluene and Xylenes*
which are produced mostly from catalytic reforming;
- *Methane*
which occurs as such in natural gas

10% of the petrochemical industry depends on Ethylene as a raw material which makes it the most important raw material.

Figure 2 shows how large the petrochemical industry is by having 39% of world chemical market share.⁹

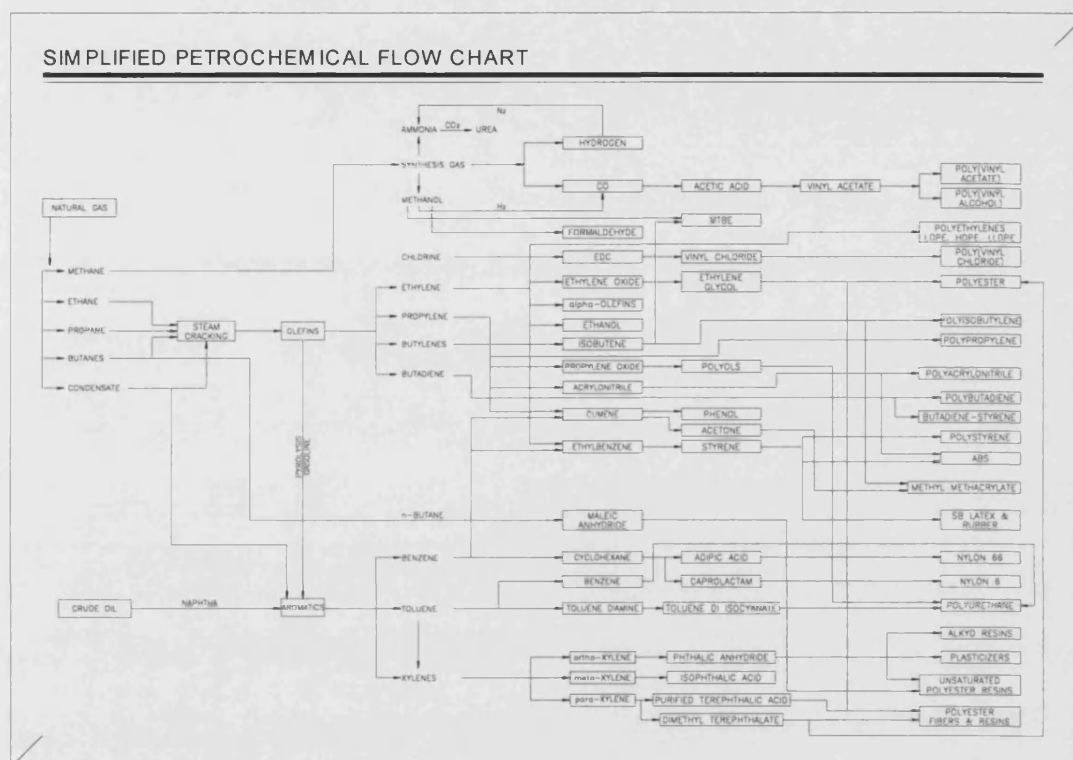
Figure 2



Seminar, May, 1998

⁹ Organic Chemical Industry - Chemistry and Economics Seminar - Chem Systems Seminar May, 1998.

Figure 3



Thus far, the petrochemical industry in Bahrain depends solely on natural gas and hence other raw materials mentioned earlier will not be reviewed for the purpose of this study. Unlike the petrochemical raw materials, which have to be processed, Methane¹¹ is the only one which occurs as such in the natural gas. Only 6% of the available natural gas is used as a feedstock for the petrochemical industry.

11

The most important use for Methane is the conversion to synthesis gas (carbon monoxide & hydrogen) which provides the raw material for a number of petrochemical products as under:

c) Natural Gas in the Middle East : Development Prospects¹²

At this stage it is also worth shedding some light on the prospects of the development of natural gas in the Middle East, since it has direct bearing on the development of the petrochemical industry in this region. The Middle East, the world's second ranking area in gas resources, holds about one-third of the world's gas reserves. However, marketed production currently represents only about 7.4% of the world total.

Although gas accounts for a 35 to 40% share of the energy balance, gas resources in the region are under utilised. Apart from the chemical sector, which has provided a good outlet for natural gas, the development of gas resources in the region has been very limited historically, inhibited by many factors linked to the resource itself and to the characteristics of the region. Judging by the growing activity currently taking place in the region (field developments, expansion of gathering and processing facilities), natural gas is now increasingly becoming a major contributor in the industrial and economic development of most Middle Eastern countries generally, and the Arabian Gulf Countries specifically. The Near East region in particular is an area which has significant growth potential for natural gas and which is stimulating the need and the opportunity to develop and establish an industry. This expansion is moving at a rapid pace

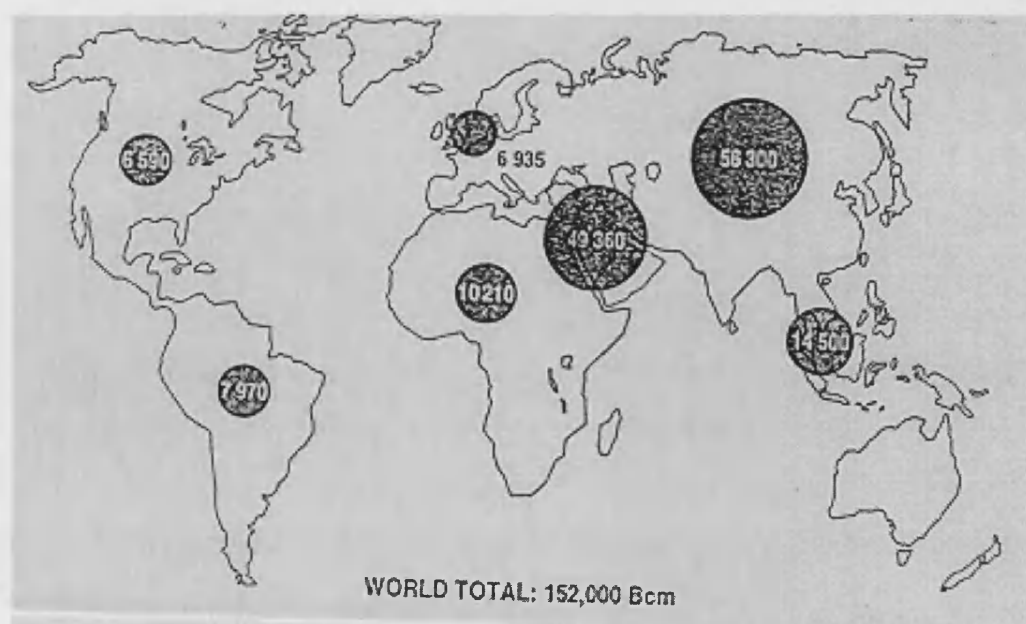
¹² *Autumn Meeting of the IFA Production & International Trade Committee Amman (Jordan) 18-19, 1998*

and is primarily driven by the demand for efficient and environmentally clean energy. This emerging market will be characterised by the emergence of regional gas pipelines and LNG receiving terminals, which in turn would enhance the development of the petrochemical industry in the region, thus increasing competition and the need for a competitively operated plant.

d) A huge and untapped gas potential

It is worth noting that the Middle East, ranking second only to the CIS with about $49,400 \times 10^9 \text{ m}^3$, holds 32.5% of the world's natural gas reserves. The ratio of proved reserves to production indicates that, at the current production rate of $224 \times 10^9 \text{ m}^3$, Mideast reserves could last about 220 years, i.e. almost 4 times the world average of 59 years. The ultimate remaining natural gas resources in the region (including proved gas reserves) are believed to be $120 \text{ to } 150 \times 10^{12} \text{ m}^3$. These figures underscore the level of gas available in the region as shown in Figure 4.

Figure 4



(proved natural gas reserves in the world - 1.1.1998 (10^9 m^3))

The bulk of Mideast gas reserves is concentrated in about ten supergiant fields (over 10^{12} m^3), out of twenty-five or so on our planet. For instance, the North Dome Field (or North Field), straddling Qatari and Iranian waters, is the world's largest known non-associated gas field, with proved reserves in excess of 10^{12} m^3 . On the Iranian side, the extension of the North Field is named South Pars and holds $6.8 \times 10^{12} \text{ m}^3$ of recoverable reserves. Other supergiant gas accumulations in the region include the North Pars field ($1.4 \times 10^{12} \text{ m}^3$) and Kangan ($1.4 \times 10^{12} \text{ m}^3$) in Iran, as well as Ghawar (about $2 \times 10^{12} \text{ m}^3$) in Saudi Arabia. All this data reinforces the researchers opinion that the petrochemical industry in the region would further flourish and thus a case study of such an industry, represented in this case by a study of GPIC, would have a significant use in determining the factors that would ensure sustainability of this industry in the region.

It seems very likely that the potential for the discovery of new large gas accumulations and especially significant volumes of non-associated gas is still high. An upward reassessment of the region proved that ultimate potential is perfectly likely in the coming decades. Several factors highlight this point:

- ♦ The region ranks high among the world's sedimentary basins for its oil and gas resources,
- ♦ It has a very low exploratory drilling density (10 times less than Western Europe)
- ♦ Geologists consider deep drilling, more likely to find gas, a very favourable development in gas exploration, and this activity is relatively new in the region.

So far, the slow pace of investment has limited the expansion of gas in the Middle East. Although gas represents already an average 35 to 40% share of the energy balance, the potential is under utilised and there is no similar disparity between large proven reserves and such limited development anywhere in the energy world. The reason is of course that the gas fields, which were discovered in the search for oil and especially in the case of non- associated gas fields, were not seen as economic assets for export purposes due to both technical and cost problems. Also at the time, in many cases, indigenous outlets were underdeveloped or non-existent.

Over the past decade, marketed production more than doubled mainly as a result of the expansion of the local market. In 1997, it reached a volume of $170.8 \times 10^9 \text{m}^3$, accounting for only 7.4% of world production. Although progress still remains to be achieved, the utilisation rate of production has been improved steadily and amounts to 67%, compared to the world average of 84%. This increase in utilisation rate reinforces the fact that more and more natural gas will be diverted into the industrial sector instead of simple flaring as was done in the past.

During the researcher's study of the documents referred to earlier, the data shows that the share of natural gas consumption in the energy mix has been increasing as a result of the policy adopted by oil producing countries to expand its utilisation in order to free more oil products for export. Due to the unequal distribution of gas resources among the region, natural gas constitutes the dominant source of energy in some countries while others almost ignore its use. In two countries of the Gulf region (Qatar 88% and Bahrain 87%) the shares of gas in total primary use are the highest in the world.

On a sectorial point of view, consuming sectors differ basically from those in the rest of the world since energy and power generation sectors take most of the gas, whereas these two sectors account for only about 40% of worldwide gas consumption.

In the Middle East, gas is used mainly in power generation and desalination plants (32.1%), the energy sector (26.3%), in the industry (26.5%) and as feedstock in petrochemicals and fertiliser production (10.1%). Until now, natural gas has not significantly penetrated the commercial/residential sectors (5%) because of the lack of gas transportation and distribution networks. A mere 10.1% as feedstock in the petrochemicals and fertiliser production in no way can be regarded as an optimum use of the natural resources of this region. During the course of the research, it has been recorded that in the last two decades, the Arabian Gulf countries have developed large Ammonia and Methanol capacities, based on the availability of natural gas as feedstock. Today, this industry which is concentrated in the hands of a small number of multinational companies, accounts for 10.1% of gas consumption. In Saudi Arabia, substantial growth is expected in this sector to at least $16.5 \times 10^9 \text{m}^3/\text{year}$, from about $11.4 \times 10^9 \text{m}^3/\text{year}$, at end of 1997. Large methanol facilities are operational at Jubail, the major industrial city in Saudi Arabia, and the building of an additional large-scale methanol plant is under construction there.

While other countries in the Arabian Gulf (Abu Dhabi, Oman and Qatar) also develop their petrochemical industry, the surge in gas demand in the Near East countries is likely to be more limited due to the lack of indigenous resources and relatively high gas import prices.

As pointed out in the earlier part of this chapter, in the region as a whole natural gas is still a young energy source which has a good market penetration outlook. As such, many opportunities exist for Middle East gas development for use as feedstock for the petrochemical industry.

It is also important to note some historical perspective information on petrochemical development in the world, in order to appreciate the relevance of this case study. The world petrochemical production and business was almost totally in the hands of USA, Western Europe and Japan during the 1960's and 1970's. Their success was based on:

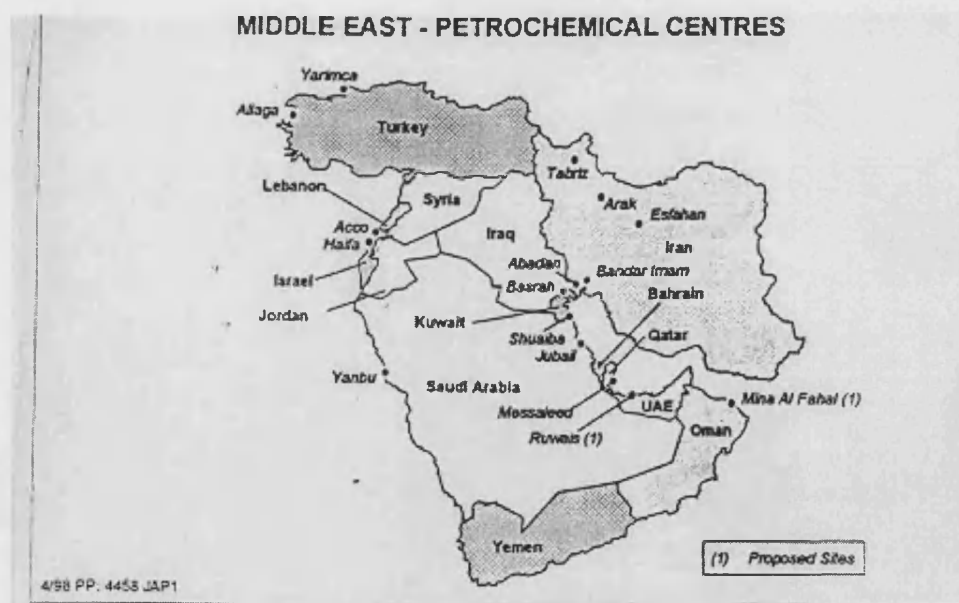
- Large domestic market base
- Access to modern technology
- Economy of scale operation
- Effective sales and distribution
- Supply to other regions to some extent

During the early 1980's the first predominantly export-oriented petrochemical projects were developed in the Middle East. Hydrocarbon feedstock costs in the industrialised regions were at such high levels, as a result of the 1973/74 oil embargo and the political events that subsequently followed in the oil industry, which resulted in the variable cost (cost of raw material) dominating the economics of commodity petrochemical production.

Abundant reserves of feedstock and its relatively competitive companies, accounted for the competitive advantage in the petrochemical business in the Middle East generally and the Gulf countries specifically and took away some share of business from the main industrialised nations in the Commodity Petrochemicals Sector. The Middle East has established itself over these years as the dominant, reliable and relatively low cost supplier of the World Commodity Petrochemical markets.

Therefore, the main driver behind the development of petrochemicals in the Middle East has, ofcourse, been hydrocarbon feedstock availability.¹³ The locations of the petrochemical centres in the Middle East are mostly around the Arabian Gulf region as shown in figure 5:

Figure 5



¹³ *Creating Value - Chem System Annual Planning Seminar - May 1998.*

e) Ammonia Industry

A brief description of manufacturing details of a typical Ammonia¹⁴ plant follows with highlights of their uses as well, since these products constitute the products produced by the company relevant to the case study.

Ammonia (NH₃) is one of the most important basic chemicals of the world and the basis of nitrogen chemistry, i.e. of the compound from which nitrogen fertiliser is made. Without a continued increase in the manufacture of Ammonia and, concurrently, nitrogen fertiliser, the world's crop land will not be capable of keeping up with the population increase.

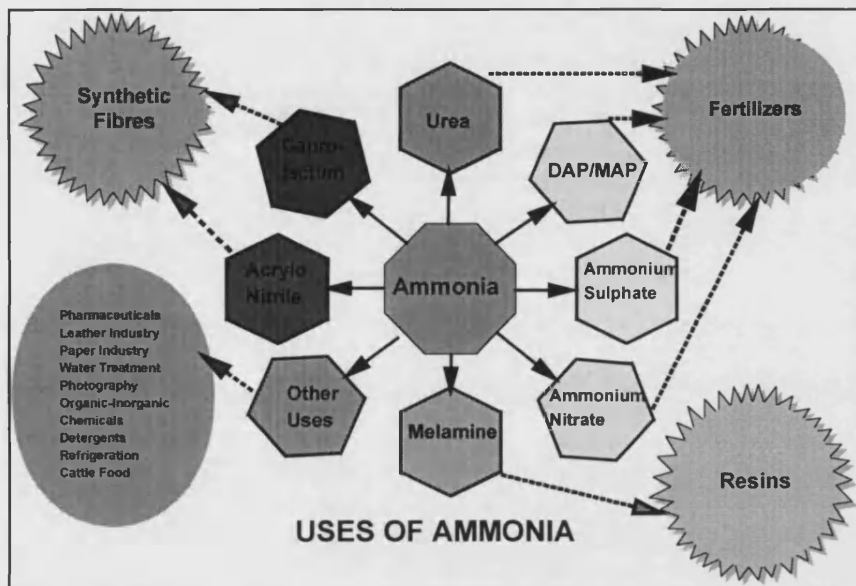
Ammonia is a colourless gas at atmospheric temperature and has a pungent, penetrating odour. This is fortunate, as the gas is both toxic and explosive. There is no cumulative toxic effect as for poisonous gases in general, but there is burning effect on tissue. Breathing air containing 5000 parts per million (ppm) by volume of Ammonia can cause death by suffocation.

Ammonia is normally shipped and stored in the liquid form. Since the liquid has fairly high vapour pressure at ordinary temperatures, high pressure containers are normally used for storage of small to intermediate quantities. For large quantities, the Ammonia is usually stored or shipped at atmospheric pressure, the Ammonia being allowed to boil and the escaping vapour converted back to liquid, this process is referred to as refrigeration process. The Ammonia under such conditions would normally be at - 33°C.

¹⁴ *Introduction to Gulf Petrochemical Industries Company - issued by GPIC Training Centre - May 1999*

The uses of Ammonia are shown in Figure 6.

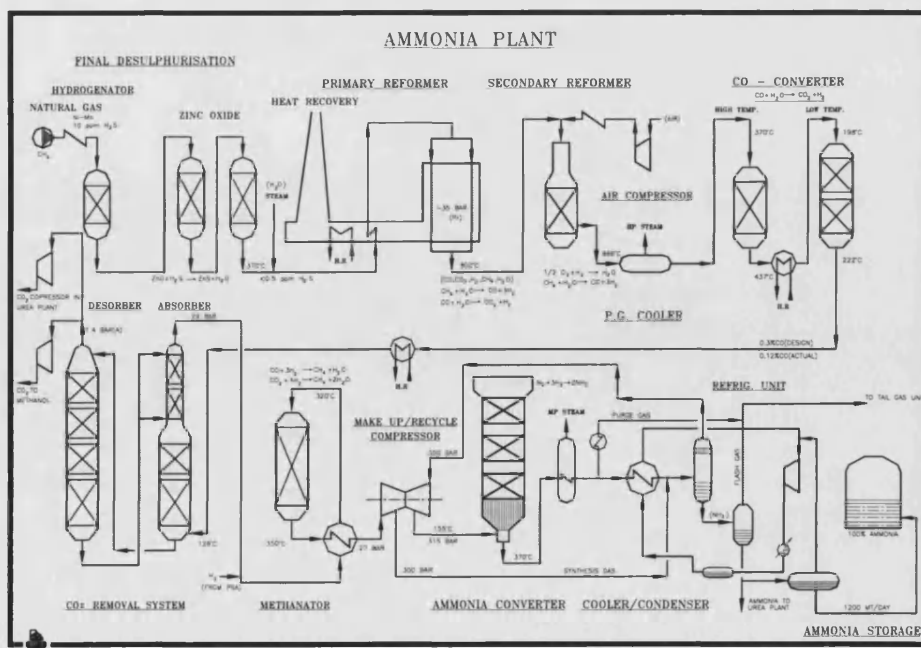
Figure 6



Ammonia is manufactured by using natural gas as feed .

The process steps are shown below in the Process Flow Diagram, Figure 7.

Figure 7



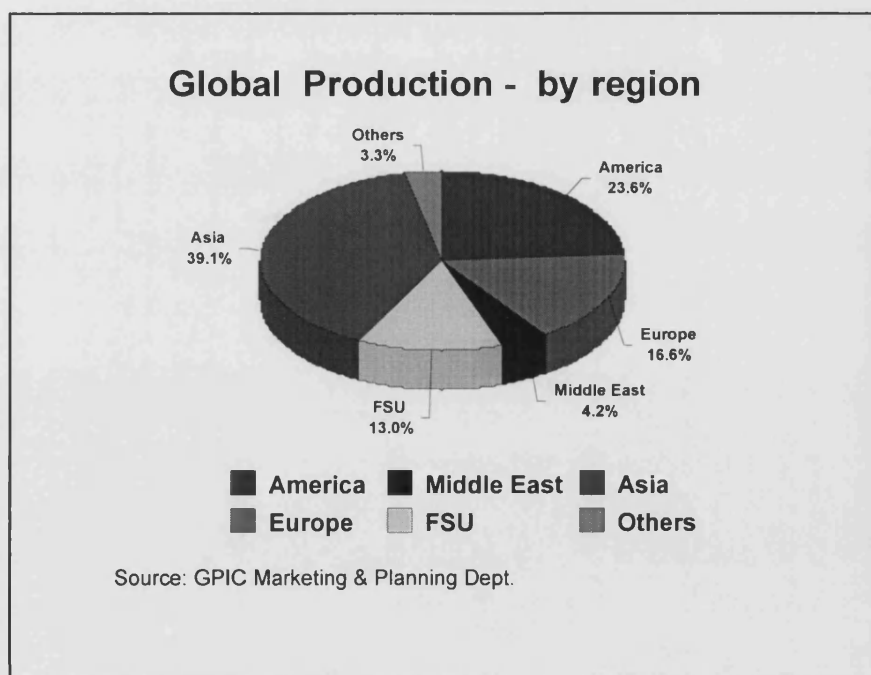
f) Ammonia Production and Trade¹⁵

In this section the production and export of Ammonia will be discussed. Both, the production and export of this product are spread over a wide global area and in view of the fluctuating demand and supply situation in each country, the prices do not follow any specific pattern nor can they be influenced by any single producer.

Ammonia is a significant commodity in the world trade, and current production is around 120 million tonnes, of which 90% is consumed domestically and 10% is exported worldwide.

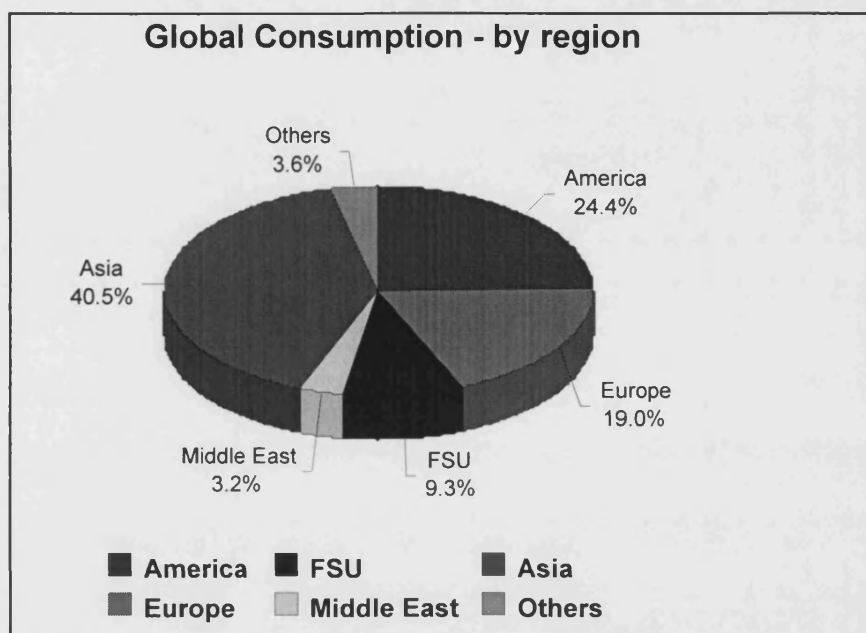
Region-wise Ammonia production & consumption¹⁵ is as per Figures 8 (a) and 8(b) below:

Figure 8 (a)



¹⁵ Source : GPIC Planning and Marketing Department (1997)

Figure 8 (b)



Compared to the volume of global production, GPIC's production, which was 100% exported, ranged from 0.35 million tonnes in 1986 to 0.44 million tonnes in 1997. Year-wise comparative figures are furnished in Figure 9(a) and 9(b) below:

Figure 9 (a)

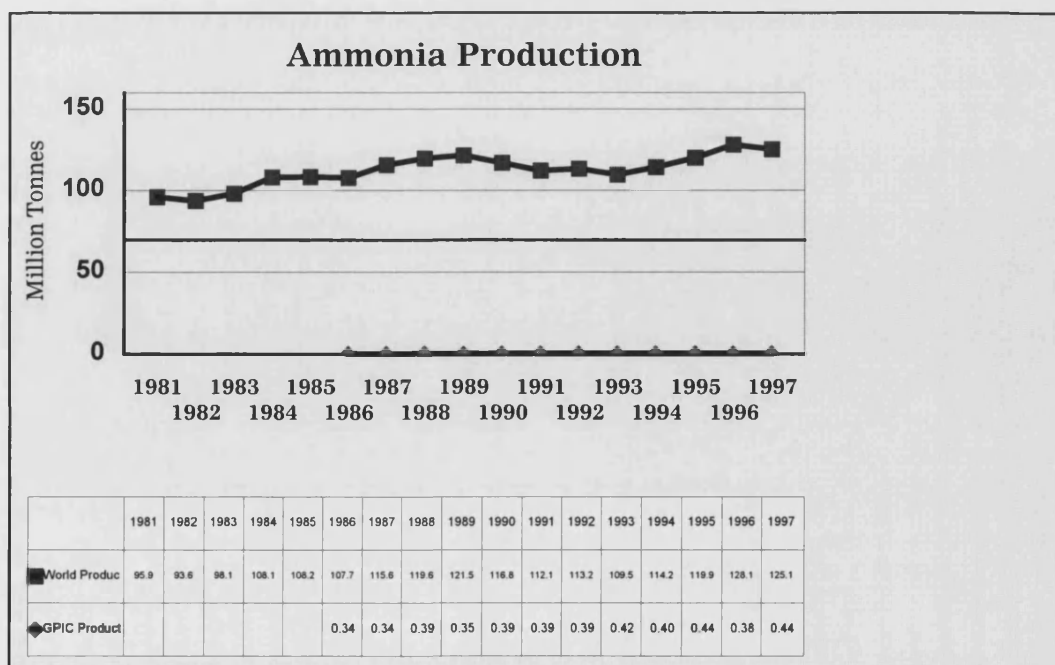
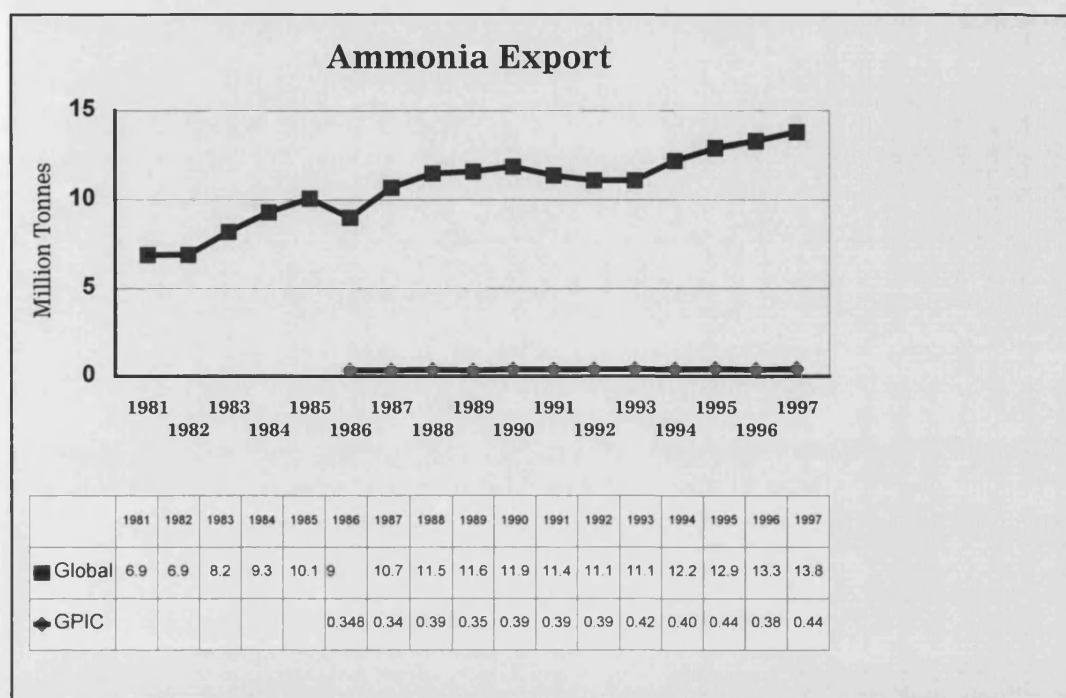


Figure 9 (b)



As against global export volumes of 9 to 14 million tonnes per annum between 1985 and 1997, GPIC's export volumes range from 0.35 to 0.44 million tonnes, representing about 3.5% of the global exported market share. This indicates that GPIC cannot have an influence on prices as Ammonia is an international commodity with a wide range of markets and production facilities.

Region-wise global exports of Ammonia as compared to those of GPIC are as per Figures 10(a) and 10(b) below :

Figure 10 (a)

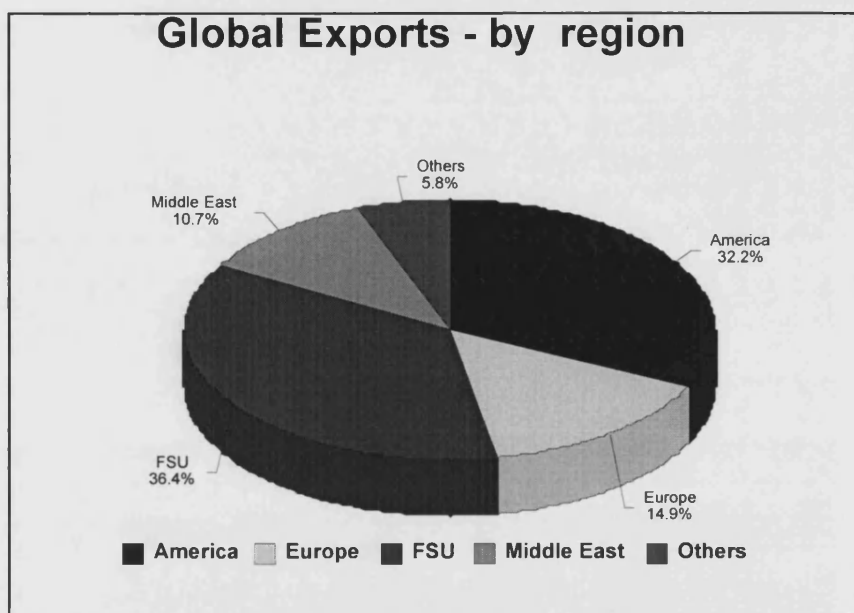
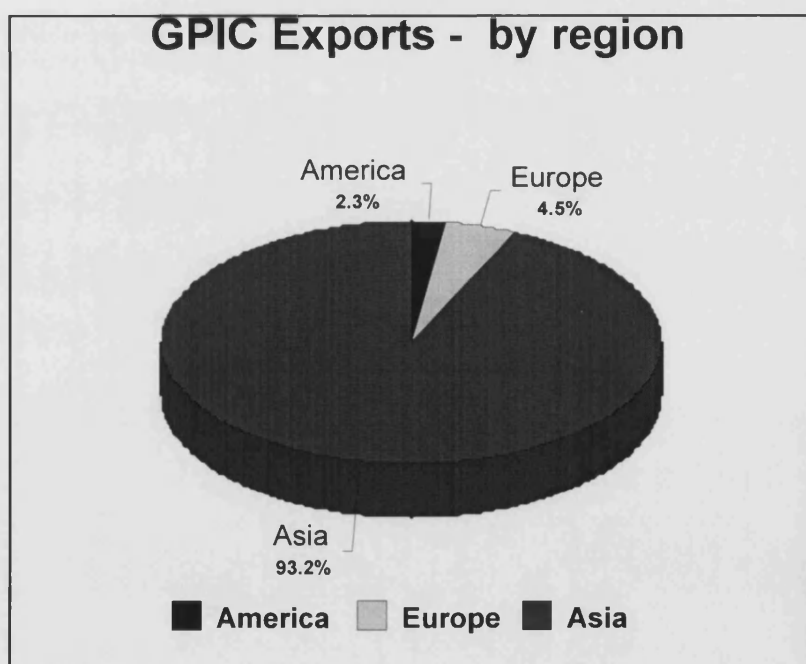


Figure 10 (b)



From the aforesaid region-wise distribution for exports, it is evident that in view of the logistics, GPIC's market for Ammonia was predominantly in the Asian region, mainly to India, Jordan and to some extent in the Far East.

The US Gulf Coast prices (C&F) serve as the benchmark for international Ammonia price trend ¹⁶ as per Figure 11 below.

Figure 11



Figure 11 illustrates that the Ammonia prices, which were robust during GPIC's construction phase 1981- 1984, increasing to as high as US\$ 206/MT in 1983, dropped to US\$ 94/MT when GPIC commenced commercial production in 1986 and remained low for several years.

It should be noted that GPIC revenues and prices quoted in the study are significantly lower than the aforesaid international prices, because GPIC reckons its revenues at the international sales price less freight, insurance and finance charges.

Global system of sale of Ammonia product: Ammonia is sold mostly on spot market basis and partly through periodical contracts.

¹⁶ Source : GPIC Planning and Marketing Department (1997)

Ammonia is mostly sold through spot market due to the buyers and sellers storage limitations. The transactions are done through tenders as well as sales negotiations.

Contract sales occur when buyers and sellers agree for supplies of large volumes over an agreed period. The shipments under such contract sales are made either on fixed price, or price based on a certain formula, normally linked to the prevailing price in the spot market at the time of actual shipment. In some countries the government appoints a single agency for buying and distributing the product within that country. However, in most countries the actual user imports Ammonia directly from the manufacturer or from major traders/agents who are big corporations having a global presence, such as:

- Helm, Germany
- Transammonia, France
- Mitsui and Marubeni, Japan
- Norsk Hydro, Norway

Contracts are finalised on tender basis for volumes ranging from 10,000 to 35,000 tonnes. Individual shipment sizes are normally 10,000 to 15,000 tonnes. Payments are mostly through 'letters of credit' and 'cash against document'. Prices are quoted either FOB, CFR or CIF.

In the case of most shipments exact technical specification of the product is stipulated by the buyer and the seller is required to produce an independent surveyor's certificate to confirm the quality and quantity of the product shipped. In view of the specific nature of the Ammonia product, shipments have to be made in dedicated fully

refrigerated vessels (to ensure temperature is maintained at about -33°C).

g) Methanol Industry

This section contains a brief description of the manufacturing details of a typical Methanol Plant together with major end uses of the product, as well as production and trade.

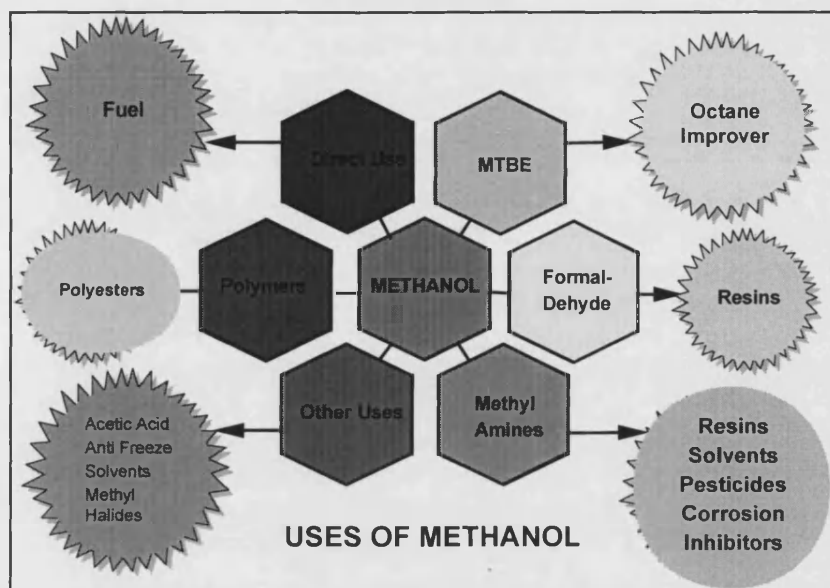
Methanol¹⁷, also known as methyl alcohol, is a clear liquid with a pungent odour at ambient temperature. It is the simplest of a long series of organic compounds called alcohols, its molecular formula is CH₃OH.

For many years, the largest use of Methanol (about 50% of all produced) was a feedstock in the production of formaldehyde. It is now also used in the production of acetic acid, methyl-tertiary-butyl ether (MTBE) and oxinol, which are used to improve gasoline octane as well as other chemical intermediates. Methanol is also used as a solvent and in the production of a single-cell protein which is used as animal feed additive. The maximum permissible concentration of Methanol vapours in air is 200 ppm and, when handling the liquid, proper protective equipment must be used to avoid any contact with the skin.

¹⁷ *Introduction to Gulf Petrochemical Industries Company - issued by GPIC Training Centre - May 1999*

Various uses of methanol are shown in Figure 12 .

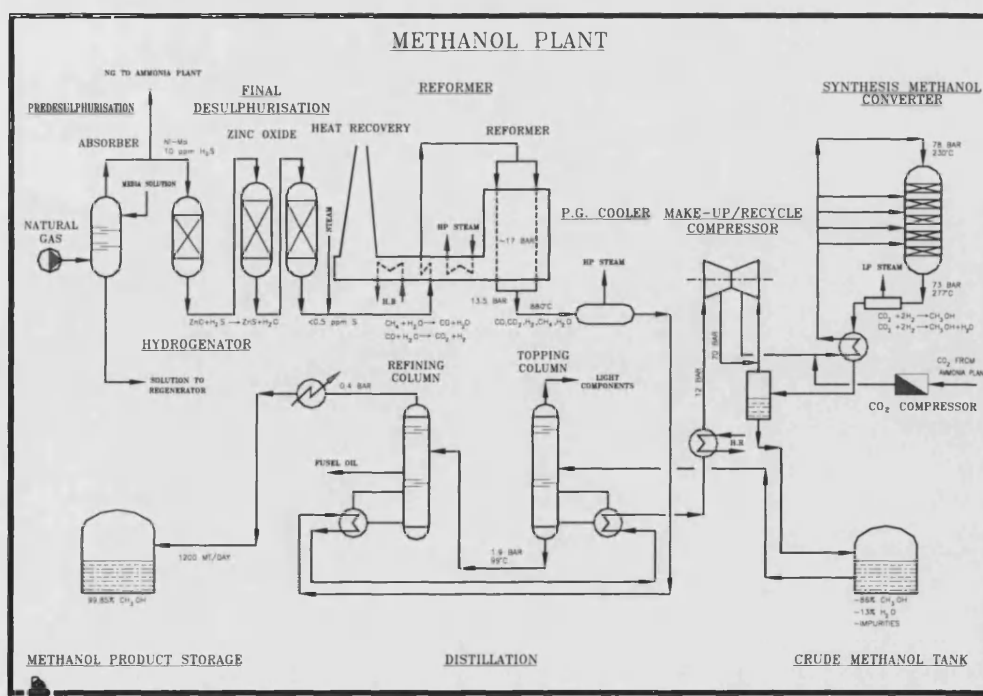
Figure 12



Methanol is manufactured by using natural gas as feed.

The process steps are shown below in Figure 13 .

Figure 13



h) Methanol Production and Trade ¹⁸

The global production capacity for Methanol was 14-16 million tonnes between 1980 and 1985. In 1986, when GPIC came onstream, the world capacity increased to 20 million tonnes and by 1997 it had increased further to 32 million tonnes. This represented a 100% increase in capacity over a period of 10 years. The global exports, which were around 5 million tonnes during 1981-85, increased to 6 million tonnes in 1986 and have steadily risen and doubled to 12 million tonnes in 1997. The balance quantity produced in these years was consumed locally.

In the overall context, GPIC's annual Methanol production of 0.4 million tonnes similar to Ammonia export mentioned earlier which is 100% exported, represents a fraction of the global market share and as such GPIC could not exert any significant influence on the market prices. This fact is very clearly evident from Figures 14 (a) and 14(b) below:

Figure 14(a)

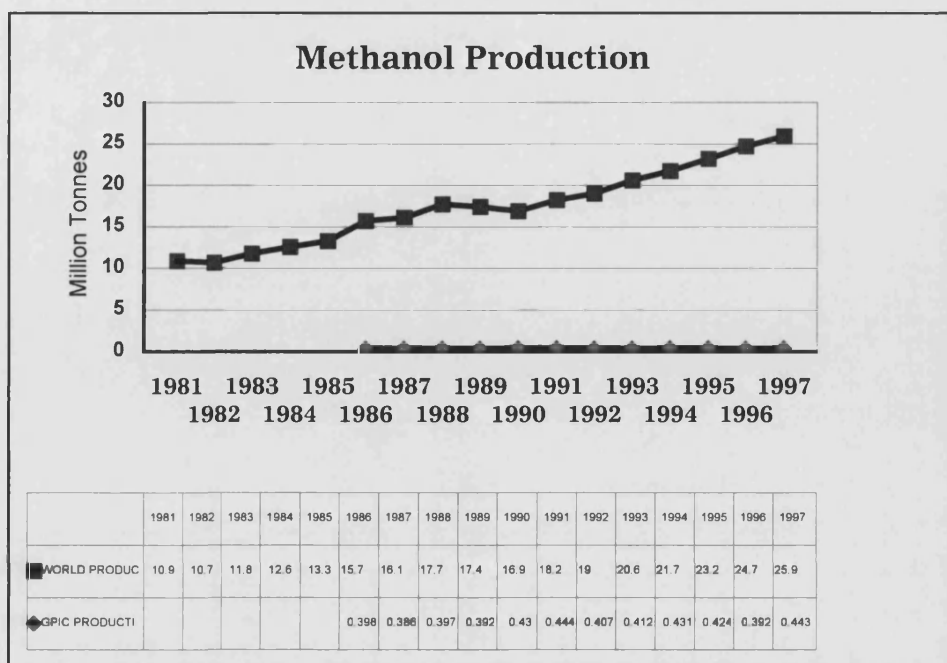
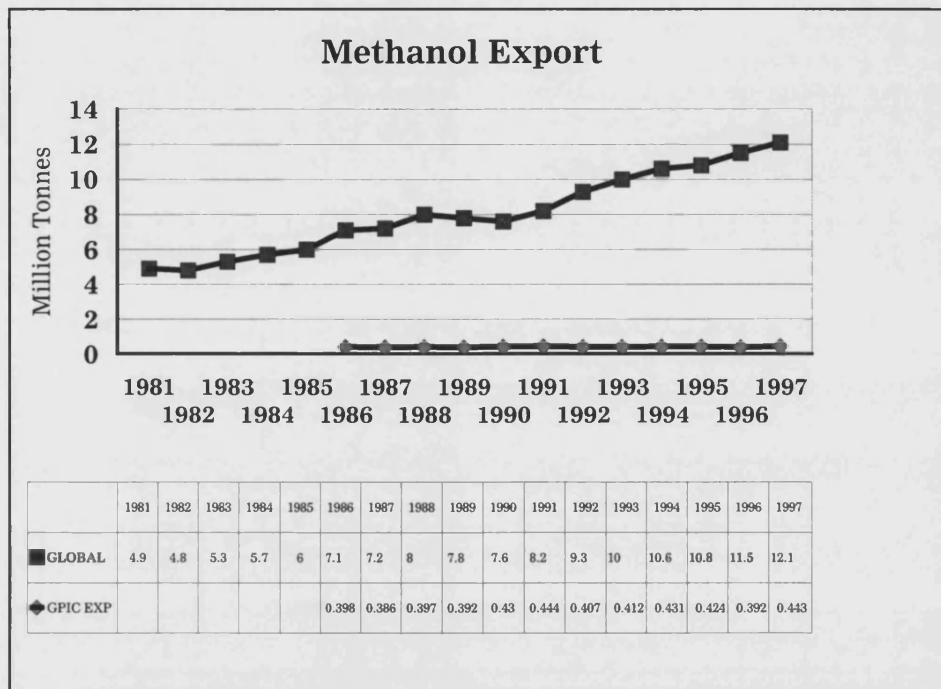


Figure 14(b)



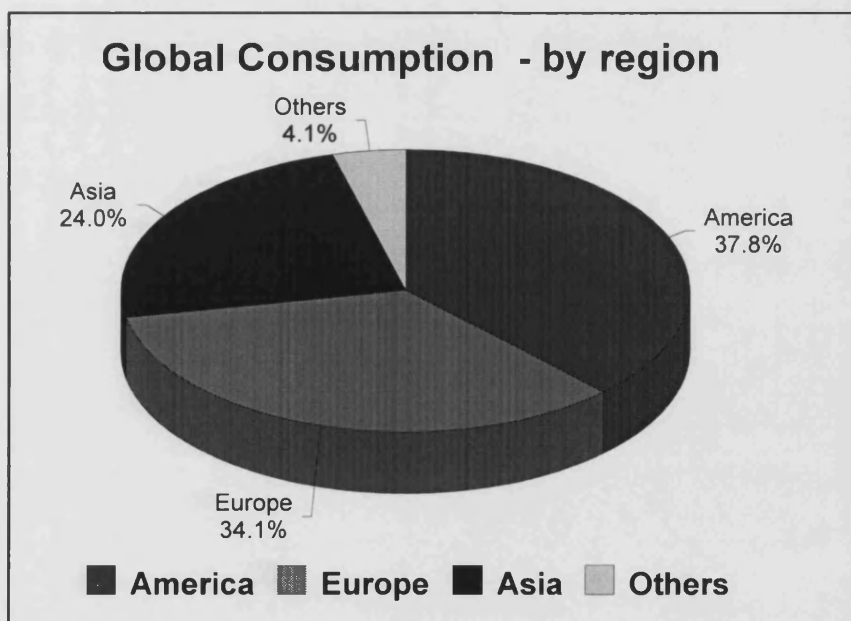
The dynamics of the world Methanol market changed significantly from the time GPIC came on-stream as the market experienced a major shift in the supply/demand balance. Apart from the capacity additions, market imbalance was also created by a shift in the demand for major Methanol derivatives such as MTBE, Formaldehyde and Acetic Acid. As a consequence the prices have continued to be volatile .

The region-wise Methanol production & consumption is as per Figures 15 (a) and 15(b) below:

Figure 15(a)



Figure 15 (b)

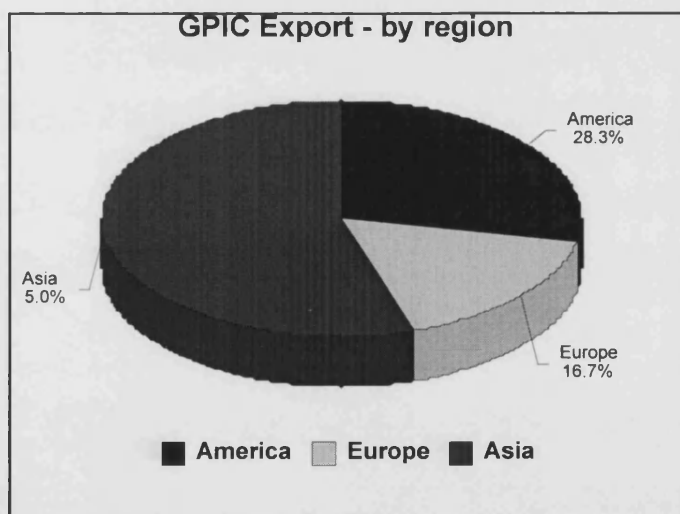


Region wise share of global exports of Methanol as compared to that of GPIC are as per Figures 16 (a) and 16 (b) below :

Figure 16(a)



Figure 16(b)



Global system of sale of Methanol product: Methanol is sold mostly on spot market basis and partly through periodical contracts.

Methanol is mostly sold through the spot markets at Rotterdam, New York and Singapore. Most sellers have their transit storage arrangements at these places to ensure ready availability of the product. The prices are determined through free market forces.

Contract sales occur through a large number of traders involved in these Methanol markets. Most Methanol suppliers have their sales offices in important markets and remain in touch with traders for opportunities in spot/contract sales. The major suppliers who control the market trend are giant corporations such as Methanex of USA and Saudi Basic Industries Company (SABIC) of Saudi Arabia.

The shipments under contract sales are made almost entirely on CIF basis. The prices are either on fixed price, or price based on a certain formula, normally linked to the prevailing price in the spot market at the time of actual shipment. The quality requirements are very stringent, necessitating the use of sea tankers on time charter basis. The majority of these vessels are owned/controlled by the major manufacturers/traders such as SABIC, Methanex and Mitsubishi Gas Chemicals.

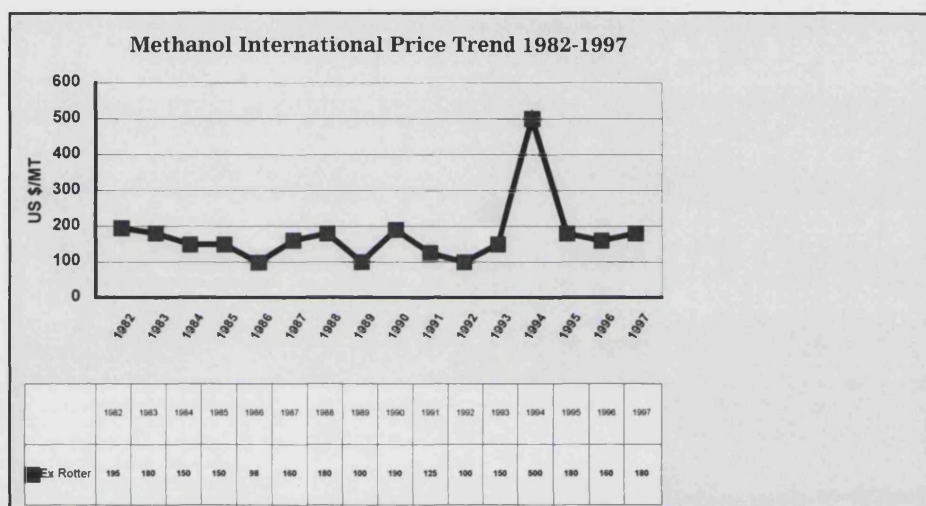
Contracts are finalised on tender basis for volumes ranging from 10,000 to 35,000 tonnes. Individual shipment sizes are normally 10,000 to 20,000 tonnes. Payments are mostly through 'letters of credit' and 'cash against document'.

The benchmark for world prices for Methanol is ex- Rotterdam. A significant portion of GPIC's Methanol is shipped for sale in the Rotterdam spot market and the balance is sold in the open market. GPIC's CIF prices have generally followed a trend that is consistent with the international prices. It is evident from Figure 17 below, that international Methanol¹⁹ prices which were between US\$150-200/ MT

¹⁹ Source : GPIC Planning and Marketing Department

during GPIC's construction period 1981-84, slumped to below US\$100/MT when GPIC came onstream in 1985-86 and remained at low level for several years. Corresponding revenues for GPIC in the form of netbacks would be significantly lower than the ex-Rotterdam prices on account of the cost of freight and insurance incurred.

Figure 17



***NB:** It is worth noting that the unusual increase in Methanol Prices in 1994 was due to unexpected shortage in availability of adequate export quantities of Methanol on account of a number of reasons, the main one being a number of technical problems and shutdowns.*

From the above it is clear that the products that GPIC produces, namely Ammonia and Methanol, are international commodities with wide spread production facilities located in different parts of the world. Thus, the prices fluctuate based on supply and demand and GPIC of course has no control over this. Therefore, GPIC has to look for creative and innovative approaches in order to utilise its resources effectively and meet competitive challenges. This study illustrates how that was achieved.

Chapter Three

History of GPIC's Development

This chapter deals with the history of GPIC's development and will give a narrative story of the progress of the company since inception with emphasis over the past ten years, being the period under study. This is important for setting the scene for the study and putting various managerial actions and functions in the right context. Statements and claims will be substantiated by facts and figures in subsequent chapters.

1. Formation of GPIC

Gulf Petrochemical Industries Company (GPIC) is Bahrain's first venture into the petrochemical field. It was formed on 5 December 1979 as an equal partnership between the Government of Bahrain, Saudi Basic Industries Corporation (SABIC) and Petrochemical Industries Company (PIC), Kuwait with an issued and paid up capital of BD60million (US\$ 160 million). The objective was to utilise Bahrain's natural gas for the production of basic petrochemicals and contribute to the natural economic development of Bahrain.

The company is headed by the Chairman of the Board of Directors consisting of nine directors nominated equally by the three shareholders. The Chairman is a Bahraini Minister. The positions of Vice Chairman and Managing Director are occupied by directors from Kuwait or Saudi Arabia, such positions alternating every three years. The overall responsibility for the safe, reliable and economic operation of the business is delegated to the General Manager, who in this instance also happens to be the researcher. The day to day operations

are carried out via the executive management headed by the General Manager through the delegated responsibilities of functional managers who form the Executive Management Team.

GPIC's first project was the construction of a petrochemical complex at Sitra on the northeast coast of Bahrain. A site, 600,000 square metres was reclaimed from the sea to install GPIC's Ammonia and Methanol process plants with a design capacity of 1000 tonnes per day of each product together with the relevant utilities, loading/export facilities, warehouse, workshop, technical and administration buildings.

The construction of this phase was completed in 1985. GPIC then embarked upon a debottlenecking project for enhancing the design capacity of both Ammonia and Methanol plants to 1,200 tonnes per day for each product. This was achieved in mid-1989.

Having successfully established and sustained its operations in the field of Ammonia and Methanol, an expansion/diversion was the next logical step.

GPIC was seeking such opportunities for downstream diversification, which would not only embody added value for economic viability, but would also meet with its strategy of providing a degree of insulation against safety and security risks. The potential risk in storing and handling a hazardous chemical like liquid Ammonia in large volumes (40,000 tonnes) was highlighted during the Gulf war. A downstream project such as Urea made sense, because it would use up the bulk of Ammonia produced and all the carbon dioxide (CO₂) available from the process stream to convert into Urea. The resultant product Urea would be in a granular form which is much safer and easier to store and

handle. Furthermore, the Urea project would add substantial value to the Ammonia product without commensurate increase in variable cost (since both Ammonia & CO₂ were available in-house).

Accordingly, GPIC constructed a granulated Urea plant during 1996/1997 with a design capacity of 1,700 tonnes per day, with the twin purpose of adding value and minimising security hazards. The Urea plant was commissioned successfully in early 1998.

2. Growth of GPIC

In general terms, the growth of an organisation can be viewed from the perspectives of:

- i) shareholders
- ii) stakeholders (such as bankers, insurers, etc.)
- iii) employees
- iv) customers (marketing partners)
- v) vendors
- vi) society and the State of Bahrain

Various parameters can be applied to assess the growth performance of GPIC from inception up to end 1997 as viewed from the above perspectives.

The owners (shareholders) are primarily concerned about the security of their investment. In GPIC's case, having invested US\$ 160 million in 1979/80, their net worth rose to US\$195 million as on 1 January 1986, the date of commencement of commercial production. However, due to poor revenues during the initial period of operations and the consequent accumulated losses, the net worth plummeted to as low as

US\$131 million, representing an erosion of 30% (from the date of commencement of commercial production). Consequent upon change in the management style and culture, a motivated workforce emerged and together with an upward swing in revenue prices, a progressive growth in profits was sustained. By the end of 1997 the net worth had increased to US\$371 million, representing a significant leap. From the shareholders' point of view, this reflected an extremely comfortable position, especially when taking into account a cumulative dividend payout of US\$75 million by the end of 1997. In addition, today the shareholders have a state of the art plant that is in an immaculately maintained condition to operate at optimum levels. It is worth noting that this statement about the condition of the plant is made after the researcher had made visits to similar plants worldwide including, United States of America, United Kingdom, France, Austria, Germany, Italy, Saudi Arabia, Kuwait, Egypt, Jordan, United Arab Emirates, Qatar, India, China, Japan and Australia.

From the bankers' point of view, the initial turbulent period of cash flow deficits must surely have posed doubts as to GPIC's ability to service their loans. However, the debt rescheduling exercise gave them confidence that with the change in management style and organisational culture, GPIC would honour their obligations. GPIC not only repaid its debts on schedule dates, but whenever the cash flows permitted, it prepaid a portion of the debts. This financial prudence and professionalism has enhanced the credibility of GPIC in the banking community. This later stood GPIC in good stead when it approached the banking community to seek a US\$ 110 million facility to finance the Urea project in 1995. Bankers were amenable to lending on terms favourable to GPIC.

Employees were also beneficiaries to growth in GPIC. During the initial period of cash flow deficits and losses, and the then prevailing management style and culture, there was despondency and low morale among the employees. Financially there was no incentive due to stagnant salaries and no foreseeable increments or benefits. The employees were not even assured of job security. However, a change in management style and culture saw the work environment improve, job satisfaction increase and a motivated workforce operating the plant at optimum level of efficiency. This together with improved revenues resulted in improved profitability and consequent rewards to employees in the form of annual merit increments, bonus and other benefits, not only in terms of emoluments but also in terms of job satisfaction, training, career growth, enhanced professionalism and a workman's pride.

With a view to tap the synergy of joint marketing, GPIC had entered into agreements with its Saudi and Kuwaiti shareholders to market its entire production of Methanol and Ammonia, respectively. Their marketing task was rendered easier by GPIC sustaining a continuously high level of uninterrupted production (thereby ensuring smooth shipping schedules) while maintaining a consistently high quality of product (thus avoiding customer complaints).

During the initial period of commencement of production, deficits in cash flows posed problems in repayment of bank loans as per schedule, finally resulting in a default. This necessitated rescheduling loan repayment with banks and such an exercise made a dent in the credit worthiness of GPIC in the market. This together with GPIC's inability to make settlement of payables to vendors (including heavy gas and power bills) on due dates, resulted in unfavourable terms being offered

by vendors. Consequent upon the above mentioned changes in profitability and cash flow situation, GPIC recommenced timely settlement of vendor dues, thereby restoring its reputation in the market place.

As far as the State of Bahrain was concerned, GPIC was established with the primary purpose of using its natural gas resources to add value and boost exports for earning valuable foreign revenues for the country. GPIC met this objective. From inception to end 1997, GPIC added value to the natural gas supplied to it, by converting it into Ammonia and Methanol, thereby earning revenue in excess of US \$ One Billion. Since virtually all revenues were through exports, this amount was a significant addition to Bahrain's foreign exchange reserve.

The secondary but important purpose of establishing GPIC was to provide employment for the local workforce. During the turbulent period between 1985 to 1987, the proportion of Bahraini employees was very small, 47% as at end 1987. However, subsequent to the turnaround, Bahrainisation was given a thrust and by end of 1997 it stood at 74%. This Bahrainisation factor should be viewed not merely as numbers but also in the quality of input in the form of training, expertise and job satisfaction which has given GPIC a high calibre of Bahraini employees.

Further, successful GPIC operations and expansion has generated substantial business for the local economy. This has not only boosted trade and commerce in Bahrain, but has also generated incremental indirect employment of Bahrainis through contractors and vendors.

It is a fact that higher revenues per tonne contributed to the turnaround in GPIC's profitability. However, it must be noted that in order to take advantage of the favourable market situation, GPIC had to ensure that its plant operated at optimum capacity, for as long an uninterrupted period as possible. This meant the plant had to be maintained in the utmost state of reliability and efficiency. This could only be achieved with the dedication of a loyal, motivated and creative workforce. In retrospect, considering the level of low morale that existed during 1985-1987 phase, this turnaround could only have occurred due to a radical change in management style and conscious decision to adopt the three management tools, creativity, motivation and development of a culture unique to GPIC, to enhance the performance of the company from the weak position it was in prior to 1988.

3. GPIC's Development during the periods - "Pre 1988" and 1988 upto 1997"

As one traces the history of GPIC's development, two distinct phases are evident. The first phase extends from the period of trial production in mid-1985 up to 1988 when revenues were dipping, operating losses and cash flow deficits were mounting, technical performance needed significant improvements and employee morale was low under a conventional and contractor-run management regime. The year 1988 was marked by a change and evolution of a new approach to the management culture which made its prime objective to motivate its employees, recognise creativity and boost morale. The subsequent period saw GPIC's ability to tackle difficult and challenging tasks, very often in a radical manner, using a reinforcing feedback system where small actions were made to grow into large consequences. Developing a

learning organisation was a strategic management aim to change the course of the progress of the company.

This new culture had to focus on aspects such as initiative, capability, adaptability, judgement, responsibility and contribution in addition to creativity and motivation.

At this critical point of 1988, GPIC management decided it would be better to concentrate heavily on the motivation and creativity factors to enhance the feeling of involvement of the employees in the overall running of the company, thereby giving them the feeling of group responsibility for the performance of the company and pride in its achievements. At the same time, the management recognised that the other elements mentioned above were also important and these would naturally be encompassed within the new culture and would combine to make GPIC a truly modern, forward looking and progressive and learning enterprise.

To accomplish this challenging task of successfully changing the culture within an organisation, the full support of the entire management team had to be given to the workforce to encourage a new way of thinking and a feeling of wanting to contribute. There are many ways of providing incentives to workers, but GPIC wanted to do this without adversely affecting their already high costs and the very high financial burden the company had to bear at the time. Apart from the support and encouragement from management, various new schemes had to be introduced which were not only cost effective but also gave recognition to the employees, such as suggestion scheme, savings scheme, employee of the month/ year, joint labour committee, housing loan scheme and boost to sports activities. All these schemes will be

discussed in detail at a later stage of this study and their effect on the performance of the company will be highlighted.

GPIC management also realised that improving quality of service and productivity and at the same time lowering production costs through gradual organisational improvements, could go hand in hand given time. Careful attention to safety and basic improvements in work processes helped to eliminate risk and reduce costs. To give an example of this gradual and persistent way of plant improvement, cost of insurance over the ten year period of this study has reduced from US\$ 3.7 million in 1986 to US\$ 1.1 million in 1997. Detailed review of how such significant cost benefits were realised will be tackled further in this study.

This study also recounts selected milestones and significant incidents in the history of GPIC's development which reflect two distinct management styles and performances from inception to 1997. The period commencing 1998 has not been considered because it is not comparable with earlier years due to the addition of a large scale Urea plant. A major portion of the Ammonia produced is now diverted to the Urea plant instead of being exported. There is also a reduction in the overall Methanol production and export levels due to diversion of Carbon Dioxide to the Urea plant, which made the researcher concentrate on the period prior to the Urea plant start-up.

Having very briefly reviewed some key elements of GPIC activities earlier, the researcher will attempt to capture and paint a picture of the company over the relevant period giving where appropriate, some true and live examples of events, management tools and models that were used.

GPIC came onstream on 9 May 1985 which was a very turbulent period for the Ammonia and Methanol market, partly due to the Iran-Iraq war and also a worldwide drop in the oil and petrochemical prices. Similar plants which came up in the region a few years earlier had the advantage of comparatively favourable market prices and therefore were in a position not only to repay their financial debts, but in some cases even prepay these debts. These companies also had lower amounts of depreciation cost and had already overcome their learning curve.

4. Falling Revenues and Cash Flow Problems

When GPIC was first conceived it was built on the premise of more favourable market prices. For instance, in GPIC's Information Memorandum to the Banks dated October 1982, based on the feasibility study prepared by an independent consultant, GPIC had estimated revenue prices per tonne in 1986 for Ammonia and Methanol at approximately US\$205 and US\$200 respectively. Actual average revenue prices per tonne for 1986 were approximately US\$88 and US\$63 respectively.

This significant decline in GPIC's product market prices resulted in an operating loss and cash flow deficit since the start of commercial operations on 1 January 1986. Such cash flow shortfalls were met through utilising unused funds from the original construction project loan. These funds were originally intended to meet GPIC's routine working capital requirements.

In October 1986, the GPIC Treasury Section projected that at the prevailing revenues, these cash reserves would be depleted by early 1988 creating cash flow deficits and consequently:

- i) inability to meet contractual debt repayment obligations; and
- ii) inadequate funds to meet working capital requirements.

This matter was brought to the attention of GPIC senior management who realised that this situation may even lead to bankruptcy. It was therefore decided that a proactive approach would need to be adopted to steer the company out of this dire financial situation and to significantly enhance the financial and technical performance of the company. Since the consortium of banks who had extended loans to GPIC were important stakeholders in the company, GPIC decided to apprise them of the projected scenario forthwith, rather than wait in the hope of an upward swing in the market, failing which, advise them of the impending default. In December 1986 the Lead Bank to the consortium was appointed to advise GPIC on its long term strategic financial plan.

5. Rescheduling of Bank Debt

In March 1987 a meeting was convened at the Sheraton Hotel, Bahrain, under the auspices of the Lead Bank to explain to the 29 consortium banks the difficult financial position of GPIC and the proposed strategy of the Lead Bank. The bankers involved were:

- Gulf International Bank, Bahrain (Lead Bank)
 - Al Ahli Commercial Bank, Bahrain
 - Arab Banking Corporation, Bahrain
 - Arab Petroleum Investments Corporation, Saudi Arabia
-

- Bahrain Saudi Bank, Bahrain
- Bank of Bahrain and Kuwait, Bahrain
- National Bank of Bahrain, Bahrain
- Other Bahraini and Foreign Banks

GPIC had a high level of debt : equity gearing; consequently the finance charges (comprising 23% of the total unit product cost) were US\$26 per tonne as against the regional average of US\$11.50 per tonne. The declining revenues, together with the high finance charges, put pressure on the cash flows making it extremely difficult to repay the debt instalments as per the original schedule.

The case was made that this present cash flow crisis could be overcome with a flexible approach from the consortium of banks. The Lead Bank and GPIC made a joint plea to the consortium of banks to support GPIC by rescheduling the debt repayment. The consortium nominated five of its bank members to a steering committee to liaise with GPIC and recommend a course of action to the consortium.

Meanwhile, GPIC underwent new leadership which culminated in a change of management style which encouraged employee participation in decision making. Key personnel from GPIC met to assess the critical situation and realised that such situation could not be resolved through routine measures, but needed an unconventional approach.

It is worth noting that at this juncture in time, January 1988, GPIC's financial crisis had reached a position that when the General Manager of the company was attempting to make an appointment to meet with the General Manager of the Lead Bank, he could not secure such an

appointment. It took weeks before he could convince the Lead Bank Manager that GPIC was embarking on a new era and the banks had an option to either stand by GPIC and give the management a chance to embark on its recovery programme, or bear the consequences of a bad situation including having to declare GPIC bankrupt. This would have been a major set back to the banks as well as the industrialisation progress of Bahrain and the cascading effect on industrial cooperation amongst the GCC countries.

Going back to the core of events, the management had to give due consideration to the following facts:

- i) GPIC was a hi-tech capital intensive project; consequently it had a fixed cost component (fixed cost, financial charges and depreciation) which was 77% of the total unit product cost.

This meant that it was imperative to operate the plant at high levels in order to lower the cost per tonne. It was deemed that if a relatively minor capital expenditure was incurred to debottleneck certain processes within the existing plant, the design capacity of the Ammonia and Methanol plants could be increased from 1,000 to 1,200 tonnes per day for each product. The debottlenecking project cost was determined by the management at US\$21 million.

It also meant that GPIC would have to convince the banks that at that critical juncture, GPIC wished to use its existing funds to incur capital expenditure on debottlenecking in preference to fulfilling its existing debt schedule obligations. This consideration meant the banks had to take a risk, not only

having to forfeit receiving their bond money for a while, but also allow GPIC to utilise further its very limited cash resources at a time when the petrochemical market was going through one of its worst periods. Once again, no conventional management approach would have succeeded to get the agreement of the banks. However, an honest approach to benefit : risk analysis with a confident management successfully presented GPIC's case to the bankers' Steering Committee for this 'unusual' (especially for this region) course of action.

- ii) Cash flow forecast for the forthcoming ten years was developed, in liaison with the Steering Committee, taking into account mutually agreed revenue projections, GPIC's operating and administrative costs and the aforesaid debottlenecking capital expenditure.

GPIC convinced the Steering Committee that it may not be prudent to repay the outstanding bank debt portion of the overall loan of US\$300 million in the conventional manner by way of uniform instalments. Instead GPIC suggested that it would be an **innovative** but mutually beneficial approach to restructure the repayment schedule by varying instalments which were based on projected year end surplus. The year end surplus so derived was used as the criterion for determining the repayment of the annual debt instalments.

- iii) A plan was drawn up for GPIC to develop its own human resources and reduce dependence on a contractor to operate and maintain the plant and manage its procurement of materials and services. The objective was to reduce and optimise costs (*details*
-

of this strategy have been elaborated upon in the latter portion of this study).

- iv) While the Steering Committee of banks, accepted the aforesaid two measures, they contended that the shareholders, being the major stakeholders in the company, should also make a contribution to assist in alleviating the overall financial crisis. However, as GPIC shareholders were from three different countries in the GCC, political pressures of the region had to be contended with. Despite these odds, GPIC management convinced the shareholders that they would be strengthening GPIC's case with the banks if they displayed confidence in the company by agreeing to forego dividends until the debt had been paid and also prevailed upon the Saudi and Kuwaiti marketing partners to forego half of their marketing fees. The third shareholder, namely the Government of Bahrain, had to guarantee fixed gas and electricity prices for the loan repayment period, in addition to waiving custom duty payments for imported material such as spares and chemicals for GPIC. These radical proposal put forth by the management, were eventually accepted by the three shareholders.

Being in agreement with GPIC's proposals and impressed with the positive and professional attitude of GPIC's management, the Steering Committee presented the aforesaid restructuring plan to the consortium of bankers. While most of the banks were in agreement, some banks expressed apprehension that in the event future revenue fell below the predicted revenue prices, GPIC would face a similar cash flow crisis and again revert to the consortium for a further rescheduling.

The original loan agreement with the banks had stipulated that any amendment to it would need a unanimous approval. Therefore, GPIC negotiated with the Lead Bank a strategy to resolve this impasse. The Lead Bank would offer a Standby Facility of US\$75 million to bridge possible gaps in debt repayment during the years when revenues fall below predicted levels. In subsequent years when the revenues were higher than predicted levels, such surplus in cash flows would be used to repay any Standby Facility loan draw downs.

At a reconvened meeting with the consortium, the revised recommendations were put before the banks and accepted. In February 1988, the rescheduling and Standby Facility Agreements were signed with the banks.

6. Measures taken to reduce cost and increase Productivity

The future remained grim although GPIC had thus far successfully addressed the external agencies for resolving part of the cash flow problem through focused, bold , untried but creative solutions. The focus then shifted in GPIC to really take an intensive look at themselves to streamline their internal effectiveness and efficiencies. The immediate focus was to ensure completion of the debottlenecking project on schedule and within budget to obtain production at optimum levels, and keep production costs per unit to a minimum.

At this early stage, GPIC management recognised that it had to develop a strategic management model that would form the platform for its radical approach in enhancing the performance and financial standing

of the company. Such a strategic management model had to include the organisations mission, objectives, strategies, policies, programmes, budgets, procedures and performance evaluation. Evidence was recorded by the researcher that in March 1988 the management recognised that in order for the model to be implemented, three key questions needed to be considered:

- i) Who are the people who will carry out the strategic plan?
- ii) What must be done?
- iii) How are they going to do what is needed?

At this stage, the management prepared a list of problems which an organisation generally encounters when it is undergoing a strategic change, such as that which GPIC was about to undertake at the time. These problems, when listed in the order of possible frequency of occurrence, were identified as:

1. Implementation slower than originally planned.
 2. Unanticipated major problems.
 3. Ineffective coordination of activities.
 4. Competing activities and crises that distracted attention away from implementation.
 5. Insufficient capabilities of the involved employees.
 6. Inadequate training and instruction of lower level employees.
 7. Uncontrollable external environmental factors.
 8. Inadequate leadership and direction by department managers.
 9. Poor definition of key implementation tasks and activities.
 10. Inadequate monitoring of activities by the information system.
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GPIC management recognised that a successful strategy depends heavily on the organisation's structure, allocation of resources, compensation programme, information system, and organisational culture.

7. Management Strategy based on Company's Mission

First and foremost, the Management defined a mission for the transformation plan, which was **"To operate safely, efficiently, economically and to strive to manage one of the best run Petrochemical plants in the world"**. The goals set out for the immediate future in various areas were identified as under:-

- **SAFETY:** To create a safe, secure, healthy and pleasant working environment.
 - **PEOPLE:** To provide employees with adequate training and development opportunities, to trust and empower them to contribute towards, and share in, the success of the company.
 - **QUALITY:** (i) To produce consistently high quality products in order to meet the requirements of the company's customers. (ii) To ensure suppliers of GPIC provide products and services of consistently high quality. (iii) To sustain and improve the above through system and procedures utilising upto date Quality Improvement Techniques.
 - **FINANCE:** To effectively manage and optimise the use of financial resources and to reduce the unit cost of production so as to maintain the company's competitive edge in the market.
 - **ENVIRONMENT:** To be environmentally friendly with solid commitment towards the employees and society at large.
-

- **TECHNOLOGY:** To keep abreast with state of the art technology through improvements and innovations.
- **COMMUNITY SERVICE:** To develop and promote excellent relations and co-operation with the community and to be concerned with its needs.
- **GROWTH:** To explore new market opportunities to increase existing production and to look for new value added products.

To progress the above goals, the Management recognised that it needs to implement the following:

- Manage and operate the company as a team to achieve set targets with high level of safety, efficiency and reliability. This requires the full back up and support of the entire organisation.
 - To recognize the people to be the company's most precious resource. It must therefore appreciate them, care for them and create an atmosphere of loyalty, trust and mutual respect.
 - The company must be competitive and search for ways to reduce cost without affecting safety and reliability.
 - The success of the company comes about as a result of hard work and dedication of the employees and the management should create a satisfactory work atmosphere based on sound ergonomics and healthy human relations.
 - Encourage safety and quality habits and care for the environment in the company's work culture to continuously achieve high standards.
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- Continue to enhance and improve the company's activities by “state of the art” technologies, search for ways to expand the operations and look for new value added products.

Whilst conducting detailed personal interviews and document review, the researcher had also established the fact that GPIC management had recognised in early 1988 when commencing to embark on its ‘change programme’ that one of the most important goals to be achieved in strategy implementation was SYNERGY among functions and departments. Synergy is known to exist for the divisional organisation if the return on investment of each division or department is greater than the return that is expected if each division or department were an independent business.

The above elements become important to highlight at this point since the following review has a bearing on what the researcher has recorded.

8. Replacement of Contract Staff

Prior to commencement of trial production in 1985, due to lack of available qualified and suitably trained local manpower, GPIC had to appoint a contractor for operating and maintaining the plant, as well as for procurement of materials and technical services (engineering, laboratory and medical services). This contractor had proven expertise in this field on similar petrochemical plants built all over the world. Out of the total manpower strength of 323, the contractor provided a large contingent of 273 staff (including 53 managerial and supervisory positions) under the overall umbrella of GPIC. The company received

the benefit of a trained and experienced workforce together with their established work practices. This enabled GPIC staff to gain insight into the smooth operation and maintenance of a petrochemical plant, as well as access to their procedures and documentation used worldwide. However, these services came at an exorbitant price and in view of the cost situation it was inevitable that GPIC had to take appropriate measures to curtail costs.

To give a clear picture of this point, some examples of relative prices are given. A Manager from the Contractor costs GPIC US\$224,964/- where as a direct hired and equally qualified Manager cost GPIC less than US\$80,000/-. The direct hire cost represented less than 40% of what the contractor was charging at the time. GPIC records that the cost differential percentages for other positions such as Superintendents, Section Heads, Supervisors, Technicians and Operators was of similar magnitude.

This arrangement had created a situation where there was a 'them' and 'us' position. The contractor personnel did not have a feeling of normal job security, which they had expected in a newly operated high technology industry, and they had no sense of belonging in the company; thus the question of loyalty was raised.

The indigenous workforce had generally low morale not only due to the dismal financial situation of the company during the period up to 1988, but they also felt a sense of unfairness since they were receiving significantly lower wages and benefits (for example, the contractor was paid around US\$15,000 per month for a supervisor against an average cost of US\$ 2,500 for an indigenous supervisor).

There was a relatively high turnover of labour and a threat that more of the qualified and experienced manpower would leave in the near future because the current performance of the company could not offer higher salaries to retain the services of such qualified staff. Similarly, new staff were not being attracted because the current salary scales in GPIC, although regarded as fair, were not comparable with salaries offered by other petrochemical plants in the region and also corporations in other sectors in Bahrain. This situation posed a serious hurdle to overcome. It was decided to confront the problems with a mixture of unconventional plans to:

- i) Gradually phase out the contract staff without affecting the safety, reliability and efficiency of the plant.
- ii) Change the corporate culture whereby tangible gains could be achieved and retained over a period of time. To this end specific measures were undertaken to motivate the workforce to be more productive. It was recognised that since substantial monetary incentives could not be offered, the employees could be rewarded by placing them in an environment that was caring and appreciative. A conscious effort would be made to promote creativity, innovation and enterprise. The direct consequence of this would be improved performance, enhanced work values, team work and excellence.
- iii) Introduce schemes for staff benefits in a selective manner that bestows benefits without undue strain on the company's financial situation.

9. Human Resource Planning & Bahrainisation

GPIC's first priority was human resources planning. As mentioned earlier, the management recognised that human resources management is a dynamic process and the strategic, tactical and operational consequences of adopting a particular set of human resources policies and practices would have a reciprocal impact on subsequent human resources management policy choices.

Under the new approach to the management culture, as early as 1988, it was recognised that human resources planning would be a process whereby a course of action needed to be determined in advance and continually updated with the aim of ensuring that the demands for these resources are accurately projected and supply of the right skills is maintained. In view of the demographic nature of Bahrain in particular and the GCC in general, there were limitations to availability of adequate skilled manpower amongst Bahraini and GCC nationals at that time. The balance therefore had to be made up with an expatriate workforce while endeavouring to increase adequately trained local manpower.

The skilled expatriate workers in GPIC had always been very important as they had several years of working experience in the petrochemical industry, and specifically in the field of Ammonia and Methanol production. They also had to assist in the training and development of the Bahraini workforce to take over positions in the future, as well as sharing relevant experience for future down-stream processes.

Development of Bahrain's workforce was one of GPIC's highest priorities. Bahraini employees were trained and developed to replace

expatriates at all levels, with the overall guidance and approval of corporate management. GPIC's approach to Bahrainisation had to be thoughtfully planned and implemented at a pace that did not disrupt the company's operations and followed the strategic management objectives.

10. Training Programme

The engineering and supervisory services in petrochemical industries form an essential element in the success and continuity of operation of these plants. The management of GPIC realised this vital role and decided to establish a solid base of well trained supervisors and engineers. To accomplish this, a committee chaired by the General Manager Technical Division, the Operations Manager, the Technical Services Manager, the Maintenance Manager, the Administration Manager, and the Training Superintendent, was established in 1989 and named the Engineers Training Committee (ETC).

The ETC was formed with the objective of drawing up a policy for selecting and recruiting candidates, recommending suitable training programmes and following up on their progress, and to set up long term staff development plans. These plans were implemented whereby a number of Bahrainis were sent to the headquarters of vendors, contractors and engineering companies in Bahrain, other GCC petrochemical plants and abroad to gain appropriate experience in various disciplines. The company also recruited a number of graduates from local schools and polytechnics for in-house training at GPIC's purpose built training centre under the supervision of specialised instructors. A number of graduates from universities were sponsored to attain formal qualifications in UK and USA universities, as well as

receive practical training at major plants abroad. In addition employees and trainees attended various conferences, seminars and workshops in Bahrain and abroad.

The ETC was and still is responsible to facilitate the Bahrainisation process in the most suitable manner, in order to ensure a smooth and gradual transfer of responsibilities from the expatriate staff to potential Bahraini candidates.

The policy guidelines advised by the committee were transformed into the supervisors/engineers training and development programmes. Candidates eligible for these types of training programmes were either university graduates, Bahraini applicants with working experience equivalent to the job requirements, or the company's own senior operators, who had the potential to be further developed for supervisory positions. The total duration of such programmes was and still is for a period of four years for engineering positions and five years for supervisory positions.

The supervisors/engineers training and development programmes are divided into four phases. It is worth digressing slightly here to go into the detail of these phases in order to show the fact that the management were well aware in 1989 that, for their strategy of contractor manpower replacement to succeed they had to be transparent in their objectives and very thorough and detailed in their approach. Going back to details of the training phases, the first phase runs for six months and encompasses a general familiarisation of GPIC's technical divisions. The trainee is introduced to the company's safety procedures, basic plant operation, and the role and duties of all maintenance and technical department sections. A part of the second

phase requires the trainee to work during GPIC's shift working hours, running for one and a half years for engineers and two years for supervisors. This phase is devoted to on-the-job training, where the trainee learns and performs the duties of the first line technician or operator. The aim of the third phase is for the trainees to experience day-to-day job requirements, running for one year for engineers and one and a half years for supervisors. During phase four, the trainee is associated with the line supervisor or engineer in order to gain exposure to the job requirements of that position, and runs for one year for both the engineers and supervisors. In this phase, the trainee is given responsibilities to carry out specific jobs under the supervision of his line engineer or supervisor.

Prior to each phase, a comprehensive training programme is drawn up for each individual trainee, outlining specific details pertaining to each section, duration, and specific reports or projects that the trainee should submit. The training programme is developed based on the job requirements and in consultation with the concerned department.

A copy of the programme is circulated to all the concerned departments and section heads. The trainee is interviewed by the ETC before completion of each phase in order for the committee to ensure that adequate training and experience is being gained by the trainee.

Operators represented the majority of the workforce in the technical division. Their role in operating and monitoring the plant is not only significant in achieving production requirements, but also because it requires them to ensure that the safety of all employees and the surrounding community is monitored and maintained. Bearing this in mind, the GPIC training centre embarked on an intensive training

programme commencing January 1989, in which new technical and science high school graduates were recruited and trained for a period of two years to qualify them for the position of a unit operator in one of the three plants. The programme consisted of three phases, firstly off-the-job training, which ran for a period of four months. During this phase the trainee received training in the fields of fire, safety, emergency and work permit procedures; an intensive enhancement course in the basic sciences (mathematics, chemistry, physics); working principles of various machines; instrumentation and electrical principles; and all plant process descriptions. The second phase was conducted in the training centre, programmed off/on-the-job training, which ran for a period of eight months. During this phase the trainee was assigned to a specific plant. For each unit in the assigned plant, the trainee spent one week at the training centre learning in detail chemistry, process, piping and instrument diagrams, start-up and shutdown procedures, and all other related information. After that the trainee spent one or two weeks in the plant tracing and verifying the theoretical principles. The third phase was achieved via a series of small projects and reports, guided on-the-job training, which ran for twelve months. At this phase the trainee was assigned to a specific unit in the plant with an experienced field operator. The trainee was supervised by the plant shift supervisor who was responsible for providing and following up on his training progress. The trainee was required to carry out the job requirements of the unit operator under the guidance of the area operator.

Throughout this training period the trainee was assessed either by the training supervisor and/or the plant supervisor.

The training and development of GPIC staff was and still is an ongoing process. Once the company's training needs were identified, suitable training courses were sought from prominent and well-known training institutes either locally or overseas. The training centre also recognised the importance of involving the company staff in seminars and conferences as they provide the most recent developments in the market. The management were kept well informed of such events and advice was given by the training centre as to the relevancy of these courses for employees.

This approach was adopted at GPIC to cover the wide spectrum of specialised needs to be addressed. More significantly, to offer GPIC staff an ever renewable source of learning and developing.

As part of the career development of the then existing staff within GPIC, a cross-training plan was designed for the unit or field operators for the plants. The objective of the plan was to involve the unit operator in a long-term training programme whereby he was gradually transformed from a single unit operator to a multi-unit operator within the plant/s; hence, expanding his scope of responsibilities and enriching his job horizons. The plan duration varied from plant to plant with a minimum duration for any one plant to be five to six years. Throughout this period the operator was continuously trained and developed both in the training centre and in new units in his designated plant.

Based on the successful implementation of this plan in the operations department, which was recognised by early 1990, other departments such as maintenance followed suit and through the training centre introduced multi-skilling and cross-training for their technicians and

supervisors. The training centre then established cross-training for all the departments of the company, subject to applicability and relevancy of such programmes.

Properly identified training needs for all the training requirements were a crucial factor in reinforcing the training function. Since 1992 GPIC's training function has performed training needs analysis once every two years for every single employee. This exercise was performed by the training officer by analysing the job requirement for individuals or groups of employees and any new skills or knowledge that might be required for future development. The analysis was done by conducting interviews with the department and section heads, after which a training list for each employee was produced.

Additional information for the analysis was sourced from relevant annual performance appraisal forms for the employees which identify specific training needs. Finally, the analysis was processed in terms of allocating the required training sources and budget.

As part of an image enhancement programme that the company also established in 1992 and in order to reinforce GPIC's contribution to the welfare and support of Bahrain's community, the company embarked on a programme in which it annually provided industrial training on site for students from universities, colleges, and schools. This provided practical on-the-job exposure for students, which resulted in the graduates being more readily suitable to fit into the industrial and commercial labour market.

During the time the student was with GPIC, a detailed training programme was developed for each individual. The programme was

typically designed to address the main objectives that must be covered during the training period. Moreover, standard safety and company induction training was also incorporated into the programme. This image changing programme proved extremely worthwhile for the company and from evidence the researcher could compile, it was evident that this programme had a good return on investment, especially since Bahrain had a very small and close-knit community.

GPIC also embarked on a programme to sponsor high school graduate students with outstanding performance, engineering students in the two final years of their Bachelor of Science degree programme, or company employees who demonstrated keen interest in continuing their formal education.

The company also sponsored employees to attend specialised training programmes, on both part time and full time basis, that were directly related to the company objectives and future goals. The importance of this scheme was evident in the annual budget allocation given for this purpose.

Training and development is typically viewed by many organisations as a burden by those seeking to maximise their profit. However, due to the clear vision of GPIC management, the training and development of the staff remained a key activity during the period 1989 to 1997 (this fact still remains true to this date).

All these measures succeeded in creating a very good impression of the company within the Bahraini workforce in particular and the community as a whole in general. This was reflected by an overwhelming interest in Bahrainis seeking employment with GPIC

despite the fact that it did not offer the highest pay scales on the island, as they saw a promising future in a learning and developing organisation. The morale of the indigenous workforce improved immensely due to enhancement of skills and job satisfaction; consequently the turnover rates dropped significantly.

As described earlier, GPIC had consistently followed a conscious human resource policy of Bahrainisation of manpower in a manner that did not impair productivity, reliability and safety of the plant and people. The rate of Bahrainisation increased from 47% of the total workforce in 1987 to 66% in 1991. By 1993 the percentage of Bahraini employees in the company increased to 70% and in 1994 GPIC was awarded the first Bahrainisation Shield by the General Committee for Bahraini Workers for its outstanding efforts and achievements in training and development and Bahrainisation. This milestone once again demonstrated to the management that its strategy and objectives were on the right track and how a vision in 1988 had turned into a tangible fact. GPIC recognised these achievements and used them as a platform to propel itself further in the path of realising its mission.

It was also evident from the performance data that will be discussed later that the Bahrainisation measures did not adversely affect the stability of the expatriate workforce as job security improved and many opportunities were created for skilled manpower to occupy the positions previously held by contractor staff. Over the years when Bahrainis were trained to take up positions held by expatriates, the latter were retained for a while as advisors to oversee the trainees. Many of these expatriates have also been absorbed in training as well as subsequent expansion and downstream projects.

Despite these additional training and staff development costs, the overall staff costs reduced from US\$18.6 million in 1986 to US\$10.6 million in 1990, a decline of 43%.

The significance of detailing the strategy of GPIC management in its human resources and the aggressive policy of Bahrainisation, could be understood more readily if one could digress for a moment and go back to early 1988 scenario as was being experienced by the GPIC management.

The management, as stated earlier, had a financially loss making company on its hands, nagging technical operations, an indigenous workforce that was demoralised and contractor workforce that was indifferent towards the company. A small confidential Five Point Action Plan was made to change the management and supervision from an expensive contract staff to local or direct-hire GPIC staff as follows:

- To embark on an accelerated training and development programme and promotion of its qualified indigenous employees.
- To maintain good relations with the contractor's manpower, since it was recognised that they had no influence on how their company behaved.
- To identify a number of contractor staff who were deemed to be critical for reliable and safe operation of the plants. Seven key individuals were identified by April 1988 and were targeted for enrolling them on to GPIC's direct payroll, even if it cost the company some money.

- To embark on recruitment of experienced individuals from the international market and place them in the training centre for both training purposes as well as backup for plant operations.
- To commence negotiations with an alternative contractor with a good reputation, but that cost the company less. Such a contractor was deemed to be used as a standby source of providing manpower as and when needed.

The above action points were identified and successfully worked upon before negotiations took place with the contractor for the demobilisation of its manpower and the takeover of all functions by GPIC. This was indeed the most challenging and demanding of all GPIC's objectives, but is noted by the researcher to have been successfully accomplished by January 1990.

11. Ammonia and Methanol Plants - Debottlenecking Project

Under the environment of a clearly changing workforce attitude, work commenced on the debottlenecking project, technical details of which were drawn up with input from qualified technical staff, together with the licensor and construction contractor of the original complex. With the cash constraint situation temporarily resolved the Company could concentrate its resources and efforts to improve the technical performance of the company and to successfully complete the debottlenecking project.

In 1989, with a view to commissioning the debottlenecked plant and its tie-ins with the present Ammonia and Methanol plants, a major

shutdown was taken in this year for 53 days in the case of Ammonia and 31 days for Methanol. The debottlenecking project was completed as per schedule and within budget in December 1989.

Naturally, this long planned shutdown to tie-in with debottlenecking, had an adverse impact on the annual production volumes and revenues for 1989. Further, revenue prices had dropped from US\$88 in 1988 to US\$70 in 1989 for Ammonia, and US\$135 in 1988 to US\$71 in 1989 for Methanol. Consequently the year 1989 ended with a net loss of US\$22 million. The accumulated loss stood at US\$53 million, representing a third of the share capital. The financial situation remained tight. Staff morale had to be maintained at a good level and management had to be focused on its objectives.

An internal financial review was made to assess the year end situation. The conclusion was that despite the negative bottom line for the year, GPIC would benefit from debottlenecking as the fruits of attaining higher production volumes would continuously accrue in the future. In hindsight, a computation was made where the incremental costs (comprising variable costs for the increased production together with additional depreciation and finance charges on the debottlenecking capital expenditure) as compared to the incremental revenues (revenues on debottlenecking quantities) resulted in an extremely attractive project payback of just over two years! This project shows how a clear definition of key implementation plans can make a strategy of an organisation be implemented in a successful manner.

12. Gulf War

The latter half of 1989 and early 1990 saw the company operate at higher capacity levels with lower unit production costs and a more motivated workforce. The company was getting on its feet, being steered on the right track after the volatile earlier periods, and it was beginning to run smoothly when the company had to contend with a totally unpredictable element in the form of the invasion of Kuwait by Iraq and the subsequent Gulf War between August 1990 and March 1991. This event truly tested the GPIC management's endeavour and tested the foundation of a truly dynamic and learning organisation.

After detailed review and situation assessment, including setting up of a 'high command centre' for dealing with the day to day situation and coordination with the authorities and other organisations including the shareholders, the General Manager recalled that after deciding the strategies that needed to be followed or implemented, the management had to ensure that the new changes to the mission, objectives, strategies, and policies and their importance to the survival of the company, were communicated clearly to all its employees otherwise resistance and foot-dragging could have resulted. Therefore effective communication became even more vital in such circumstances.

The GPIC management realised after the first few hours of the Kuwait invasion that the situation was not an issue that would be solved in a matter of days. Such an aggression must have taken years to plan and thus a solution would not be readily available. The General Manager of the company recalls the events prevailing at that time as if they were occurring now. The management team was called to an emergency meeting the same evening of the invasion, 2 August 1990 in a location

away from the complex and its normal operations, with the aim of assessing what actions were needed to be taken and to see if the company's strategy needed to be altered or modified.

Returning to GPIC events, since inception the company had an arrangement whereby its entire output of Ammonia would be marketed through its Kuwaiti partner. This arrangement had the benefit of drawing upon the experience and expertise of its partner, as well as obtaining competitive sale prices and shipping/ insurance costs arising from pooling of product volumes, as well as maintaining a high level of involvement and interest of its shareholders in the company.

When Kuwait was invaded the direct consequence for GPIC was that it lost the services of its marketing partner for Ammonia. Further, because of the extraordinary situation arising from the war and the consequent threat to the safety of the plant and personnel, there was an adverse impact on operations and maintenance of the plant, loading and shipping. In the light of the crisis many safety precautions were taken to cope with the situation in the process area, one of the most important being the construction and installation of an 'oil boom' at the sea water intake of the complex to prevent pollution of GPIC's products in the event of an emergency.

This period was of particular significance for the Fire, Safety & Security Department. All emergency procedures were reviewed and enhanced where required. The company completed the year 1991 without any lost time accidents.

It was in the face of adversity that GPIC's mettle was tested to the hilt, not only on the technical and marketing fronts, but especially on the

affect it had on the human resources. The management of GPIC was committed to the welfare and safety of its employees and their families. Several bold and confidence building measures had to be introduced, such as **immediate** procurement of specialised equipment for oil pollution abatement as mentioned above, providing additional safety clothing and apparatus for all staff members, emergency passage for expatriate families, providing secure shelters with food and water at the complex and creating an effective and efficient line of communication between the authorities, the management and the workforce. The aim was to continue normal operations in spite of the unusual circumstances.

It also involved instantaneous setting up of a new marketing and finance infrastructure to procure orders directly from the international market, obtain vessels, load and insure shipments, prepare shipping documents and negotiate these with banks for the realisation of proceeds.

At the end of the war, GPIC management appreciated the fact that not a single employee had left the services of the company during this potentially hazardous and critical period. Many companies in Bahrain and the Gulf lost their expatriate staff because of the war. The fact that GPIC employees (expatriates and nationals) stayed with the company during extremely difficult times is one of the main reasons that has led the researcher to embark on this study.

13. Review and Implementation of New Organisation Structure

It is worth returning back to the human resource situation of GPIC from the period prior to 1988. GPIC had a formal organisation structure and job description for each position in the organisation, which was prepared prior to the actual commencement of operations in 1985. Based on the requirements arising from the actual operations during the period 1985 to 1989, certain additions and adjustments to the staffing structure were made from time to time to reflect the ground realities. The management felt that having stabilised the technical operations, it was time to take stock of the situation, professionally assess the actual requirements, document and formalise them in order to implement its objective of reducing dependence on contract staff in a planned manner and replace them with suitable local and direct-hire GPIC staff.

Accordingly, a Job Evaluation Committee was formed comprising :

- 1) Maintenance Manager
- 2) Operations Manager
- 3) Personnel Superintendent
- 4) Training Superintendent
- 5) Financial Accountant

The terms of reference were:

- 1) Review the present organisation structure and recommend changes to bring it in line with the planned strategy of phasing out contract staff and replace them with local and direct-hire GPIC staff. Further, determine a staff structure

capable of taking GPIC into the new millennium, with a target Bahrainisation of 95%.

- 2) Carry out job description and job evaluation covering each position in the proposed organisation structure
- 3) Undertake a study of representative salary levels in other comparable organisations in Bahrain.
- 4) Develop a simple personnel procedure for the job grading and salary structure for providing a remuneration package that is not only commensurate with the grade skills, experience and qualification requirements for the job, but also, one that equates to the remuneration provided by comparable companies in Bahrain.

A reputed and independent consultant was appointed to guide and advise the committee in accomplishing the task on a professional basis.

Efforts were made to match the skills and abilities with the job requirements to determine the right fit. The goal was to ensure that the revised setup would enhance the morale and productivity of the employees, giving them a transparent picture of the organisation in which the management recognises that its employees are its most valuable asset.

This exercise gave the company an opportunity to bring about some revamp and rationalisation in positions. For example, the functions of Legal Adviser and Secretary to the Board, hitherto held by two separate positions would be combined into one. Positions such as

Deputy Maintenance Manager, Deputy Operations Manager, Deputy Technical Services Manager, which were primarily created for Bahrainis during the learning period while their respective senior positions were occupied by contractor staff, were eliminated. Some realignment was also done in reporting patterns to streamline the set-up. Further, the function of the training section was also revamped to do full justice to the strategy of Bahrainisation and career development.

This rationalisation enabled employees to be placed in position within the company, based on specific well-defined requirements of the job, with possession of appropriate qualifications, skills and experience to undertake the duties involved in a satisfactory manner. Each employee was placed into the appropriate grades and where necessary changes were effected to their emoluments. This became the basis for developing career plans and supplementing them with appropriate training programmes. This was seen to be a programme in implementing the management's strategy in replacing the contractor workforce without adversely affecting the performance of the company. In addition, job descriptions were developed for every position in the company giving details of the work to be performed by the holder of that position, his line of command and his working conditions. A job description was then issued to each employee after having gone through it on an individual basis and for the newly recruited on the commencement of the service with the company or on his transfer to a new position. If a new position was created, a job description was prepared before the position was filled. This step helped the management to demonstrate to its employees that the commitment made a year or two earlier was being implemented and that the

company was serious in being honest and transparent with its workforce.

An additional benefit to the company was the fact that the bankers and the shareholders recognised that the management was taking active steps in implementing its policies and strategies that it had committed itself to during the rescheduling of loans in January 1988.

Each position in the company is assessed for its complexity and for the physical conditions involved. Account is taken of the knowledge, skills and experience required to perform the job, the analytical evaluation and innovative thought required in the job, the accountability of the job holder and the working conditions involved.

The management also embarked on reviewing the potential of its indigenous employees and where an employee may become suitable for promotion to a position of a higher grade than his or her existing one as a result of experience gained with the company or additional qualifications obtained, or he or she was considered for promotion in the event of a suitable vacancy arising.

When an employee is promoted from one grade to another, he or she will be granted a 10% increase in basic salary or will receive the minimum salary of his or her new grade, whichever is the more beneficial to the employee. All of these were serious attempts by the management to raise the morale of its workforce, motivate them and gain their loyalty. By this the productivity of the employee was expected to be significantly enhanced.

The researcher also saw evidence of the management's serious attempt to review the salary and benefit scales in GPIC in comparison with the salary and benefit levels in other companies surveyed, and knowledge of the conditions prevailing in Bahrain with the aim of providing fair employment terms.

In fact, the research revealed that GPIC participated in the latest annual salary and wages survey during the year 1997, conducted by Bahrain Government Civil Services Bureau, in which twenty one different major local companies in Bahrain participated. The survey report issued by the Civil Service Bureau showed GPIC to be in line with other participating companies i.e. the average salary of the other companies was calculated as BD 621/- per month, whereas GPIC's average salary was calculated as BD 627/- per month. This should be compared to below average salaries that GPIC's indigenous workforce were receiving prior to 1988. GPIC's good standing has been proven since they have managed to recruit for some senior positions from large companies within the GCC countries who offer a higher salary than GPIC. Furthermore, some GPIC employees who had resigned for higher pay have rejoined GPIC after a very short period.

The Researcher recalls one such event when one of the operators who had been with GPIC for some three years decided to leave the company and join another company in Bahrain who had offered him a job with a salary around 25% higher than what he was receiving at GPIC. This individual left GPIC and joined the other company. Within a period of four months the individual returned to GPIC and was offered his job back. When asked why he had returned, the operator said that at GPIC he feels that he is a person who is being looked after and the work

environment is based on team work whereas in the other company he was just a 'number'.

To highlight the progress made under the umbrella of human resources within the company, the study found that by 1997 the average manpower per month was 434 employees plus 75 trainees, compared to less than 150 indigenous employees in 1987 and only a handful of trainees. The cumulative number of employees who underwent various training courses by the year end reached 260 of which 118 were in Operations, 34 in Technical Services, 43 in Maintenance, 27 in Fire, Safety & Security, 1 in Marketing and 37 Engineers. The percentage of Bahraini employees exceeded 74% by the year-end. The Training Centre continued to meet the company's goals through implementation of numerous training programmes, as well as the regular fire and safety awareness induction courses.

The prime consideration in selecting an individual to fill a position in the company was the possession of appropriate qualifications, skills and experience to undertake the duties involved in a satisfactory manner. Subject to this provision, priority was given to employing Bahraini nationals, if a suitable Bahraini national was not available to fill a particular position, an expatriate was employed.

One of the management tools that GPIC utilised in implementing its strategy was the successful selection of an interview process for employees to be promoted or newly recruited.

In 1990, as a logical extension to the job descriptions and grading system, a job appraisal programme was introduced. As a result of this appraisal an employee is granted a merit increase within the range of

his grade in addition to any general increase in the salary. These appraisal documents are kept on personal files and also serve as the basis for drawing up corporate training plans.

During the period 1979 to 1988 increments were given to selected staff on ad hoc basis. In the year 1989 the practice of giving annual increments to all staff members was implemented for the first time. Thereafter, the aforesaid appraisal scheme provided the basis for giving annual merit increments to staff. Such rationalisation, whereby the annual merit increments were linked to the appraisal results, served to remove imbalances in the manpower structure and enhance transparency.

In addition to the points already discussed GPIC management also developed a clear policy regarding payment of overtime and merit increments. Other aspects of employment conditions such as leaving indemnity were covered as per the terms and conditions of the Bahrain Labour Law.

In accordance with the company's concern for the welfare of their employees, expatriate employees are provided with a very fair standard of furnished air conditioned accommodation commensurate with their status, including payment of any municipality taxes. Bahraini nationals are also provided with housing or housing allowance according to their grade level.

In addition, all employees and their families are entitled to free medical treatment at the company's Medical Centre or other company approved facilities in Bahrain and all employees of the company are covered under a group life and accident insurance policy.

In tandem with the welfare and high morale of the workforce, GPIC believes that it is essential to maintain a high level of discipline for the benefit of both the company and its employees. To this end, the company has laid down a code of disciplinary actions which is in accordance with the Bahrain Labour Law and which is applied equitably and consistently throughout the company. The code is made known to each employee at the commencement of his service with the company and a copy of the code is posted on company notice boards. It is worth noting that GPIC has experienced only a very small number of incidents where disciplinary action has been necessitated in comparison to some other companies in Bahrain.

On the other hand, if any employee has a grievance which cannot be satisfied by discussion, he is entitled to submit a formal written notice of the grievance to the head of the section which will be dealt with in accordance to company policy and includes a hearing in the presence of the employee. If the employee is not satisfied with the outcome of the hearing he is entitled to appeal to the manager of the department and, if still not satisfied, to the executive management whose decision will be final and binding.

14. Empowerment and Creativity

In order to execute tasks with a greater level of efficiency and effectiveness, the senior management recognised the need to delineate responsibilities and empower managers and superintendents down the line with appropriate authority to enable them to discharge their duties effectively.

The human resources rationalisation concept was extended further by introducing a formal documented Approval Authority Schedule in 1990. This was a comprehensive document detailing authority limits for each level of senior staff in all areas of GPIC activities. It encompassed every activity within the organisation, from the smallest task to approval for expenditures of up to US\$ 20 million. This document is subjected to periodical review to reflect changing needs and circumstances within the Company.

This key document, which formed the backbone of GPIC Quality documentation, had to be designed not on conventional management systems, but on a level that kept the management and their workforce empowered and motivated to carry out their duties diligently and with the least amount of bureaucracy.

After having extensively reviewed the human resource policies and the strategies that the management planned and implemented, it would be appropriate to return to the technical and financial aspects of the company.

After a tense and war stricken first quarter, 1991 became a year of stable operations when GPIC's results moved from negative to positive territory, thus realising the fruition of its efforts of the past three years. Fortunately for GPIC the markets were favourable as well and the revenues were higher at US\$110 per tonne for Ammonia (1990 US\$81 per tonne) and US\$111 per tonne for Methanol (1990 US\$76 per tonne). However, had the market condition remained depressed GPIC would have still benefited from the positive actions it had taken to reduce production costs. GPIC took this opportunity to optimise its

profitability by maximising its production volumes through reduced plant outages and enhanced efficiency.

Plant outages mean the number of incidents that lead to plant shutdown and loss of production. It involves outages due to planned shutdowns as well as outages due to emergency failure of equipment necessitating immediate attention.

It should be understood that in a petrochemical industry such as GPIC, where it is potentially very hazardous, even the smallest breakdown or leak in the plant requiring repair would be reported and acted upon immediately. A record would be kept of such incidents and a predictive maintenance programme was developed to prevent foreseeable maintenance problems in that specific area. This led to a practice whereby a checklist of predictive maintenance schedules encompassing the entire plant areas was developed to ensure that no area in the plant was neglected or overlooked. These schedules were then fitted into either the overall routine or shutdown maintenance plans. This approach led to a reduction in plant outages and unplanned shutdowns.

There have been numerous instances where initiative of the employees has led to avoidance of unplanned shutdowns by suggesting modifications to existing equipment, thereby permitting uninterrupted operation of the plant for longer periods, for example,

- i) In case a critical safety valve failed in the Ammonia/Methanol plants, a partial shutdown would be necessitated to rectify the problem. This situation was resolved by installing special single-active selector (Duplex
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PSV) valves at critical locations throughout the Ammonia and Methanol plants to replace regular safety valves. The new valves had a dual access which permitted work to be carried out while the equipment was still running.

- ii) The process air compressor in the Ammonia plant was frequently facing capacity constraints due to rust blocking suction strainer in the third stage of the compressor. Consequently, either an unplanned shutdown had to be taken to rectify the situation, or the Ammonia plant load had to be reduced to continue operation at lower levels. The problem was resolved by providing a temporary bypass for the strainer, thereby enabling removal of the strainer to clear the rust while the plant continued to operate uninterruptedly.
- iii) The absorber and the exchanger in the predesulphurising unit (ADIP) which feeds sweetened (purified) natural gas to the Ammonia and Methanol plants would frequently get fouled with corrosion resulting from hydrogen sulphide reaction in the feed gas. This corrosion would block the exchanger and an unplanned shutdown would be necessary, thereby necessitating cutting off the feed gas to the Ammonia and Methanol plants. A temporary internal bypass was suggested in November 1991 to allow a significant quantity of feed gas to be provided to the Ammonia and Methanol plants while clearing the fouled absorber was in progress.

As far as planned shutdowns are concerned, plant turnarounds were originally envisaged as annual events. However, based on innovative suggestions and the experience gained from efficient and reliable plant operations and maintenance, turnarounds were reduced to a two year cycle to coincide with catalyst change-out schedules. Such lengthy uninterrupted production runs contributed to maximising volumes and reducing cost per tonne of product.

The result of empowering staff, training the operators, adopting better maintenance practices and extra care and vigilance of the operators began to bear fruit.

Suggestions for modifications were the result of motivated and creative workforce. By early 1992, the researcher found evidence of a culture being developed within GPIC, that relied on team work and motivated workforce.

For example, in the top portion of the radiant section of the Methanol Reformer the insulation materials used to get damaged and consequently the reduced insulation created hot spots on the carbon steel shell of the Reformer resulting in heat loss. This meant not only frequent replacement of insulation materials at annual shutdowns, entailing additional maintenance jobs and time during shutdowns, apart from costs. The problem was resolved by substituting the layered insulation with module type insulation, which has an estimated longer life of five to ten years. This not only increased the onstream factor and efficiency (through prevention of heat loss), but also reduced maintenance, time and costs and minimised attendant environmental health hazards arising from frequent handling of fibrous asbestos material.

The Methanol plant functioned excellently in 1991 with a shutdown for a few hours only. Outages for the Ammonia plant dropped by 36% compared to 1990. These outages further declined by 43% in 1992 and 50% in 1993, due to enhanced preventive maintenance, plant reliability and efficiency.

Sustained cost reduction measures brought down the combined cost of product to US\$88 per tonne in 1991, as compared to US\$100 per tonne in 1987. Since GPIC's total production per year was approximately one million tonnes, every reduction per tonne became significant. The consequence was that the year 1991 ended with a profit of US\$19 million.

15. Employee Involvement and Suggestion Scheme

By early 1992 the employees were becoming more involved in the day to day business of the company. Employees volunteered to contribute any ideas they thought would improve the efficiency of operation of the plant or enhance safety or maintenance aspects. In order to channel these contributions, the employees were encouraged to use the existing Modification Request forms, a system designed to give this procedure for technical improvements in the process plant. Therefore, the record of modification requests is a compendium of employee thoughts that have been translated into actual practice. These thoughts were intended to solve existing problems, prevent foreseeable problems and/or to ensure the reliability and efficiency of the plant.

For example, GPIC's Methanol plant was set up with the objective of manufacturing Methanol containing Ethanol at a level of upto 100

ppm. This did not conform to the AA Grade Methanol, where the Ethanol content had to be restricted to below 10 ppm. If GPIC had to produce the AA grade Methanol (to meet specific requirements of certain customers) the plant would have to be operated at a reduced load of 1,050 tonnes per day instead of the capacity 1,200 tonnes, due to an original design constraint of the plant. It was suggested to substitute the lozenges design of the Methanol converter internals with ARC (Advanced Radial Convertor) concept internals, whereby separate catalyst supporting grids and gas mixing/distribution systems were provided inside the converter. This modification helped in operating the converter at lower temperatures and at a uniform temperature profile, thereby minimising the undesirable Ethanol content in the crude Methanol. Consequently, GPIC could now produce AA grade Methanol at the design capacity of 1,200 tonnes per day to reap the benefit of premium prices obtained from the higher grade.

Similarly, it was suggested that the original waste heat boiler of the Ammonia synthesis be replaced with the latest model to avoid repeated failures, enhance reliability in the operations and increase the capacity of the Ammonia plant to a possible level of 1,250 tonnes per day.

Enthused by the success story emanating from suggestions, the management decided to enlarge the scope of employee involvement beyond the realm of plant modification request scheme. In order to channel employee ideas aimed at improving all aspects of their workplace, without imposing restrictions, a Suggestion Scheme was formerly launched in February 1993. The employees were briefed about the rationale and benefit of this scheme, covering the entire range of GPIC's activities. This was to encourage employees to come up with practical ideas and solutions to problems to improve the company's

efficiency and performance and develop a culture of continuous improvement and participation. Over one hundred suggestions were submitted every year between 1993 and 1996 and thereafter it doubled, thereby reflecting the keen interest and involvement of staff.

It is worth noting in some detail, the Suggestion Scheme since it represented a key management tool used by GPIC to tap into their employees thoughts.

A suggestion is a proposal submitted by any employee of the company, through the suggestion committee, with the objective of:

- a) Contributing to the overall improvement of the company, or
- b) Making the work safer, easier, more interesting, or
- c) Enhancing GPIC's image and reputation, or
- d) Offering a solution to an existing problem, or
- e) Introducing an improved concept or method of carrying out an existing task, or
- f) Reduction of cost or elimination of waste.

The Suggestion Scheme Committee members consist of the GPIC Marketing Manager as Chairman, Personnel Superintendent as Vice Chairman, and members are the Treasurer, Process Engineer, Production Engineer and Electrical Supervisor (i.e. senior staff from various departments to ensure full organisational support).

The suggestion scheme committee acknowledges in writing and reviews every suggestion offered. The suggestion is directed to the concerned department for comment and recommendation. Whenever the suggestion has been accepted it is periodically monitored for implementation within the time schedule. This demonstrates the

management's commitment and has resulted in a significant proportion of relevant suggestions being implemented. Management has further demonstrated commitment to the scheme through continuous training and development of the committee members in this area, for enhancing their performance. When the quantity and quality of suggestions indicated a slight decline in 1995 and 1996, a major training workshop was organised in 1997 to revitalise the suggestion scheme. This together with the concept of rewarding suggestion contributors resulted in a qualitative and quantitative upswing in the response to the scheme. To further sustain a high employee morale and whenever financial resources permitted, the company offered various schemes to reward its staff, through annual merit increments, bonus and benefits as was mentioned earlier.

16. Staff Welfare

The management also undertook another issue which concerned its employees. There was good evidence showing the company's commitment to employee welfare and its endeavours to improve their situation. The management observed that as its culture development programme was being implemented, the employees requirement changed. As needs were satisfied, new needs arose. In 1994, the most pressing requirement was housing for Bahrainis. With a view to rewarding employees for loyalty and with a view to retaining them (preventing staff turnover) the management commenced a scheme to assist employees towards purchasing or constructing their own houses.

The General Manager requested the Administration and Finance Managers to review the position in this regard with other companies on the island and come up with a suitable proposal compatible with the

company's cash resources. These managers realised that considering the cash resources, very few employees could be covered by the scheme if the entire loan amounts were to be disbursed to staff.

Instead, a scheme was creatively devised whereby GPIC's own cash flows were impacted to the minimum extent, thereby enlarging the scope of the scheme to cover a large number of the employees. Negotiations were held with banks and facilities have been agreed upon where GPIC recommends an amount of loan, (based on seniority, salary and years of service of employee) which is disbursed by a bank. GPIC reimburses the bank towards the interest charges on such loans. The scheme was started in 1994 and up to end 1997 thirty eight employees had obtained benefit under this scheme and each consecutive year more employees are availing of this offer. This offer ensured that the employee's long term interest was to remain with the company, thus the company in return received a good return on its investment.

Records of the company also showed that the Ministry of Labour and Social Affairs of the State of Bahrain, had, way back in 1981, issued a directive permitting the establishment of a joint labour committee, comprising an equal number of management and staff members. Keeping in line with the concept of employee involvement in the company affairs, the Management who were keen on serving the best interest of the employees, took the initiative to form such a committee in GPIC in 1995. This committee consists of five members who represent employees and who were selected by the employees in a secret ballot, and five members representing management who were nominated by the General Manager. In the true spirit in which it was

meant the Management has maintained a close and positive working relationship with this committee.

With a view to encouraging thrift, GPIC Management introduced yet again another incentive scheme. This time it was a salary saving scheme for Bahrainis in 1996. The concept was that an individual member of staff would make a contribution of a certain percentage of his salary and the company would match it. The corpus would be wisely placed in secure investments, which carried a decent return but had a low risk exposure. The employees had a choice of investment which offered either interest account (or profit sharing account to comply with Islamic tenets). Subject to certain conditions, the employees are also permitted to take an emergency loan against the credit balance in their account.

Apart from the above benefits, GPIC management realised that their workforce were young and enjoyed participating in all types of sporting and extra curricular activities. The management took the view that a healthy body leads to a healthy mind and therefore, to further boost the morale of the employees during the 'leaner' times, and in order to absorb the energy of its young workforce, GPIC started supporting many sporting and social activities. In this way, although the company was in a poor financial state, as was the case in the late eighties, the name of GPIC was highlighted in the media such as TV and newspapers on these occasions, which kept the name 'alive' and at the same time added to the enjoyment of the employees and helped to alleviate their frustration at work. The management still takes pleasure and pride in supporting all sorts of similar activities for the employees. This scheme paid handsome rewards to the company.

Various sporting and social events are included in the employees activities, such as the Spring camp in Sakhir, a fishing competition where the whole catch would be donated to the home for the elderly, participation in industrial companies volleyball league and football league and an interdepartmental football tournament was introduced. As a matter of fact, as early as 1990, GPIC organised a team who won the first position in the Bahrain Lawn Tennis Competition. This was also the first year when GPIC bowling team participated in the industrial league.

The researcher found it most interesting to note that what was conceived at first to be a simple strategy to follow in encouraging employees towards sports, had resulted in major impact on the company's standing in the community and as viewed by the company's own workforce. It is also interesting to note that what was generally thought to apply to universities and social clubs from the point of view of serious competition, the same atmosphere, challenges and seriousness applies in the sports activities of commercial organisations. What is also interesting to note is that the management concepts, trials and practices that one uses in the day to day activity of a company, also applies in the football field. Interestingly, the same principles applied to the day to day work, though the young workforce could see evidence of this more clearly in the sports activities.

GPIC Management demonstrated to its employees that dedication, teamwork, loyalty and creativity can make any individual or a team succeed in sports. By noticing the practical aspects of this on the field, the workforce slowly, but surely appear to have been convinced that if the same elements of management such as setting clear objectives, goals, policies and procedures is adopted at the workplace, they will

become the major contributors in driving or leading the organisation to success, thereby becoming achievers.

17. Quality System

An important aspect of good management practice is maintenance of simple, practical and clear documentation system.

Yet another factor that led to the success of GPIC was the development of job instruction manuals and proper documents for work procedures. The aim was to ensure uniformity as well as to serve as a reference guide for trainees. Accordingly, existing manuals were updated and additional detailed manuals of Operation and Management Systems (OMS) were developed for various technical and operational areas. Similar procedures and policies were developed on the Administration side of the company to deal with staff policies and personnel matters, and in the Finance Department for accounting applications.

In 1992, the management thought of a new system to improve the standard of quality within the company by enhancing the then existing documentation systems and procedures. Thus, with the ISO Quality System (International Standards Organisation) gaining momentum in the international arena, as a step towards achieving formal Quality systems, a programme was developed to achieve this prestigious certificate of recognition.

The subject was discussed at a management meeting in October 1992 where the general consensus was that GPIC should opt for ISO certification. In view of the documented procedures and established work systems already in place, acquiring the ISO 9000 registration

would be a relatively less difficult task. This prestigious certification guarantees that adequate systems are in place to ensure quality of the final product, thereby ensuring higher acceptability in the international export market. The other benefits would be that activities and work practices in areas that were previously not documented would now be included and where documents already existed they would be standardised to achieve documentation uniformity throughout the company. The consequent benefits would be to have a system of regular audit checks in place to ensure continuous compliance with the procedures.

Accordingly, a Quality Facilitator was appointed in January 1993, to oversee matters relating to ISO 9002 quality systems. The first step was to create a Publicity Team to make employees aware of the benefits of ISO 9002 and the role they would be required to play. To this end various presentations were made to all employees. Staff members from each area were nominated to be responsible for the development of the required documentation.

A Quality Internal Audit Team was created to conduct internal assessments at regular intervals. A Quality Policy was developed and signed by the Managing Director and General Manager in July 1993. This policy has since been revised in 1996 to reflect the changes the company has undergone. Copies of this policy were displayed throughout the company.

The GPIC Quality Policy states the following:

- “Quality is an essential component of our Management Policy. We are committed to produce, in a timely, efficient and safe manner, consistent products in accordance with our customer requirements.
- We also expect our suppliers to provide products and services of consistent Quality which meets our requirements.
- Individuals and their functions within GPIC form the basis of the Quality System. Cooperation is essential, both as customer and supplier, in order to meet each other's expectations and promote a culture of Quality inside the company.
- We are committed to establish and maintain a Quality System which involves the full and effective participation of all employees, by encouraging innovation, teamwork and constructive feedback.
- Training and career development programmes must always stress Quality improvements and instil Quality consciousness in all employees.
- We are committed to continuous improvement by applying the best available technologies and Quality improvement tools”.

GPIC succeeded in gaining ISO 9002 certification at the very first attempt during the independent assessment made in February 1995. This certification covered the products Ammonia and Methanol.

As part of the certification requirements, continuing assessments are carried out every six months to ensure validity of the certificate. GPIC does not rest on its laurels and has made it their objective to use the gains from ISO registration as the stepping stone towards achieving ISO 14000 (Environment Management System - EMS). The ultimate goal of GPIC is acquiring a Total Quality Management (TQM) system and style of functioning which it was well into establishing by the end of 1997.

The ISO certification was welcomed in Bahrain and widely acclaimed in all government and corporate sectors. This also acted as a tonic for GPIC employee morale because of the pride they felt in being a major contributor to this achievement without whom this goal would not have materialised. It is a very deliberate policy for GPIC to continually strive to gain international recognition by various independent agencies, not merely to boost the corporate image but also to sustain a high employee morale.

It is worth noting that, at the brainstorming session during the start of the programme, some engineers were skeptical about the merits of the ISO 9002 quality system and could not see any point in going through the hassle of implementing such a time consuming programme. The General Manager of the company thanked them for their interest and participation in the brain storming session and advised them that the company had decided to go ahead with the implementation of the programme and since they had shown interest in the issue (negative at the time !) they could be the best participants in the implementation process. This positive approach towards encouraging employee participation in delicate situations, paid off. One of these engineers became one of the best vocal supporters and contributors to the success

of the programme and the other engineer became a leading member of the Quality Implementation Committee and later a full time Facilitator.

18. Safety of Plants and Employees'

Another important area of the study revealed that safety had a special meaning to the corporate culture of GPIC. The original design of the plant contained features or incorporated aspects of safety. The prime focus was on ensuring safety of the equipment. While such focus was essential considering the potentially hazardous nature of the product and the high technology used, the safety of personnel appeared to have been given a low profile. This could probably be due to the fact that the contract staff, who were brought in to manage and operate the complex, already had safety training and experience. However, the local workforce who would eventually take over from the contractor staff and shoulder the responsibility for the plant operations, came from villages, whose parents worked in agriculture or fishing and with little technical knowledge let alone awareness of the potential hazards related to a petrochemical industry. Thus, during the pre-1988 days, GPIC did suffer a fair amount of minor accidents, which while not affecting the operation of the plant, did have the potential of serious implications, not only to the safety of personnel but also to plant equipment.

During the initial three year period (1985-87), 156 such accidents involving GPIC and contract staff were recorded, as compared to 115 for the ten year period 1988-1997. This significant improvement was primarily due to a change in management perception that safety was a science that could be perfected and employees were valuable assets that

had to be protected. Consequently, in the field of safety employees were accorded a higher focus. Specific measures were taken to train employees as well as contract staff to educate them on all aspect of safety and security and very close monitoring and supervision were undertaken to minimise occurrence of accidents. This programme was looked after by a professional and experienced team that the management created.

As stated earlier, GPIC started to place a great deal of importance on the plant safety, reliability and efficiency, and towards this end a lot of resources were invested into equipment and manpower. The commitment of management has been reflected in a safety policy documented and signed by the executives of the company and displayed throughout the complex. GPIC encouraged suggestions from staff as well as vendors and insurers for carrying out modifications wherever necessary for the continuous improvements and upgrade of the safety and reliability factor.

The company always had a fully fledged Safety & Security Department, with a dedicated and skilled staff to undertake this function on a full time basis. In addition, there is also employee involvement in the safety function. Since fire does not occur on a regular basis, it does not justify a full time employment of a huge contingent of fire fighting staff. With a view to optimising the staff and also to involve staff from other departments, selected staff from various departments are trained as auxiliary firemen and as building safety wardens. Further, every employee is given training and refresher courses on fire and safety drills.

Safe work practices are pursued throughout the complex by all its employees. There is a regular dissemination of information on health and safety practices within the workplace and outside the working areas. This, together with enhanced levels of reliability of equipment through preventive maintenance has resulted in minimising occupational hazards and accidents. Consequently this is reflected by significantly low level of industrial injuries and/or lost time accidents, not only during normal operation of the plant , but also during shutdowns and turnarounds.

A shutdown or a turnaround involves isolation of the complex, inspection of the mechanical, electrical and instrumentation equipment, cleaning vessels for removal of flammable, toxic gases, liquids, residues, insulation and civil work. In view of the logistics involved in managing a huge task force comprising GPIC staff working in concert with a large contingent of contractor manpower, a lot of planning for safety goes into the entire exercise.

In fact the statistics for no lost time accident hours are regularly monitored and given wide publicity to promote the concept of safety. The achievements during periods of both plant operations as well as during major shutdowns and turnarounds make employees proud of their record and encourage them to strive to excel further. This has become the criterion for international recognition.

The development of a safety culture throughout the workforce and their families is a long-term commitment for the safety and well being of all at GPIC. Some of the highlights of GPIC safety activities which demonstrate the commitment of the management are listed below:

The year 1989 was one of the many safety milestones for GPIC, when a major debottlenecking expansion and mechanical turnaround were undertaken simultaneously with no serious accident, fire or incident occurring.

With a view to driving the message of Safety into the homes of its employees, GPIC started celebrating Safety Day at the complex in 1991. Besides distribution of material information on safety at home and at the workplace, the children of employees are involved in safety related competitions. Contributions are recognised, appreciated and awarded.

In 1993, the first Family Safety Evening celebrations took place which encompassed the families of employees, where they are invited for an evening's entertainment including safety related competitions with prizes for the children. This has since become not only an annual event where the message of safety is reiterated and driven home to the family, but has also served as a social event for interaction between employees' families.

Involvement of families in safety related issues, is not restricted merely to annual events or brochures and leaflets. Trips to the GPIC Complex for spouses and children of employees are arranged. This has helped GPIC to allay misconception about working in chemical factories and demonstrate to the family members the safe environment under which the GPIC staff works.

Of course, some of these measures come at a cost, but these are looked upon more as an investment than a cost. Higher productivity and better employee morale constitute rich dividends on this investment.

The safety of engineering modifications received special attention during 1993. The GPIC in-house team was created to review the hazards and safety of every aspect of the plant operation (called the HAZOP team). This team completed its first review in 1993 and gave a series of recommendations when action could be taken to overcome/minimise hazards in identified areas. It also identified a number of areas for study in the near future. Hazop study has since become a continuing exercise and their recommendations are generally implemented.

The contractor safety orientation programme contributed substantially to the high safety standards maintained throughout the major shutdown in January 1994. The programme still continues. In July 1994 the company achieved 1,000,000 man-hours free of lost-time accident. This was the third occasion that this major safety milestone has been reached. This achievement was recognised by the National Safety Council of the USA by awarding GPIC a Certificate of Merit. In that year, the Company also received a Gold Award from the Royal Society for the Prevention of Accidents (RoSPA), UK, for sustained efforts and enhancements in safety.

In 1995, as part of an international competition organised by the National Safety Council, USA, entitled "Design a Safety Poster", a GPIC employee won first place in the category "Best Off the Job" poster.

Major milestones were again achieved during the year 1996 in the fields of safety, fire and accident prevention. At the end of the year, 2,064,271 hours had been worked representing 824 days free of lost-time accidents. Even more remarkable was the fact that during this period GPIC safely carried out its largest maintenance shutdown in the history of the company.

GPIC received two awards in December 1997 from the Ministry of Labour and Social Affairs. One was the National Safety Award for maintaining safety and environment standards, while the other award was the Outstanding Manager Award, to honour the General Manager in recognition of his management capabilities and his company's outstanding performance.

During the year 1997, GPIC also received its fifth consecutive Gold Award for Occupational Safety from the Royal Society for the Prevention of Accidents, UK, as well as a Certificate of Merit from the National Council of the USA.

Petrochemicals is a relatively new business with a high potential for accidents. In the absence of adequate data or past records on fire and other accidents in the industry, it was felt necessary to collect and exchange information regarding major incidents and accidents in petrochemical plants throughout the world. A programme was developed in 1997 to log these incidents and learn from the mishaps and mistakes of others in order to take necessary appropriate action to avoid similar accidents occurring at GPIC.

For example, upon learning about an explosion in a Benfield solution storage tank in an Ammonia plant elsewhere, GPIC in 1990 decided to take immediate action to avoid a similar recurrence at their complex. Entrained Hydrogen in the Benfield solution is an explosive hazard and to minimise an explosion risk, GPIC installed a Nitrogen blanket with a continuous bleed arrangement to purge the hydrogen in the Ammonia storage tanks.

Again, at the suggestion of the reinsurers in 1994 individual dykes were constructed around each of the Ammonia and Methanol storage tanks to replace a common dyke which existed earlier. The idea was to cordon off spillage occurring in the event of tank failure.

The researcher could find ample evidence to substantiate GPIC's exemplary track record with insurers. The reinsurers visit the complex every two years to assess the insurance risk at GPIC and have been impressed with the high standard of safety and good housekeeping within the complex. Consequently, with each successive visit, they have classified GPIC as a lower risk and have progressively reduced the insurance premiums from US\$3.7 million in 1986 to US\$1.1 million in 1997. This is a clear indication and recognition of GPIC safety achievements. From the financial stand point, the reduction in insurance premium can be viewed as a payback on the expenditure incurred on safety.

With a view to demonstrate growing concern on environmental issues, when it was decided to form the Safety, Health and Environment Committee (SHE Committee) to enhance the scope of the Safety Committee activities, the SHE Committee became responsive to issues relating to the environment, raised not only worldwide by the media in general, but also to specific issues relating to the petrochemical industry and to suggestions made by employees. The committee reviews the relevance and impact of these issues on the GPIC complex and personnel and recommends to the management specific measures to be taken. The management have declared their views in the Environment Policy which was signed by the Managing Director and General Manager and displayed throughout the complex. The management have demonstrated their commitment by implementing

many recommendations of the SHE Committee on environmental issues.

In 1994, based on a suggestion from the General Manager, one of the recommendations made by the SHE Committee, was to establish a 'Charity Garden'. Today, this Charity Garden is evidence of the healthy environment prevailing within the complex. All vegetable and fruit produce is regularly given to the needy local people. Similarly, a 'Charity Fish Farm' was constructed at the sea water outfall area of the complex. Different categories of young fish are reared and harvested, half of which are offered to the needy local community and the other half are released into the sea to replenish natural stocks. This fish farm is demonstrable evidence that GPIC does not pollute the surrounding waters.

Waste paper generated within the complex is segregated and forwarded for recycling.

Such simple programmes demonstrate to the employees that the company cares about the environment and motivates them to constantly endeavour to work towards a better environment. In 1997, GPIC was awarded the First Gulf Cooperation Council Environmental Award in recognition for its contribution in the field of environment.

19. Benchmarking

The management recognised that it needed to utilise some other tools to assess the company's performance, not only in comparison to its own performance, year by year, but in comparison with similar other plants abroad. Previously, GPIC had access only to the vendors/licensors

plant design data and its own historical data to judge its performance. In 1995, GPIC undertook a worldwide survey of a number of Methanol plants for the period of plant operation between 1990 and 1994 to provide meaningful comparison with data obtained from its own Methanol plant operations.

The survey aimed to define a benchmark for plant onstream time performance and to analyse the causes of downtime during the period 1990-94. The analysis focused on both the operational and maintenance aspects of the plant performance. For the purpose of the study, plants which were either too small or operating with feedstocks other than natural gas were eliminated. While some eligible plants declined the invitation to participate for confidential reasons, eight major international Methanol plants other than GPIC participated in the study. Data was obtained from each organisation by means of a questionnaire and the following benchmarking criteria was laid down to establish clear and unambiguous comparisons of data in respect of the following:

- i) Annualised operating rate (actual annual production divided by the theoretical maximum annual capacity, expressed as a percentage).
- ii) Onstream factor (hours operated as a percentage of total hours available per annum).
- iii) Operating rate (rate at which the plant operated during the year, expressed as a percentage).
- iv) Number of startup/shutdown cycles.

For each benchmark the figures for worst, average and best were calculated based on the average values for each plant during the period 1990 to 1994. Upon collation of the data obtained, the nine Methanol plants were compared with the best and worst averages. GPIC's figures,

expressed as a percentage of its best average figure when compared with the best in the industry, were as under

	<u>Industry Best</u>	<u>GPIC</u>	<u>Performance %</u>
Annualised Operating Rate	94.4	93.6	99.2
Onstream Factor	97.0	97.0	100.0
Plant Operating Rate	97.3	96.5	99.0
Number of Start-up/ Shutdown Cycles	2	2	<u>100.0</u>
			Overall: 99.6%

Further, whilst comparing Methanol plant downtime performance during the period 1990-1994, GPIC had a record of NIL unscheduled shutdowns as against an average of 174 hours per annum for the industry, and was thus rated top in this category. This was a clear demonstration of the effectiveness of GPIC's preventive and turnaround maintenance programme.

Similarly, GPIC subjected its Ammonia plant performance to comparison with five other Ammonia plants in the Arabian Gulf region. The same criteria as applied to the Methanol study were applied for the Ammonia plant study. GPIC emerged on top in three categories and second in the fourth, as under:

	<u>Industry Best</u>	<u>GPIC</u>	<u>Performance %</u>
Annualised Operating Rate	93.87	93.87	100.00
Onstream Factor	95.61	95.40	98.80
Plant Operating Rate	98.42	98.39	100.00
Number of Start-up/Shutdown Cycles	4	4	<u>100.0</u>
			Overall: 99.95%

These results were not merely due to the possession of state of the art technology employed to operate the Ammonia and Methanol plants, but also demonstrated the high level of expertise, skill, experience and

creativity of the manpower running the entire complex. Such results served to motivate the employees to sustain the high level of performance and strive for even greater success.

Yet another survey was undertaken for selected international Methanol plant operations during 1997. GPIC's plant operations compared favourably in several aspects such as:

- i) In 1997 GPIC Methanol Plant had the lowest production losses and 100% operating service and reliability factors - the best year for any plant in the survey.
- ii) GPIC's Methanol Plant was one of four to have 100% "on-time-in-full" delivery of product, with "zero off-spec" and "zero customer complaint" record.
- iii) Maintenance absence in the GPIC Methanol Plant was the lowest reported amongst all plants in 1997.
- iv) Costs of operation of the GPIC Methanol Plant were generally the lowest reported; this made the cost per tonne, one of the lowest of all plants surveyed.

20. Award for Excellence

In August 1996, GPIC was nominated by the Awards Secretariat to participate in the competition for GCC Business Awards, in the category for Gulf based manufacturing company. The organisers required the company to submit various types of relevant data and statistics, both financial and technical to support the nomination.

Senior staff from all departments enthusiastically contributed towards the immense task required to put together this package. The package presented demonstrated excellence in various aspects of GPIC

corporate management and culture in the form of a video cassette film, annual reports, in-house newsletters, Bahrainisation, safety and quality award certificates, various conference papers submitted by GPIC employees, photographs of key events celebrating employee achievements, GPIC Charity Garden and Charity Fish Farm, as well as other financial and technical documents.

GPIC was fortunate to be selected as the winner of the Gulf Enterprise Award in the GCC Manufacturing category in December 1996, among all the companies from six GCC member countries. The event was given a large media coverage. The crystal trophy occupies a prominent position in the entrance to the GPIC Administration building and is a source of pride to all the employees. This was yet another important recognition by an independent agency for the company and a good indication to the management that the path being set is the right one to follow.

The transformation of the company would not have been achieved without the dedication and hardwork of its employees. The employees' views and input into the reasons for the successful transformation process of the company during the study period will be sought in order to complete this study.

Having reviewed in this chapter the history of GPIC's development over the period 1988 to 1997, the next chapter will review the business performance of the company over the same period. In Chapter Four, a link between the company's performance and the actions taken by the management as detailed in this chapter will also be made.

Chapter Four

Business Performance

It is important to establish the parameters by which one can assess the company's business performance and achievements before proceeding to study the critical factors that could contribute to the company's success and growth. These business performance parameters were applied to make an in-house evaluation. Further, GPIC business performance was also subjected to benchmarking studies to evaluate its rating in comparison with other petrochemical units within the region and worldwide. GPIC considers 'benchmarking' as a necessary business instrument that determines its performance and commercial success against its peer group in the international market across a wide range of operational measurements by the practical fact that the company had participated in all the benchmarking studies that it had been invited to participate in. The company believes that this helps to establish its real competitive edge or highlight its weaknesses. To keep ahead, GPIC constantly innovates, modifies where necessary and improves its habits, cultures, procedures and systems in order to improve its performance. This will be substantiated in subsequent chapters dealing with Culture, Motivation, Creativity and how they are applied in GPIC.

4.1 In-house Evaluation

Business performance of an organisation can be viewed from various perspectives. This study lists out forty-five performance factors which are outlined in Table 5, page 180 against which a comprehensive empirical analysis was done for each of them to evaluate GPIC's performance.

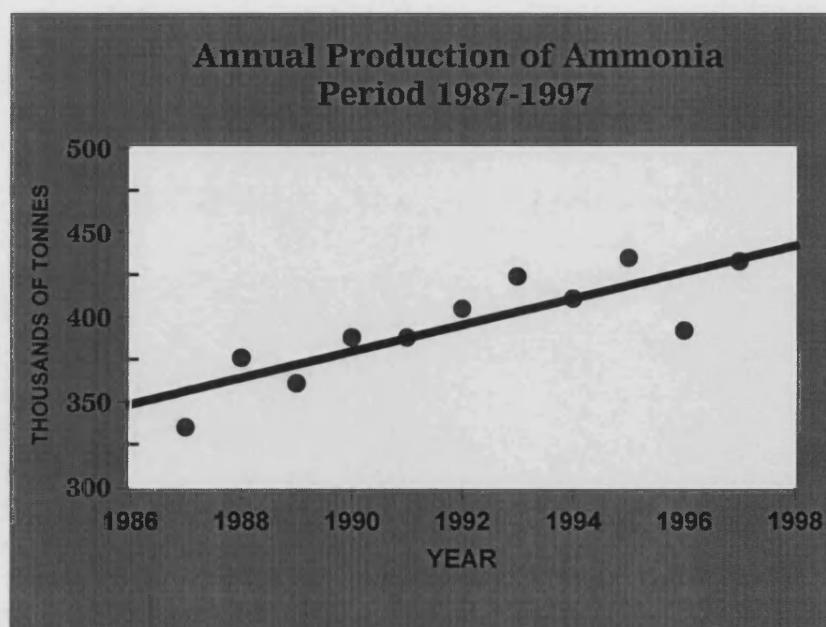
a) *Annual Production*

Annual production is a criterion which indicates a company's ability to optimise utilisation of its resources in order to meet or exceed designed production levels. A higher annual production denotes a better plant performance in terms of maximum utilisation of production design capacity and improved reliability of the plant.

GPIC was designed to manufacture 1,000 tonnes each of Ammonia and Methanol per day. In the case of Ammonia, the annual production was 335,457 tonnes in 1987 and this increased by approximately 29% to reach 432,981 tonnes in 1997. Similarly, in case of Methanol the annual production increased from 389,013 tonnes in 1987 to 447,969 tonnes in 1997 denoting a rise of 15%.

Figure 18 shows a graphical representation of the annual production of Ammonia during the period 1987 - 1997.

Figure 18



Year:	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Tonnes	335,000	376,000	361,000	388,000	388,000	405,000	424,000	411,000	435,000	392,000	433,000

This increase is due to a number of factors of which the major one is the Debottlenecking. Debottlenecking means to eliminate various restricting parts of the plant to increase production. A project was carried out in 1989 which has increased the plant production capacity from 1000 Tonnes/day to 1200 Tonnes/day. i.e. by 20%.

There are also many other factors such as improved maintenance performance, plant modernisation and modifications, staff training and development and improved employee awareness, morale and loyalty that contributed to the improved performance of the plant. This aspect of the plant management will be highlighted and discussed separately under success factors analysis.

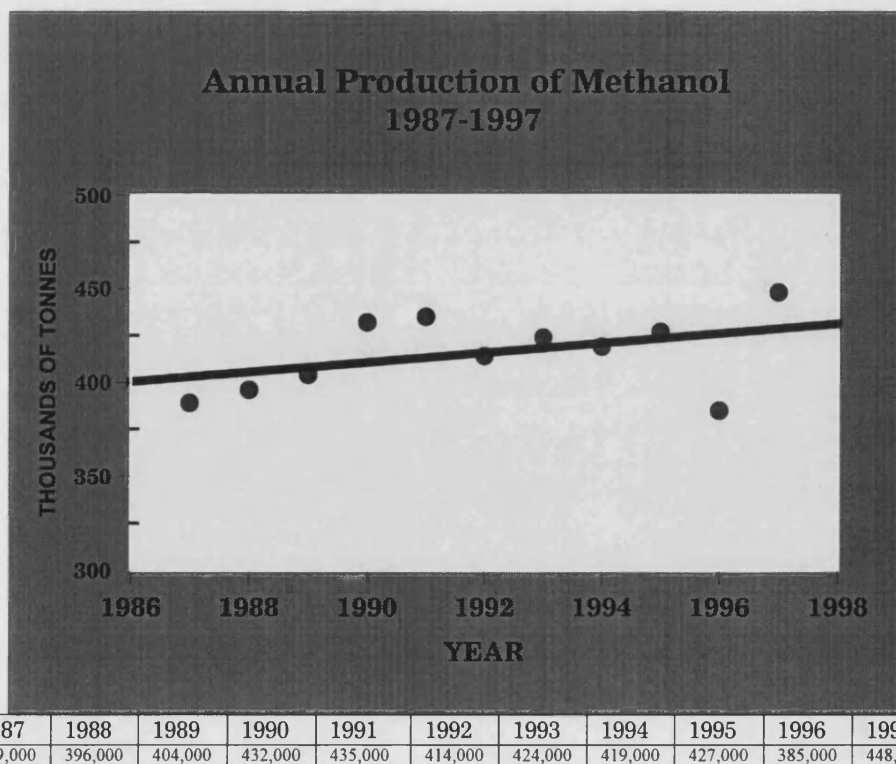
Going back to the technical evaluation, from the above graph it is evident that over the period 1987-1997, there has been a clear trend indicating a rise in production almost every year. A slight decrease in production by 4% in 1989 over 1988 was due to an extended shutdown required to carry out the numerous improvements on the plants, as well as to enable tie-ins for the debottlenecking project. By tie-ins it is meant installation of connecting items such as flanges and valves for subsequent connection to another equipment or plant without the need of a further shutdown of the unit. In 1996 the annual production decreased by 10%, again due to an extended shutdown in order to carry out a major turnaround of the plants and also to carry out tie-ins for a future expansion project, a new Urea Plant in this case. In the subsequent year, the annual production rose by 10% thereby restoring the 1997 production to the 1995 level.

It is normal practice in petrochemical plants worldwide to undertake maintenance turnarounds. A turnaround is a planned shutdown

activity to carry out catalyst changeouts, inspection of equipment, preventive maintenance and repairs that cannot be done while the plant is in operation. In addition, improvements and replacement of equipment and control systems are carried out, in line with technological development and advancements. The manufacturers design of such large scale petrochemical plants normally recommend a turnaround every year. Plants that could safely and efficiently extend the duration of operation between each turnaround is considered more reliable and economical.

In the case of GPIC Ammonia Plant, the period between turnarounds was extended to two years without prejudicing safety and efficiency. Figure 19 shows a graphical representation of the annual production of Methanol during the period 1987 - 1997.

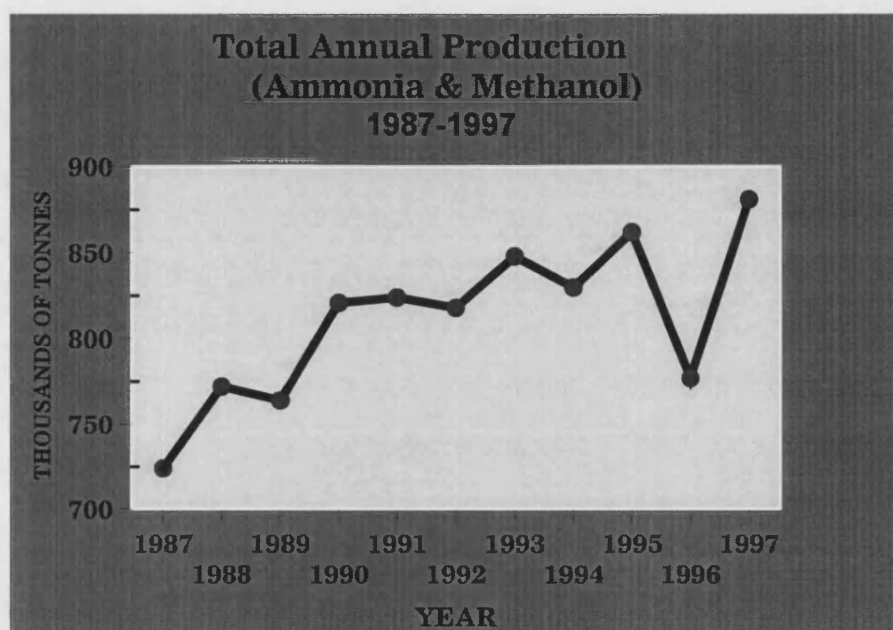
Figure 19



From the above figure, it is evident that there has been a continuous upward trend indicating increased annual production of Methanol year after year. In 1992 and 1994 the annual production dropped marginally by 5% and 1% respectively as a result of turnaround of the plant during those years. As in the case of Ammonia, in 1996, the Methanol production also dropped by 10% due to a major turnaround of the plant involving extended shutdown activities during which major improvements were made to a piece of key equipment on the Methanol Plant (Methanol Converter was changed from a quench type to an Advance Radial Converter type). This change was made in order to improve efficiency of Methanol synthesis reaction and to improve the quality of the product Methanol by reduction of the undesirable by-product such as Ethanol. The production level was restored due to a 10% increase in production in 1997.

Figure 20 shows a graphical representation of the variations of the total annual combined Ammonia and Methanol production during the period 1987 - 1997. It shows a general gradual increase in the value of the total annual production.

Figure 20



In the period from 1987-1997 the combined annual production of Ammonia and Methanol increased from 724,470 tonnes to 880,950 tonnes, i.e. an increase of 22%.

The decrease in total annual production in 1989 and 1996 was because of the long annual turnaround for reasons mentioned earlier.

b) Number of Shutdown days

A shutdown day means that the plant did not produce any saleable product during that particular calendar day. This factor focuses on the reliability of the plant for sustained performance and continuous production without stoppage. The lower the number of shutdown days, the better is the plant performance. All petrochemical plants are designed to have annual shutdowns. It is also a well recognised practice in the petrochemical industry to design plants to operate 330 days a year and to allow for 35 days of shutdown for emergencies,

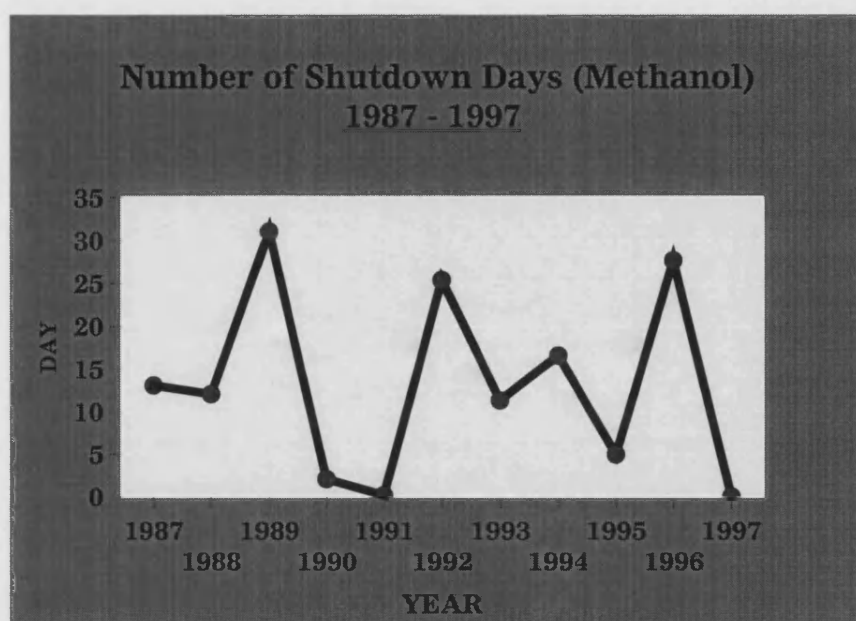
the number of shutdown days had been higher in the years when there was a planned maintenance shutdown as in the years 1989, 1991, 1992, 1994 and 1996.

In 1989, the number of shutdown days reached approximately 53 due to the debottlenecking project. Again in 1994 and 1996, the number of shutdown days increase over the previous years due to planned shutdowns to undertake turnaround of plants, catalyst change-out and other plant improvements and modifications.

During the years when there were no planned shutdowns, the number of unplanned shutdown days had decreased year after year. In fact, in 1993 and 1995 the performance of the Ammonia Plant was excellent and there was less than one shutdown day. However, the most significant criteria to note whilst analysing the data shown in Figure 21 is that there are two distinct periods. The period 1987 to 1992, during which the maintenance shutdown was carried out on annual basis. The other period being 1993 to 1997 where the turnarounds were carried out every two years, thus saving time and cost while increasing productivity. The period of the shutdown in both cases was similar.

Figure 22 below shows the total number of days in each year that the Methanol plant was out of service for any reason, whether planned maintenance shutdown or emergency shutdown due to equipment fault or for any other reason.

Figure 22



Year	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Days	13.1	12.1	31.1	0.1	0.2	25.4	11.4	16.6	5.0	27.7	0.00
Avg per year	13.6 days						12.1 days				

During the period 1987-1997, the number of shutdown days decreased from 13 days in 1987 to 0 days in 1997. As in the case of the Ammonia Plant, the shutdown days for the Methanol Plant were higher in the years when there were planned shutdowns such as 1989, 1992, 1994 and 1996.

During the year 1991, the performance of the Methanol Plant was excellent, requiring only a few hours shutdown for the whole year. The best record was achieved in 1997, when the plant did not have a shutdown at all.

As mentioned earlier, a point worthy of note is the fact that when GPIC commenced its production, the turnaround of the plant was envisaged to be an annual activity. However, due to the excellent operational and

maintenance efficiency gained during the initial period of operation of the plant, GPIC was able to reduce the turnaround frequency to once in two years, obviously this resulted in more production at reduced cost. Further, on account of proper preventive maintenance, the plant was kept in excellent operating order requiring fewer number of shutdown days during turnarounds. To achieve such a significant improvement, especially in the Ammonia Plant which is by far a more demanding and complex process compared to the Methanol operation, a good number of continuous improvements both in systems and hardware had to be carried out in order to achieve these results.

Controlling and minimising the number of shutdown days is very significant in the petrochemical business. The cost-volume paradigm makes it necessary for a petrochemical unit such as GPIC to maximise its output, as long as the net market price per tonne exceeds the variable cost. Accordingly, it is imperative that GPIC strives to produce at full capacity, not only to avail of the marginal income (selling price less variable cost) to cover its fixed costs, but also to take advantage of temporary price spikes which occur during periods when adequate produce is not available to meet the market demands. This was the case in 1994 when the methanol price shot up to US\$ 550/tonne and the ammonia price shot up to US\$ 220/tonne as compared to a normal price of around US\$ 100/tonne for these products. During that period GPIC was in a position to take advantage of the situation by producing uninterruptedly at full capacity.

c) ***On-Stream Factor***

The on-stream factor is calculated by dividing the total number of days when the plant was in operation with the total number of calendar days in the year i.e. 365 days (for leap years it is divided by 366 days). The

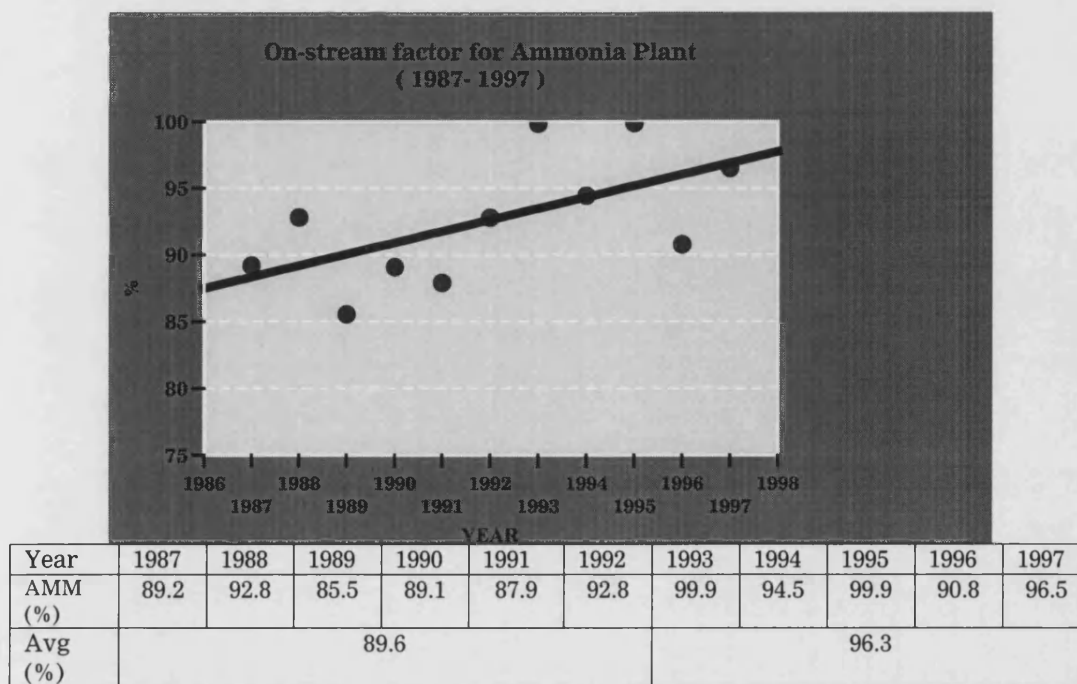
maximum on-stream factor that can be achieved therefore, would be 100% (i.e. no shutdown during the year). The higher the number, the better is the plant performance and utilisation. Therefore, the more reliable the plant operation becomes the higher cumulative production is achieved in a particular period or year.

Figure 23 shows the variation of the on-stream factor for the Ammonia plant during the period from 1987 - 1997. The graph shows a generally increasing value for the on-stream factor.

In the period from 1987 to 1997, the on-stream factor increased by approximately 8%.

The on-stream factor is another way of interpreting the parameter explained under point (b) above. In technical terms, the greater the value of the on-stream factor, the more reliable is the plant performance and its economics.

Figure 23

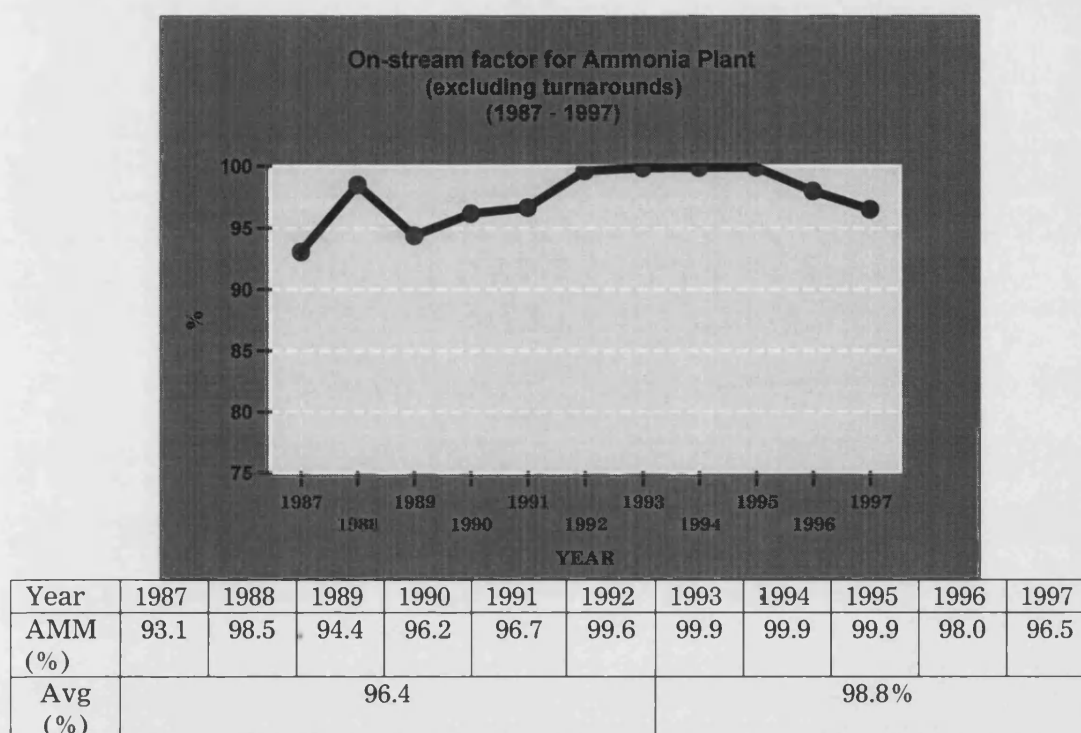


The lowest on-stream factor was in the year 1989. This was due to the long annual shutdown period for the implementation of the debottlenecking project. Since then, the on-stream factor has, on average, constantly improved and reached the highest level in the years 1993 and 1995 when there was no plant shutdown. The drop in 1996 was because of the second longest maintenance turnaround when GPIC also carried out the tie-ins for the Urea Project expansion.

The data in Figure 23 shows that the average on-stream factor for the period 1993 to 1997 was 96.3% against 89.6% for the period 1987 to 1992. A significant improvement in the reliability of the Ammonia plant operations in the later part of the period under study, which is opposite to what one expects from a plant that is getting older and hence should need more repairs.

Figure 24 shows the variation of the on-stream factor excluding planned maintenance turnarounds. It can be observed that by excluding the turnarounds and including only the emergency trips/outages, the on-stream factor remains high and with constant improvement.

Figure 24



Thus, looking at the data in more specific detail, it can be seen that the on-stream factor, excluding the turnaround periods, had increased from an average of 96.4% in the period 1987 to 1992 to an average of 98.8% in the period 1993 to 1997.

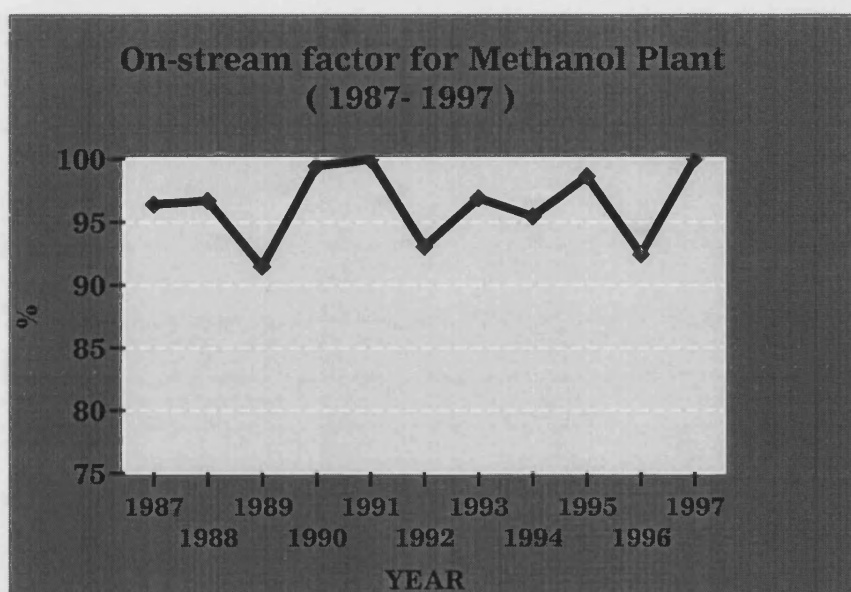
The variation of the on-stream factor for the Methanol plant during the period from 1987 - 1997 is shown in Figure 25. The graph shows a generally increasing value for the on-stream factor.

In the period from 1987-1997, the on-stream factor increased by approximately 4%, which is significant considering the natural ageing of the plant.

The lowest on-stream factor was in 1989. This was due to the long annual shutdown period for implementation of debottlenecking project.

The second lowest on-stream factor was in 1996 due to the long turnaround period for reasons mentioned earlier. In 1990, 1991, 1993, 1995 there was no planned annual turnarounds and hence the factor was high. However, in 1997, the on-stream factor reached 100% since there was no planned annual turnaround nor a single day without production, indicating an extremely high reliability factor.

Figure 25



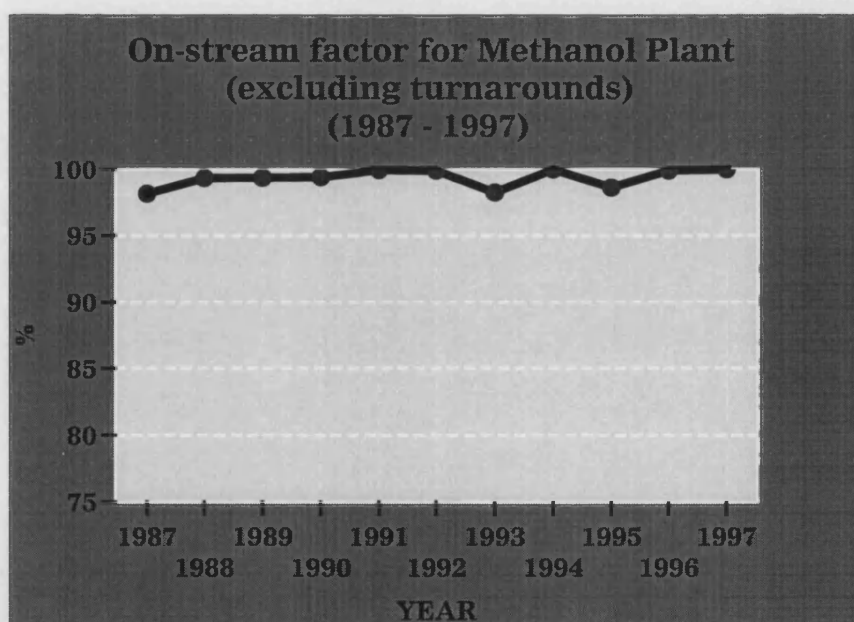
Year:	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
METH (%)	96.4	96.7	91.5	99.4	100.0	93.1	96.9	95.5	98.6	92.4	100.0
Avg (%)	96.2						96.7				

It is worth noting that the average international on-stream factor for Methanol plants is 94.3% as stated in the benchmarking study conducted in 1995. GPIC Methanol plant average on-stream factor in the period from 1987 to 1997 was 96.4%, which exceeded the international average value by 2.1% making GPIC the most reliably operated plant.

In another benchmarking exercise of 14 internationally sized Methanol plants which covered the year 1997, GPIC Methanol plant was benchmarked as the BEST in 1997 for achieving the lowest production losses and 100% operating service and reliability factors.

Figure 26 shows the variation of the on-stream factor excluding planned turnarounds. It can be observed that by excluding the turnarounds and considering only the emergency trips/outages, the on-stream factor is almost 100%, which indicates the reliability of the plant throughout the years.

Figure 26



Year:	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
METH (%)	98.2	99.4	99.4	99.4	100.0	99.9	98.3	100.0	98.6	99.9	100.0

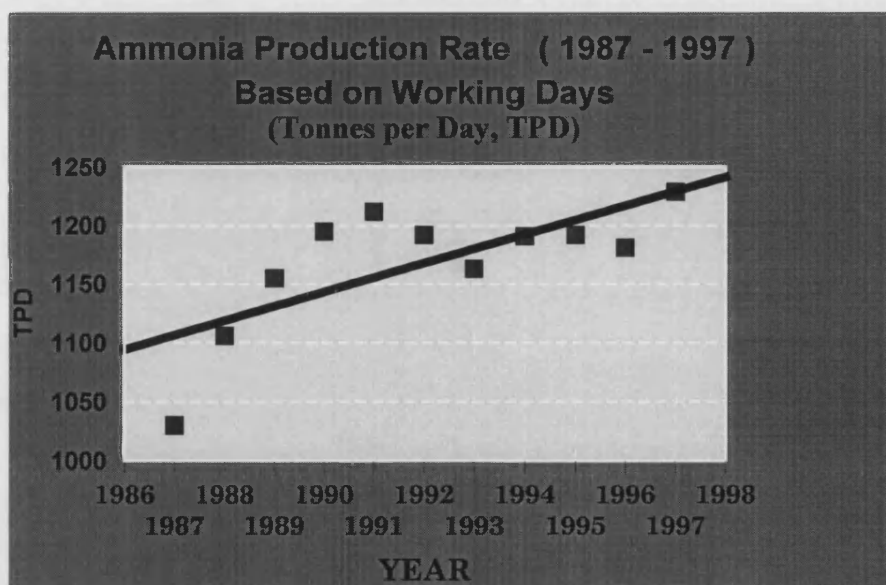
d) **Production Rate**

The production rate is a measure of efficiency of the plant operations and is calculated by dividing the total annual production by the number of days the plant was in operation. This is the average daily output of the plant. In this case the initial design capacity was 1000

tonnes per day and later in 1989 it was increased to 1200 tonnes per day by debottlenecking the plant. The usefulness of this graph is that it shows how best the plant was operated to achieve or exceed the design production per day. Many factors contribute to a better production rate, such as proper plant monitoring, fine tuning and adjustments, staff vigilance and optimum utilisation of plant auxiliaries and other resources. A higher production rate is obviously an indication of a better plant performance and operation.

The variation in the production rate of Ammonia during the period from 1987 - 1997 is graphically represented in Figure 27. From the graph, the production rate of Ammonia was found to be generally increasing.

Figure 27



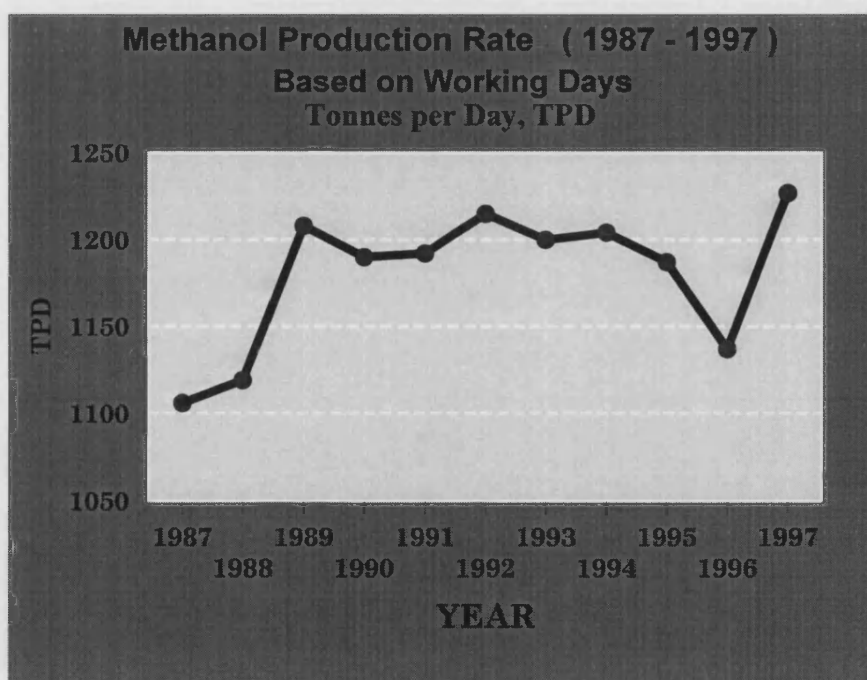
Year:	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
AMM (TPD)	1030	1106	1155	1195	1212	1192	1163	1191	1192	1181	1229

In the period from 1987 to 1997 the production rate increased by approximately 20%. From 1987 the plant was able to produce more than the design value of 1000 tonnes/day. The performance gradually

improved until the debottlenecking project was completed in 1989 and the design value increased to 1200 tonnes/day as mentioned above. GPIC records show that in 1993 the plant was operated at a reduced rate due to a technical limitation. This limitation was eliminated in the 1994 turnaround and the production rate improved again. After the major turnaround in 1996, the performance of the plant became the highest and reached 1229 tonnes/day throughout 1997.

A graphical representation of the variation in production rate of Methanol during the period from 1987 - 1997 is shown in Figure 28. From the graph, the production rate was found to be generally increasing

Figure 28



Year:	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
METH (TPD)	1106	1119	1208	1190	1192	1215	1200	1204	1187	1137	1227

In the period from 1987-1997, the production rate increased by approximately 11%.

From 1987 the plant was able to produce more than the design value of 1000 Tonnes/day. The performance gradually improved until the debottlenecking project was completed in 1989 and the design value increased to 1200Tonnes/day. This high rate has been maintained throughout the years. In 1996 there was a dip in the production rate because of a technical problem which was later solved. All of the bottlenecks were eliminated in the 1996 turnaround and the production rate improved again. It reached 1227 Tonnes/day during 1997, which is the highest throughout the years.

Theoretically, if the total fixed and variable costs per unit of a manufacturing company are plotted on a graph at various levels of capacity utilisation, the optimum output level would be determined at the stage in the U-curve when the fixed cost per tonne is at its lowest. At such level of output, the margin (selling price less the sum of the variable and fixed costs) per unit is the highest. Any output lower or higher than the optimum level would indicate inability to avail of the full potential of the lowest fixed cost per unit. This theoretical model generally holds good for mass produced consumer items and where the restraint on capacity utilisation is limited (e.g. a concern which operates on a single shift basis can enhance its capacity utilisation by working overtime in the single shift or by working extra shift/s).

The basic features of the aforesaid model holds good for petrochemical industries such as GPIC, albeit with certain limitations. Such industries, which have continuous process manufacturing facilities, have limitations in increasing output beyond their designed/installed capacity. An addition to capacity (through expansion or debottlenecking) entails heavy capital expenditure and additional

manpower/operating requirements. Consequently, the fixed cost per tonne of product declines steadily as the utilisation of existing capacity nears the designed/installed capacity and is lowest when the capacity is utilised to the maximum. This level of production is determined as the optimum level. (The only proviso to the aforesaid would be that the market price per tonne realised exceeds the variable cost per tonne; if the market price falls below the variable cost it would be prudent to suspend production).

Production levels immediately beyond such optimum level, attained through expansion/debottlenecking, entail a fixed cost per tonne which is substantially higher. Accordingly, the fixed cost curve which was sloping downwards suddenly swings upward.

Hence, in petrochemical industries such as GPIC, which are limited by the constraints of installed capacities, it is imperative that they attain optimum levels of production. This is possible by operating at the maximum level.

e) Plant Outages

The number of plant outages means the number of incidents that lead to a plant loss of production. They involve outages due to the planned maintenance shutdown which used to be scheduled initially every year and subsequently approximately every two years. There are also outages due to emergency failure of an equipment or instruments which require immediate attention. The smaller the number of plant outages, the better is the plant performance, more production and hence more profit.

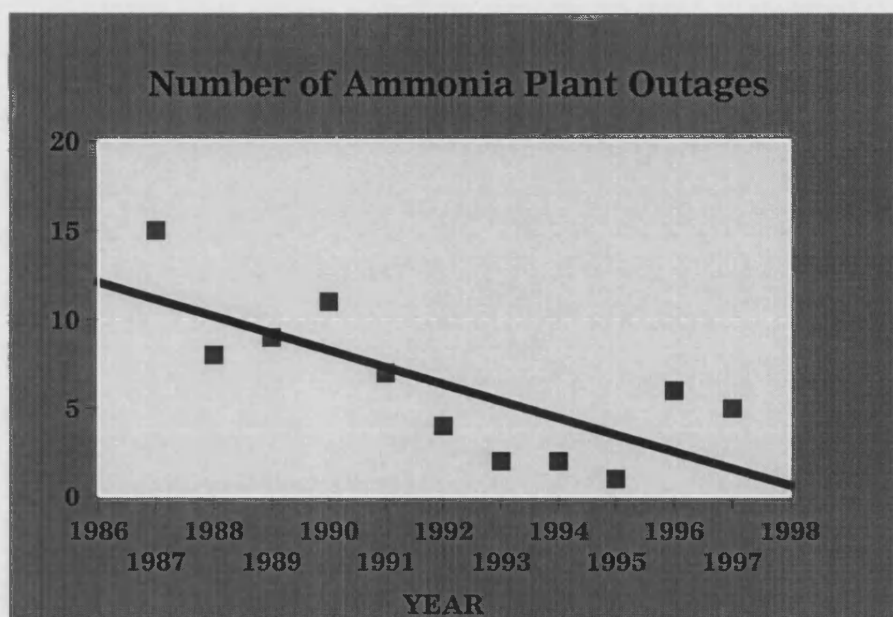
This factor thus measures the frequency in which production loss occurs. The aim of every petrochemical plant operator would be to reduce the frequency of this type of interruption since such interruptions lead to significant adverse financial consequences for the company.

In subsequent chapters, the importance of this factor and how it influenced GPIC's performance will be analysed in detail since the researcher is of the opinion that the human element can have a significant influence over this parameter.

The variation in the number of Ammonia plant outages within the period from 1987-1997 is shown in the graphical representation of Figure 29. The usefulness of the graph is that it shows the steadiness of operation and the level of reliability of the plant .

From the graph the number of plant outages was found to be generally decreasing. The number of plant outages decreased from 15 in 1987 to 5 in 1997, i.e. by 67%.

Figure 29



Year	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
AMM	15	8	9	11	7	4	2	2	1	6	5
Avg	9						3				

The Ammonia plant was down as much as 15 times in 1987, but because of continuous plant improvements, modernisation of instrumentation, creation of systems for monitoring and responsiveness of the plant operation and maintenance personnel, as well as proper training of staff, the number of outages gradually reduced and only one incident occurred during 1995. The figure rose again in 1996 for various reasons, i.e. a leak in the reformer tubes due to ageing of the tubes and an auxiliary boiler trip. All problems were attended to, their causes immediately rectified and long term solutions provided.

The gradual improvement in the performance of the company becomes clear through comparison of the periods 1987 to 1992 and 1993 to 1997. The data in Figure 29 shows that the average number of outages per year during the period 1987 to 1992 was as high as 9. This number was

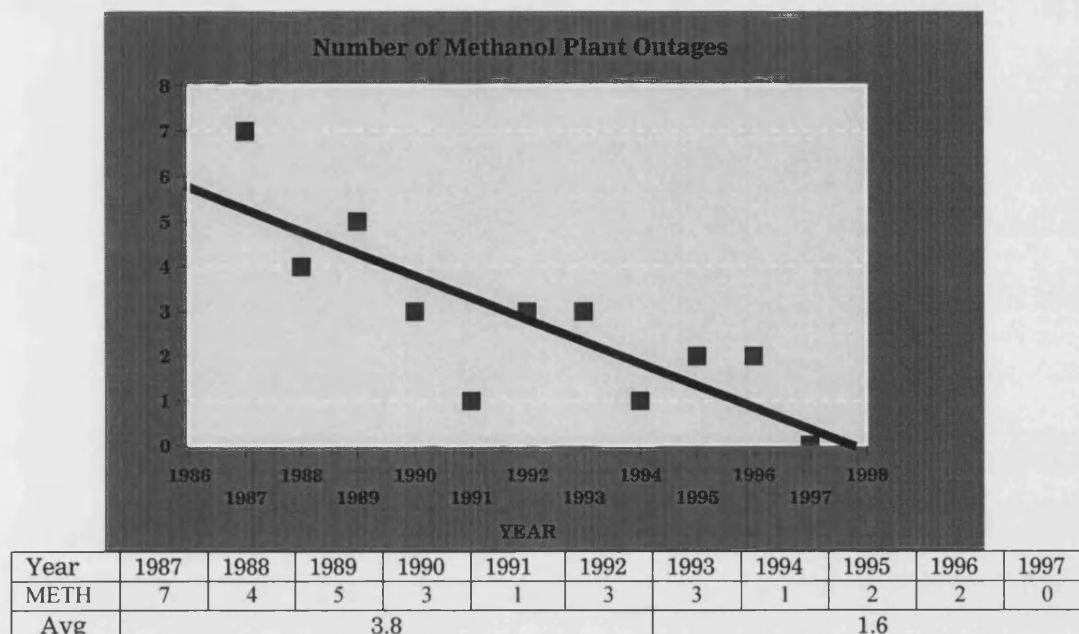
reduced significantly to an average of only 3 outages per year during the period 1993 to 1997.

As explained in Point (b) - *Number of Shutdown days*, controlling and minimising the number of shutdown days is very significant in the petrochemical business, if the organisation aims to avail of the full benefits of fixed cost by operating the plant at optimum level.

Once again, this clearly illustrates that some important and exceptional changes must have occurred during the period under evaluation for such a major improvement to be realised. The importance of dividing the study and research period into two distinct parts is to make the positive transformation more vivid since technical improvements and the effect of change in management style cannot be realised immediately.

The variation in the number of Methanol plant outages within the years 1987 to 1997 is also graphically represented and is shown in Figure 30. From the data, the number of plant outages was found to be generally decreasing until it reached an ideal performance level of zero outage in 1997.

Figure 30



It is worth noting that the average number of Methanol plant outages internationally was four, as stated in the earlier referred to Chem Systems study conducted in 1995. The GPIC Methanol plant's average number of outages in the period from 1987 to 1997 was less than three, which was better than the international average by a significant margin. This was one of the criteria for which Chem Systems chose GPIC Methanol plant as the best operated Methanol plant out of all the plants that participated in the benchmarking study of 1995.

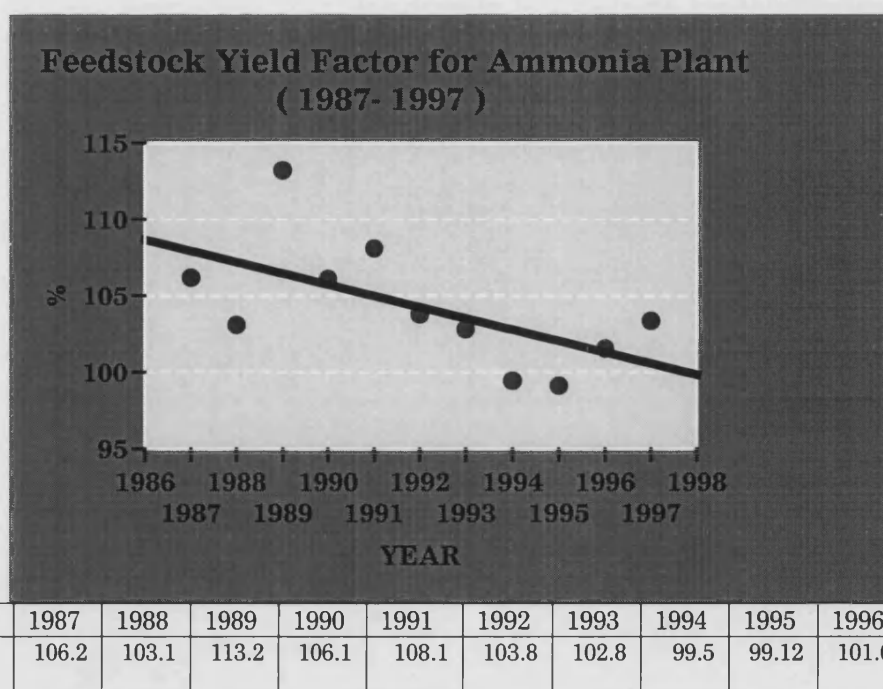
In the Syntex International benchmarking exercise of 14 internationally sized Methanol plants covered for the period 1997- 1998, GPIC Methanol plant was benchmarked as the BEST in 1997 for achieving the lowest production losses and 100% operating, service and reliability factors, as was explained earlier.

f) Feedstock Yield for the Plants

The feedstock yield is calculated by comparing the actual feedstock usage per tonne of product to the design feedstock gas usage per tonne of product. In the case of GPIC, the feedstock for both Ammonia and Methanol is natural gas taken from the distribution network of Bahrain's gas fields. This factor gives the degree of optimisation of usage of the feedstock gas. The lower the figure, the most optimum is the operation of the plant in terms of feedstock gas usage.

Figure 31 shows the variation of the feedstock yield for the Ammonia plant during the period from 1987-1997. The graph shows a favourably decreasing trend for the feedstock yield.

Figure 31



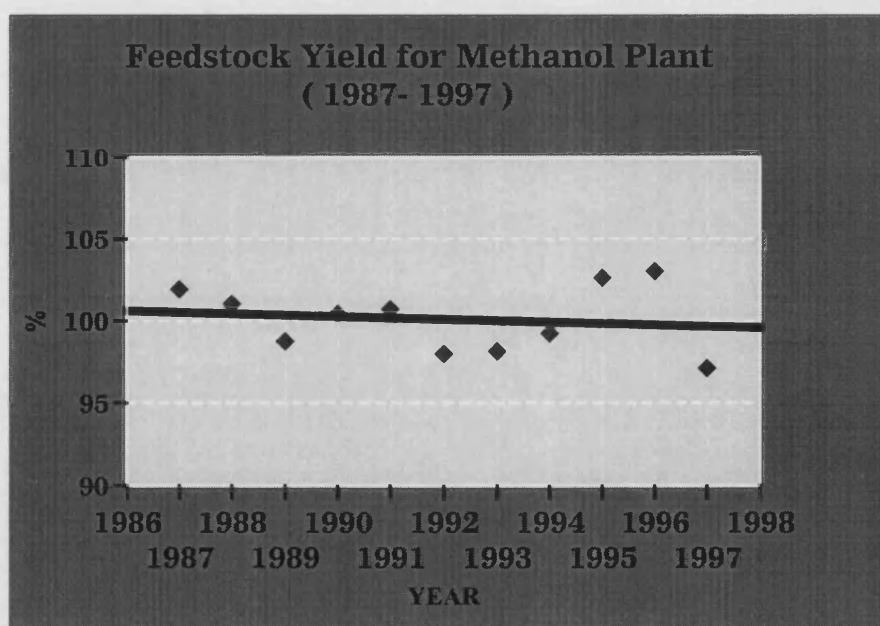
In the period from 1987-1997, feedstock yield decreased by 2.9%. The highest feedstock yield was in 1989 during the debottlenecking project execution, due to longer start-up activities and associated loss of

production. In 1996, the Ammonia plant experienced a slight increase in the feedstock yield because of the second longest turnaround.

The feedstock yield has decreased significantly over the period of the study years. This clearly indicates better efficiency and optimisation of the plant operation. Normally the feedstock yield shows increasing trend with ageing of the plant. However, in GPIC it was the reverse factors leading to better productivity and enhanced efficiency, which will subsequently be studied further.

Figure 32 shows the variation of the feedstock yield for the Methanol plant during the period from 1987-1997. The graph shows a generally decreasing trend for the feedstock yield.

Figure 32



Year:	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
METH (%)	101.9	101.1	98.8	100.4	100.7	98.2	98.2	99.2	102.7	103.1	97.1

In the period from 1987-1997, the feedstock yield decreased by 4.7%. The highest feedstock yield was in 1996 due to the lower performance of the

Methanol synthesis catalyst, and the effect of the turnaround. The lowest feedstock yield was in 1997, after change of the Methanol synthesis catalyst due to ageing and as a result of the continuous and uninterrupted operation of the plant. Overall, the feedstock yield has been almost according to the design or even better.

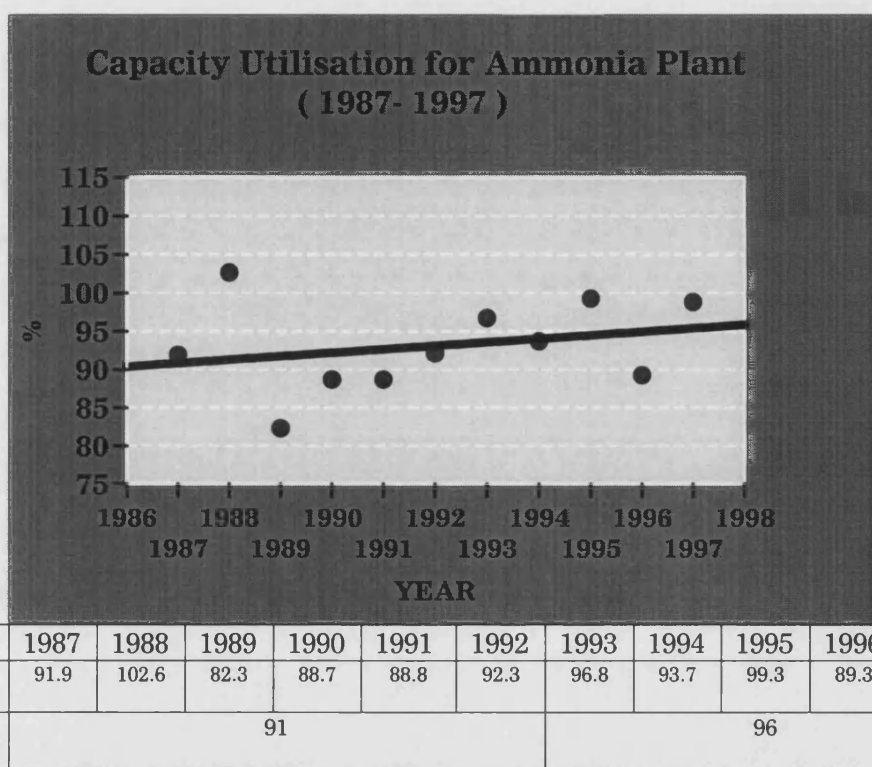
Once again, it must be noted that the LOWER the feedstock yield, the BETTER is the performance of the plant. 100% feedstock yield would represent a design consumption of feedstock. Financially, GPIC records show that for every 1% decrease in the feedstock yield (i.e. improved utilisation of the feedstock) a saving of over US\$150,000 was made annually, because of lower gas consumption.

g) Capacity Utilisation for the Plants

The capacity utilisation is the percentage of the design capacity utilised, and is calculated by dividing the actual production over the calendar days, by the daily design capacity. The higher the number is, the more efficient the plant is utilised with 100% representing the design capacity utilisation limit.

Figure 33 shows the variation of the capacity utilisation of the Ammonia plant. The graph shows that after the debottlenecking project in 1989, capacity utilisation was on an increasing trend from 82.3% in 1989 to around 98.9% in the year 1997.

Figure 33

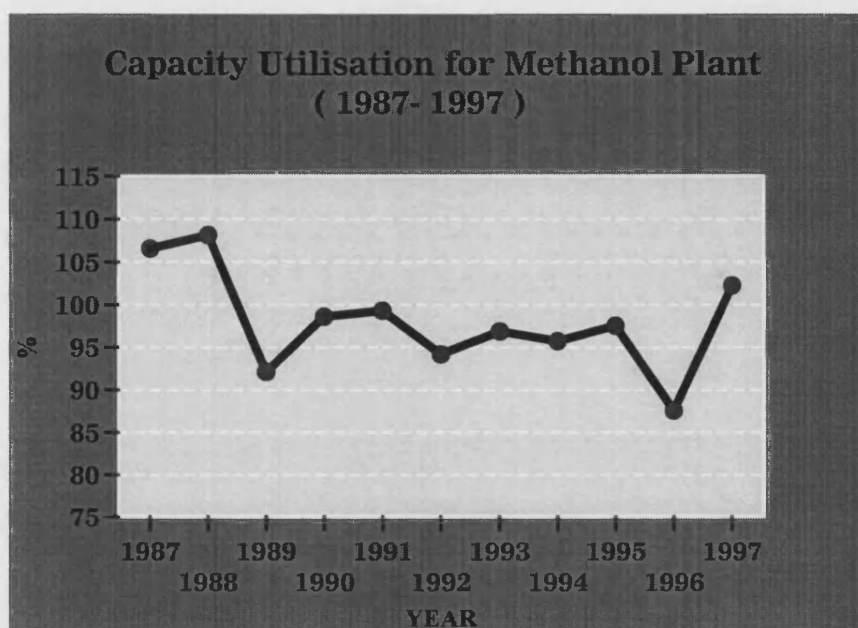


Note: 1992, 1994 and 1996 represent major shutdown years.

In the period from 1987 to 1997, the capacity utilisation factor increased by 7.6% (i.e. from 91.9% in 1987 to 98.9% in 1997).

The research has further analysed the records and established that the capacity utilisation factor of the Ammonia plant has increased from an average of 91% in the sub-period 1987 to 1992 to an average of 96% over the period 1993 to 1997. Figure 34 shows the variation of the capacity utilisation of the Methanol plant. The data shows that after the debottlenecking project in 1989, the capacity utilisation was almost steady.

Figure 34



Year:	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
METH (%)	106.6	108.2	92.1	98.6	99.3	94.2	96.9	95.7	97.6	87.6	102.3

After the debottlenecking project in 1989, and up to 1997, the capacity utilisation increased by 11.0%. In 1997, it increased significantly by 16.8% to 102.3%, which was the highest capacity utilisation after the debottlenecking project in 1989.

h) Utilisation Factor for the Plants

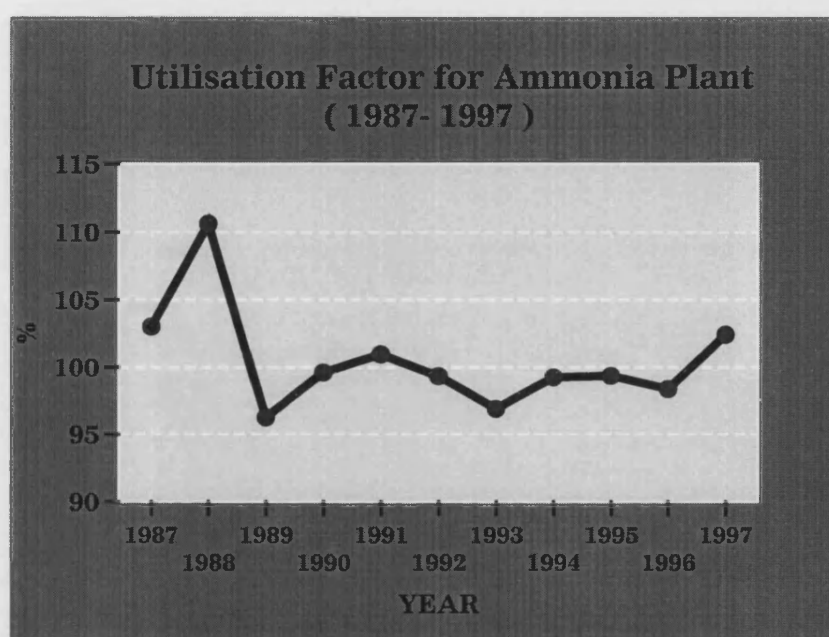
The utilisation factor is the percentage of the design capacity utilised, and is calculated by dividing the actual production over the operating days, by the daily design capacity. The higher the number is, the more efficient the plant is utilised. A factor as 100% represents a design level.

For both plants the years 1989 and 1996 represented extended turnaround periods for the debottlenecking project and Urea tie-ins,

respectively, thus lower than average/normal capacity utilisation percentages were in evidence.

Figure 35 shows the variation of the utilisation factor of the Ammonia plant. The graph shows that after the debottlenecking project in 1989, the utilisation factor was on a slightly increasing trend.

Figure 35



Year:	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
AMM (%)	103.0	110.6	96.3	99.6	100.9	99.3	96.9	99.3	99.4	98.4	102.4

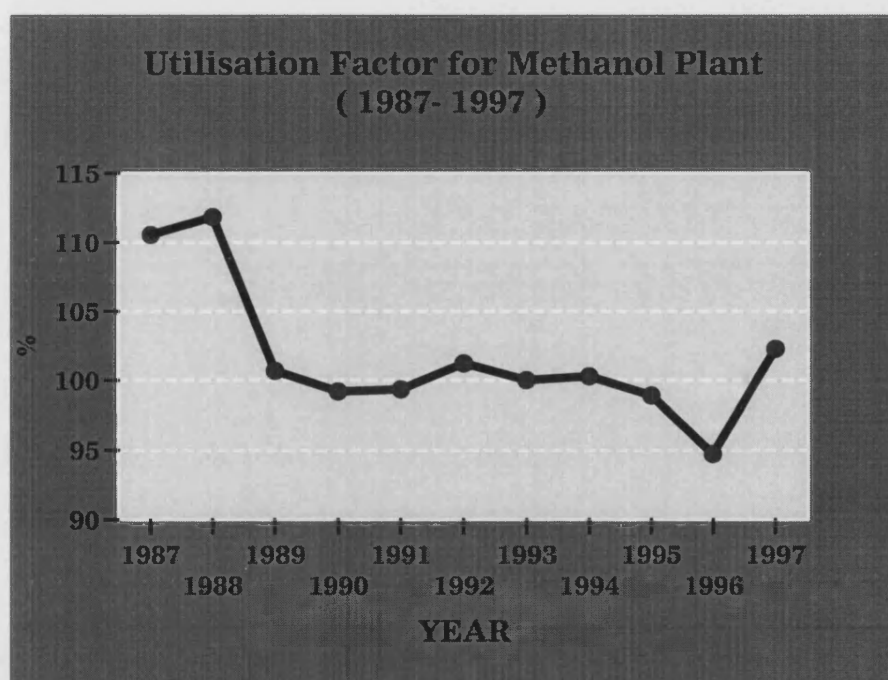
In the period from 1987 to 1997 the utilisation factor remained steady, on a slightly increasing trend after the debottlenecking project in 1989. It should be noted that the relatively higher capacity utilisation in 1987 and 1988 is compared to the original 1,000 tonnes per day plant capacity, whereas figures for the years 1989-1997 are based on 1,200 tonnes/day plant capacity.

In 1987, the utilisation factor was 103.0% and it dropped to 96.3% in 1989 due to the extended shutdown for the implementation of the

debottlenecking project, and the subsequent loss of production. Since 1989 it has kept almost steady, on a slightly increasing trend, whereby it increased from 96.3% in 1989 to 102.4% in 1997 (i.e. an increase of 6.3%).

Figure 36 shows the variation of the utilisation factor of the Methanol plant. The graph shows that after the debottlenecking project in 1989, the utilisation factor kept almost steady.

Figure 36



Year	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
METH (%)	110.6	111.9	100.7	99.2	99.4	101.2	100.0	100.3	98.9	94.7	102.3

After the debottlenecking project in 1989, and up to 1997, the utilisation factor for the Methanol plant increased by around 2%.

In 1987, the utilisation factor was 110.6% and then dropped to 100.7% in 1989 once again due to the extended shutdown for the implementation and execution of the debottlenecking project. Since 1989, the plant kept

almost steady, and increased significantly from 100.7% in 1989 to 102.3% in 1997 (i.e. around 2% increase).

Year 1996 showed a lower utilisation factor due to ageing of the Methanol Synthesis Catalyst and other limitations in the plant which were rectified in the turnaround period of that year.

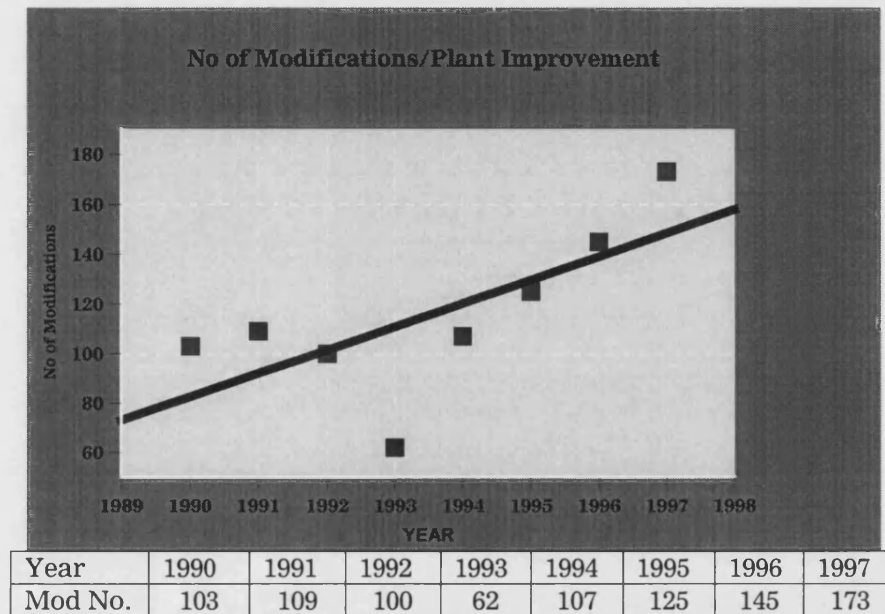
i) Number of Modifications/Plant Improvements

It is a very natural and healthy situation to have technical modifications in a petrochemical complex. Some are for improvement purposes and some are to solve a particular problem or to construct a new facility to enhance safety or performance.

Modifications are 'thoughts' that have been put into practice. Each is evolved from initiative of the employees to solve a problem or improve performance. Ageing of the plants could reduce their output. The researcher was able to note after extensive review of the modification records in GPIC, the ageing of the plants had an opposite effect and that was because GPIC had initiated continuous improvements in the plants. A clear example of management policy to effect positive changes.

A graphical representation of the various modifications and plant improvements during the period from 1990 - 1997 is shown in Figure 37. The graph shows a general increasing trend in the number of modifications and plant improvements, that was carried out at GPIC complex during the period 1987 to 1997.

Figure 37



In the period 1990 - 1997 the number of modifications raised by the employees increased by approximately 68% (i.e. from 103 improvements in 1990 to 173 in 1997). After implementation of the debottlenecking project, the number of modifications became almost steady, reducing in 1992 and 1993 and then increasing significantly every year from 1994 to 1997.

The researcher has noted that in analysing this parameter of GPIC's operations, important points could be deduced. In this regard the effect of creating a culture where the employees are encouraged to be creative and submit suggestions for plant improvement as above will be further investigated and studied.

To raise a modification, the employee needs to first know or identify a problem or an area in which he or she believes improvements need to be made. The employee then has to transfer his thoughts into words

justifying his opinion in writing. The employee then needs to convince his or her immediate supervisor of the benefits of their proposal in order to obtain the Supervisor's support for his/her proposed modification. The same applies in passing the proposed modification through the Section Head, Department Manager, the Engineering Section and finally the Technical Committee (the Technical Managers within the GPIC Organisation). After passing through this system resources (financial and technical) need to be allocated for the implementation of the proposal and then comes the actual implementation process.

As one can see, this process is by no means simple. Therefore, there must be a reason why GPIC employees continue to propose improvements to the already good operations that existed. This factor becomes even more significant when considering that none of the employees involved in raising, engineering or approving the modification actually receive any monetary incentive. Therefore, the driving force must be something else. The research will be analysing these driving forces in the latter part of this study.

j) Number of Employee Suggestions

Suggestions are simply employee ideas aimed at improving aspects of their workplace. There are no restrictions and all ideas are welcome and accepted for consideration and accounted for through a recognised formal system that has been formally in place since 1993.

The objective of Employee Suggestion Scheme is to encourage employees to contribute to the success and development of the company and to ensure that the untapped wealth of employee ideas is

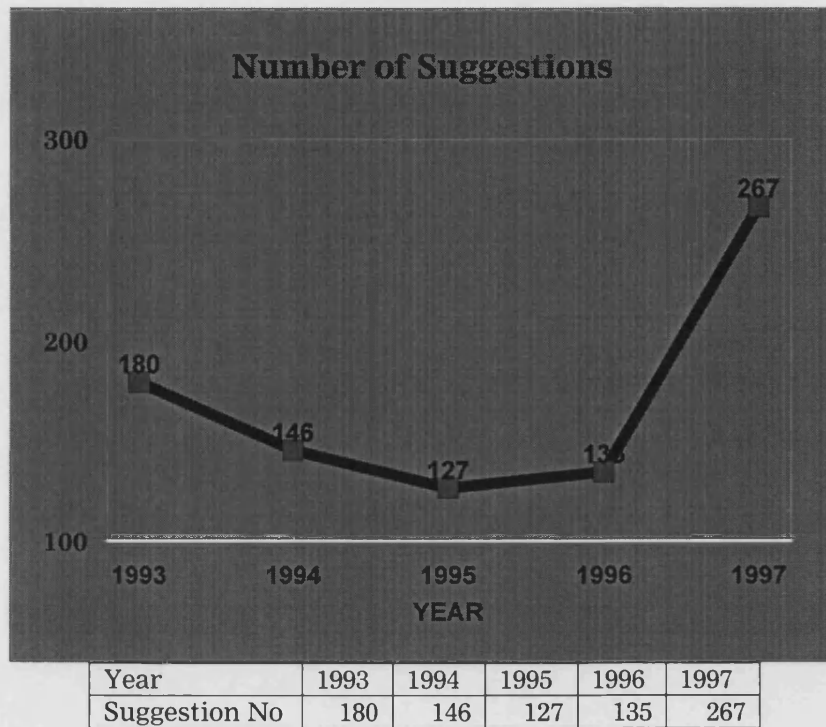
harnessed and constructively implemented so that the company can continue to thrive in an increasingly competitive world.

Unlike the modification system, the suggestions here could be nontechnical and could relate to all aspects of the company's activities. Suggestions could vary from type of stationary the company uses/buys (i.e. pencils, papers etc) to changing the name of the company, its trade logo or even its shareholding status. Whereas modification system described under point (i) above are those that relates to technical issues that require engineering work. If a technical suggestion, made through a Suggestion Scheme is found to be worthy of consideration, then a modification proposal is raised for technical evaluation through the modification system.

The GPIC suggestion scheme was formally introduced in March 1993 as mentioned above. Since then the number of employee suggestions rose from 180 by the end of 1993 to a cumulative total of 855 suggestions by the end of 1997, as shown in Figure 38.

The number of implemented suggestions since launching the scheme rose from 30 suggestions in 1993 to 111 suggestions in 1997. This corresponds to an implementation rate of about 17% of all suggestions, which is extremely high by international standards.

Figure 38



The suggestion scheme is continuously improving and maturing, and this is clearly demonstrated in the rapid rate of suggestions received in 1997. Over 260 suggestions were received during this year. A major campaign was organised prior to this to encourage the employees to come up with good ideas to improve the company's operations.

The researcher was able to find numerous reasons attributed to the success of GPIC's suggestion scheme including:

- The formation of a well selected suggestion scheme evaluation committee.
- The reinforcement of the significance of the scheme through continuous training and development of the committee members and all the staff. The suggestion scheme was somewhat declining in 1995 and 1996, and this led to the organising of a major suggestion

training workshop in 1997, which reinvigorated the suggestion scheme tremendously.

- Employee motivation and effectiveness of the reward scheme that the company adopts which is coherent with the company's culture.
- Recognising one day in the year as "Ideas Day" thus glorifying and encouraging employee suggestions & creativity.

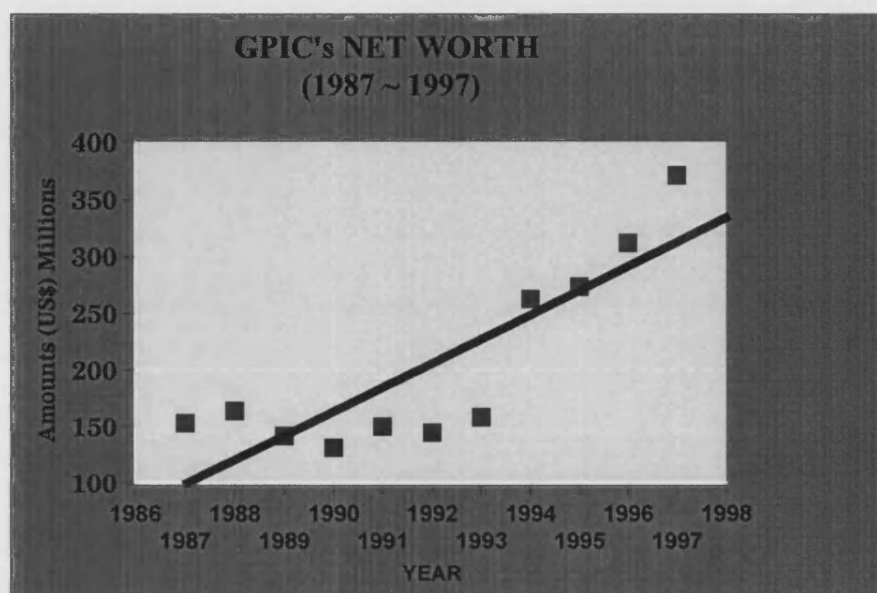
k) Growth in Net Worth

After having analysed a number of key technical parameters or factors under point 4.1 (a) to (j) in this section, the researcher will tackle some key financial factors of GPIC for the period 1987 to 1997, which are essential for the growth and success of any company.

One such key financial factor is the status of the net worth of the company. A company's net worth is the total of paid-up capital, retained earnings and the reserves. The growth in net worth means an improvement in the shareholders investment in the company.

Figure 39 shows a significant growth of the company's net worth from 1987 to 1997. The net worth increased from \$153.2 million in 1987 to \$371.3 million in 1997, showing a remarkable rate of growth of 142.36 percent during the corresponding period or 14.24 percent average annual growth in net worth on a point-to-point reference base.

Figure 39



Year	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Net Worth (US\$)	153.2	164.0	142.0	131.4	150.3	145.0	158.4	262.9	273.7	312.2	371.3

l) *Return on Investment*

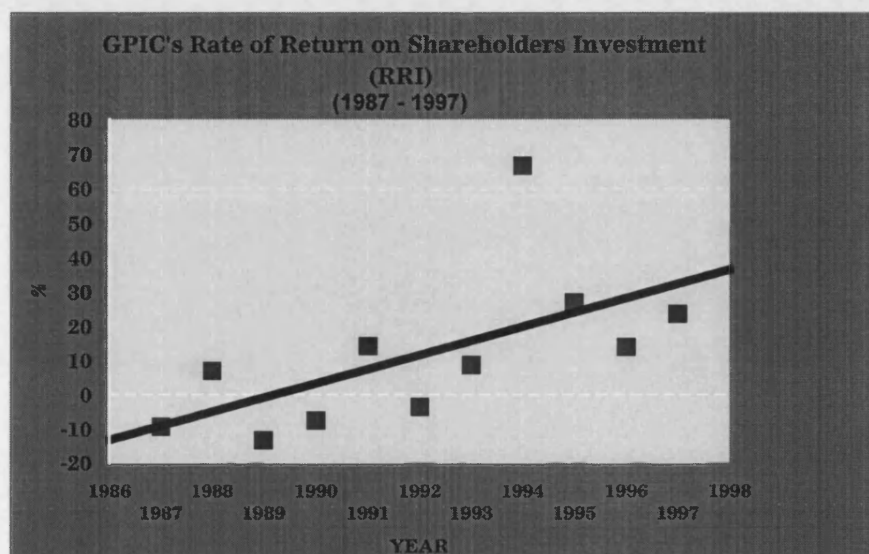
Another key financial factor for any shareholding company is the rate of return on the investment which the share holders make.

Figure 40 depicts the trends in the rate of return on investment of GPIC's shareholders (RRI). The rate of return on investment, which stood at minus 9.3 percent in 1987, improved to 7.1 percent in 1988. It again registered a negative trend in 1989 and 1990, but only to post a 14.3 percent return in 1991.

Since then the rate of return on investment has shown a very positive trend. The rate of return spurted to 66.7 percent in 1994 due to unusual spikes in the market price, when Ammonia rose to US\$ 220 per tonne and Methanol to US\$550 per tonne as against the normal price of around US\$ 100 per tonne for these products. Against the higher base

of 1994, the return on investment again increased by 27 percent in 1995, 14 percent in 1996 and 23.8 percent in 1997. The main factor for the exceptional rate of return in 1994 was due to tight Methanol supply which led to a significant net income and thus a higher rate of return.

Figure 40



Year	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
RRI (%)	-9.26	7.11	-13.25	-7.46	14.29	-3.53	8.78	66.72	27.03	14.03	23.76

The researcher has made attempts to obtain similar data from other companies in the industry, particularly those in the Arabian Gulf region (utilising similar natural resources) to compare the rates of return for assessing GPIC's position. Unfortunately, this was not possible because most companies are government owned/controlled and for reasons of confidentiality results are not published/divulged. Even the semi privately owned companies did not reveal their rate of return due to confidentiality reasons.

m) Debt Balance

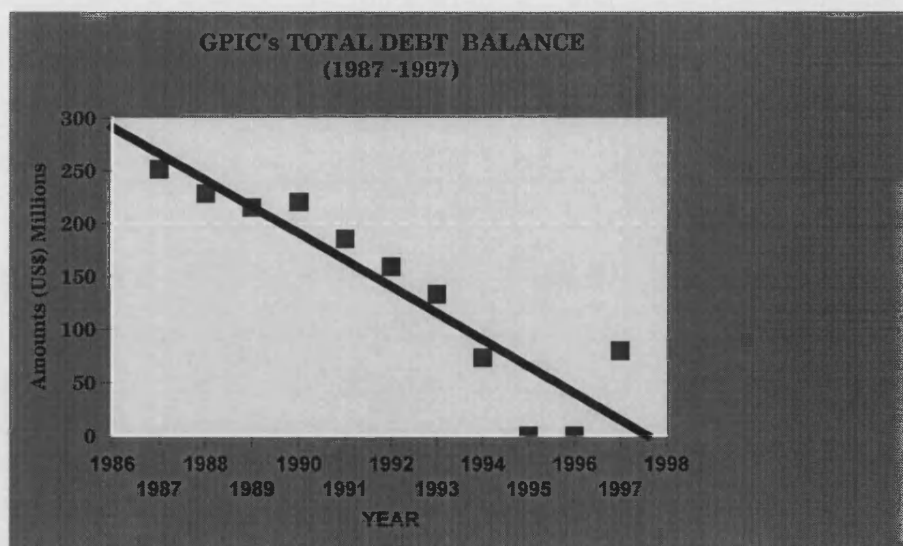
In 1987 GPIC faced financial difficulties which necessitated rescheduling the then existing syndicated loan of US\$ 250 million.

GPIC has always looked at its bankers as partners in the business and had always taken care to service the debt promptly. Therefore, the rescheduling was finalised after tough and long negotiations. As part of the loan rescheduling, the company was able to obtain US\$ 70 million revolving loan from their lead banker to be utilised to service the main loan if necessary.

Figure 41 shows the decline in the yearly outstanding debt balances that stood at \$250 million in 1987, gradually decreasing to nil over the years and in fact a \$70 million pre-payment in 1994.

The increase in loan in 1997 was due to financing of a US\$ 180 million expansion project for the Urea plant and its associated facilities, including an export marine terminal.

Figure 41



Year	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Debt Bal. US\$ Million	251.6	228.5	215.2	220.7	185.5	159.4	133.4	73.4	0	0	80.0

n) Profitability

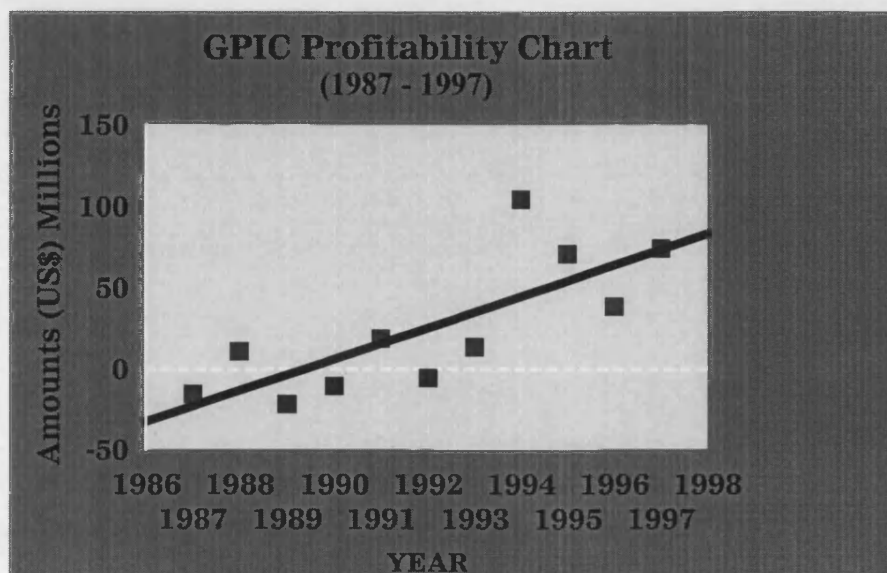
Figure 42 shows the trends in the growth of net profit. Against a net loss of \$15.6 million in 1987, a net profit of \$ 74.2 million was achieved in 1997.

During 1988, the company achieved a net profit of \$ 10.9 million, but the company incurred further net losses to the order of \$ 21.7 million in 1989 and \$10.6 million in 1990 respectively. In 1991, the company achieved a net profit of \$ 18.8 million, but incurred a net loss of \$ 5.6 million in 1992.

The profitability position of the company has improved substantially since 1993. Against a net profit of \$ 13.5 million in 1993, the net profit reached a historic high level of \$ 104.4 million in 1994, registering a remarkable rate of growth of 673 percent growth in net profit over the previous year. The year 1994 was an exceptional one when Methanol prices rose substantially due to product shortage in the market. The main reason for the increase of price in 1994 was due to major technical faults in numerous plants around the world. GPIC was in full swing to take full advantage of the market.

In 1995 and 1996 the company achieved net profit to the order of \$ 71 million and \$38.4 million respectively. In 1997 the company achieved an impressive 93 percent growth in net profit at \$ 74.2 million over the previous year

Figure 42

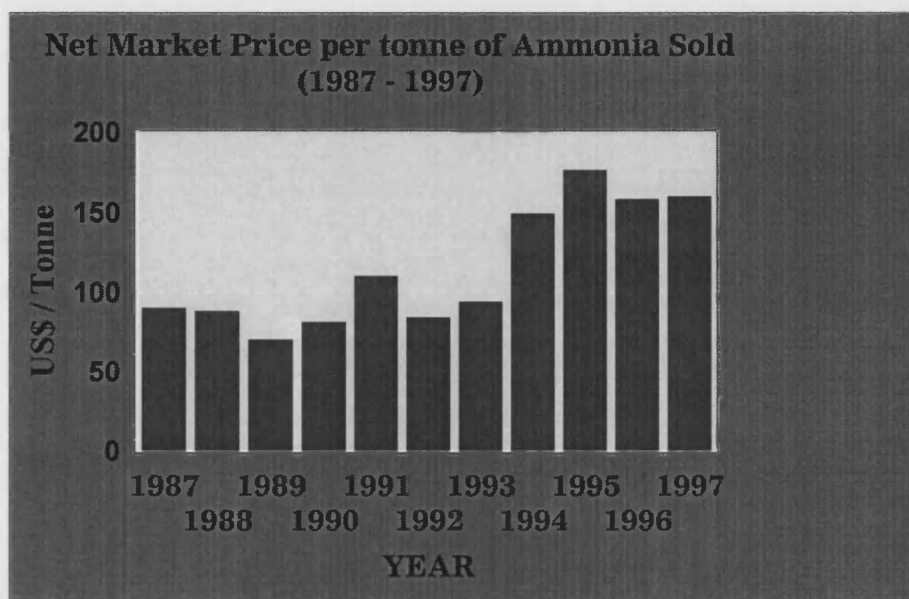


o) Net Market Price per Tonne

Net market price is the actual sale price, excluding transportation. The net market price per tonne graphs in Figures 43(a) and 43(b) represent the average Ammonia and Methanol prices that GPIC realised over the years 1987 to 1997. They show that the net market prices fluctuated from one year to the other, thereby representing the volatile nature of the petrochemical business. The prices are market driven.

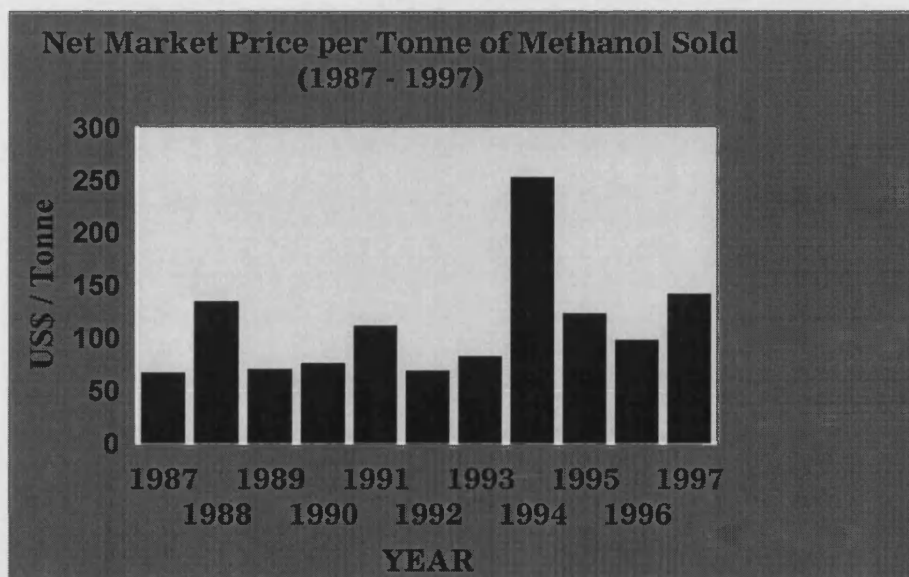
The product prices fluctuate according to international supply and demand and GPIC has no control or influence over these factors, as relative to the world supply, GPIC's export volumes are small. Therefore, it is imperative for GPIC to seek areas where cost can be controlled and productivity improved.

Figure 43(a)



All numbers are in US\$ per tonne.

Figure 43(b)



All numbers are in US\$ per tonne.

p) Cost per Tonne

Production cost per tonne is the total cost of production which constitutes variable cost, fixed cost, depreciation and finance charges divided by the total quantity of production in tonnes.

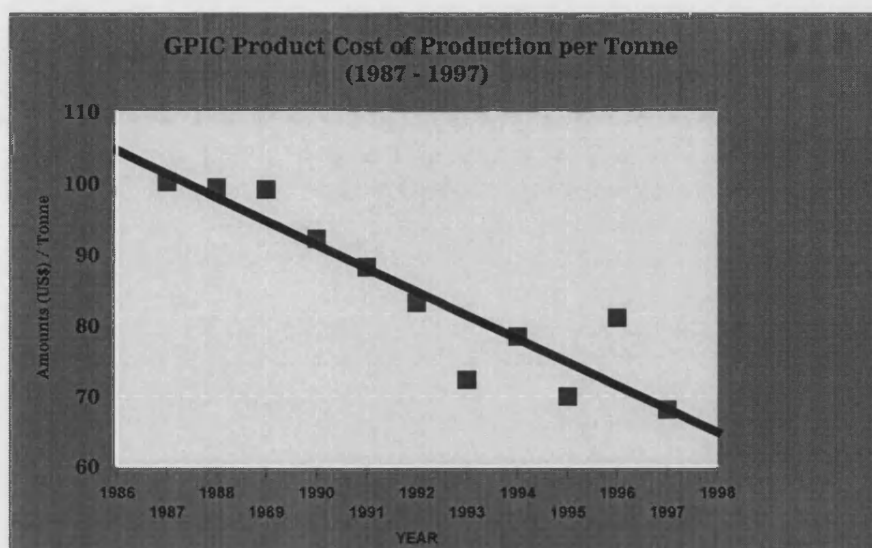
In the case of GPIC, comparison of the total production costs per tonne for the entire period 1987-1997 to assess the operational efficiency of the organisation is made {Figure 44 (a)}. This includes the period 1986-1994 which such production costs contained an element of finance charges whereas for the subsequent period 1995-1997 no finance charges were applicable, since all the outstanding loans were successfully repaid.

Production costs, *excluding finance charges*, for the period 1986-1997 have also been compared to gauge the benefits of the cost reduction and the cost control programme initiated by GPIC. For the purpose of confidentiality the production costs are denoted as *units** instead of a definitive currency. Figure 44(b) shows that the cost of production (excluding finance charges) which stood at 76.05 *units** per tonne in 1987, was reduced to 67.84 *units** per tonne in 1997. This decline in production cost, to the extent of 9.20 *units** per tonne, equivalent to 12% reduction, should be viewed taking into account GPIC's production of 2,400 tonnes per day.

The 12% reduction in production cost for a company that has operated its plants at the highest reliability levels becomes very significant. The 1987 production costs seemed to be at a level at which most producers would have been content to maintain with ageing of the plants. But to reduce the production costs over a period in which the plants have aged by 10 years whilst maintaining high level of efficiency, reliability and safety as was shown earlier in this section, reflects the level of

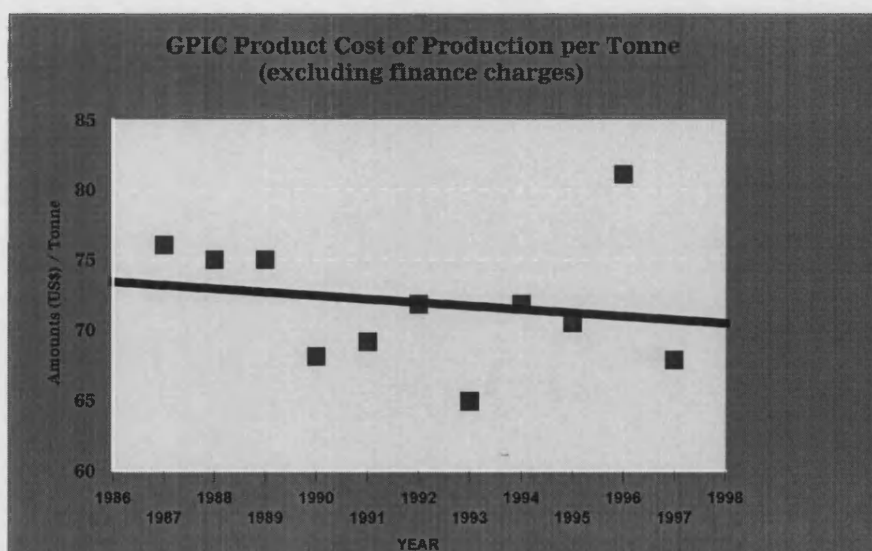
employees contribution in their strive to lower costs wherever possible.

Figure 44(a)



Year	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Cost units/tonne	100.2	99.4	99.1	92.2	88.2	83.2	72.3	78.4	69.9	81.1	68.1

Figure 44(b)



Year	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Cost units/tonne	76.05	75.0	75.0	68.1	69.17	71.81	64.92	71.81	70.49	81.09	67.84

The relative increase in production costs during 1994-1996 represents the higher expenditure for implementation of the major turnarounds and capital investment that was made in this period.

Table 5
GPIC Performance Factors 1987 - 1997

	PERFORMANCE FACTORS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
1	Ammonia Production (MT)	335457	375726	360590	388577	388722	404777	423815	410592	434920	392276	432981
	% Change	-	12.00	(40.3)	7.76	0.04	4.13	4.70	(3.12)	5.93	(9.81)	10.38
2	Methanol Production (MT)	389013	395899	403515	432404	435015	413691	424458	419322	427350	384558	447969
	% Change	-	1.77	1.92	7.16	0.60	(4.90)	2.60	(1.21)	1.91	(10.01)	16.49
3	Total Production (MT)	724470	771625	764105	820617	823737	818468	848273	829914	862270	776834	880950
	% Change	-	6.51	(0.97)	7.40	0.38	(0.64)	3.64	(2.16)	3.90	(9.91)	13.40
4	Average Daily Production of Ammonia (MT)	1030	1106	1155	1195	1212	1192	1163	1191	1192	1181	1229
	% Change	-	7.38	4.43	3.46	1.42	(1.65)	(2.43)	2.41	0.08	(0.92)	4.06
5	Average Daily Production of Methanol (MT)	1106	1119	1208	1190	1192	1215	1200	1204	1187	1137	1227
	% Change	-	1.18	7.95	(1.49)	0.17	1.93	(1.23)	0.33	(1.41)	(4.21)	7.92
6	Ammonia Plant shutdown days	39.38	26.28	52.80	39.91	44.15	26.43	0.51	20.27	0.28	33.75	12.73
	% Change	-	(33.27)	100.91	(24.41)	10.62	(40.14)	(98.07)	3874.51	(98.62)	11953	(62.28)
7	Methanol Plant shutdown days	13.10	12.08	31.05	2.06	0.16	25.40	11.34	16.59	4.97	27.71	NIL
	% Change	-	(7.79)	157.04	(93.37)	(92.23)	15875	(55.35)	46.30	(70.04)	457.55	-
8	On-stream factor for Ammonia Plant (%)	89.21	92.83	85.53	89.07	87.9	92.78	99.86	94.45	99.92	90.78	96.51
	% Change	-	4.05	(7.85)	4.14	(1.31)	5.55	7.63	(5.42)	5.79	(9.15)	6.31
9	On-stream factor for Methanol Plant (%)	96.41	96.70	91.49	99.44	99.96	93.06	96.89	95.45	98.64	92.43	100
	% Change	-	0.30	(5.39)	8.69	0.52	(6.90)	4.12	(1.49)	3.34	(6.30)	8.19
10	Ammonia Plant Outages	15	8	9	11	7	4	2	2	1	6	5
	% Change	-	(46.67)	12.50	22.22	(36.36)	(42.86)	(50.00)	0.00	50.00	500.00	16.67
11	Methanol Plant outages	7	4	5	3	1	3	3	1	2	2	NIL
	% Change	-	(42.86)	25.00	(40.00)	(66.67)	200.00	0.00	66.67	100.00	0.00	-
12	Ammonia shipments	27	32	24	33	30	31	30	28	29	25	32
	% Change	-	18.52	(25.00)	37.50	(9.09)	3.33	(3.23)	(6.67)	3.57	(13.79)	28.00
13	Methanol shipments	36	38	44	47	52	40	43	48	52	50	59
	% Change	-	5.56	15.79	6.82	10.64	(23.08)	7.50	11.63	8.33	(3.85)	18.00
14	Maintenance Cost (\$)	4493394	5626513	4710489	3096884	3466622	6198029	3136296	5749418	4536008	8701762	3085688
	% Change	-	25.50	(16.28)	(34.26)	11.94	78.79	(49.40)	83.32	(21.10)	91.84	(64.54)
15	No. of Plant modifications / improvements	NA	NA	NA	103	109	100	62	107	125	145	173
	% Change	-	-	-	-	5.83	(8.26)	(38.00)	72.58	16.82	16.00	19.31

Table 5 (contd.)
GPIC Performance Factors 1987 - 1997

16	Lost time accidents to persons	1	0	6	2	0	3	2	2	0	0	1
17	Bahrainisation (%)	46	57	63	64	66.33	67.74	69.50	71.8	71.5	73.9	73.9
18	Bahraini Managers (Nos.)	6	7	8	8	9	9	9	9	9	9	9
19	Expatriate Managers (Nos.)	5	5	4	4	4	4	4	3	2	2	2
20	No. of Trainees	37	45	40	25	22	29	43	46	31	81	72
21	No. of Training Programmes	9	60	79	72	76	59	81	119	139	124	193
22	Bahraini Turnover Rate (%)	3.50	2.3	2.76	0.75	1.00	1.49	0.96	1.70	1.21	1.75	1.30
23	Expatriate Turnover Rate (%)	9.70	8.42	7.77	3.27	3.99	2.23	1.92	2.92	1.21	1.32	1.30
24	Absenteeism (% Man-days)	0.15	0.17	0.15	0.16	0.17	0.17	0.16	0.15	0.15	0.15	0.11
25	Sick Leave (% Man-days)	1.15	1.08	1.07	0.88	0.98	1.20	1.13	1.34	1.28	1.37	0.95
26	Lateness to work (Man-hours)	0.022	0.022	0.023	0.024	0.024	0.025	0.025	0.021	0.027	0.026	0.023
27	No. of suggestions	-	-	-	-	-	-	180	146	127	135	267
28	Housing loan for Bahraini Employees (No. of employees benefited)	-	-	-	-	-	-	-	14	23	43	57
29	No. of Bahraini employees benefited under saving scheme	-	-	-	-	-	-	-	-	-	203	251
30	Bonus (\$ million)	-	-	-	-	-	-	-	0.6	0.6	0.3	1.5
31	Networth (\$ Million)	153.2	164.0	142.0	131.4	150.3	145.0	158.5	262.9	273.7	312.2	371.3
	% change	-	7	(13)	(7)	14	(4)	9	66	4	14	19
32	Returns on Investment (%)	(9.3)	7.1	(13.3)	(7.5)	14.3	(3.5)	8.8	66.7	27.0	14.0	23.8
33	Loan repayment (\$ Million)	18.2	23.1	13.3	0.00	37.1	29.6	26.4	62.5	73.4	0.00	0.00
34	Retained earnings and reserves (\$ Million)	(6.1)	5.0	(17.0)	(27.3)	(8.7)	(14.0)	(1.3)	103.6	114.7	153.2	212.3
35	Net profit (\$ Million)	15.6	10.9	(21.7)	(10.6)	18.8	(5.6)	13.5	104.4	71.0	38.4	74.2
36	Dividend (\$ Million)	-	-	-	-	-	-	-	30	30	15	30
37	Investment in New Projects (\$ Millions)	-	-	20.0	-	-	-	-	-	-	-	165.0
38	Net back price / MT											
	Ammonia (\$)	90.22	88.3	70.2	81.35	110.21	84.38	94.13	149.57	176.55	158.39	160.25
	Methanol (\$)	67.22	134.77	70.36	75.89	111.64	68.93	82.58	253.13	123.23	97.98	141.74
	Average (\$)	78.03	111.74	70.28	78.48	110.98	76.47	88.44	202.65	150.63	127.92	150.99
39	Cost of Production / MT (\$)	100.17	99.36	99.11	92.22	88.25	83.21	72.35	78.44	69.96	81.09	68.105
40	Total value added (\$ Million)	58.92	92.83	59.36	77.79	101.01	63.73	76.18	175.50	136.82	101.75	144.36
41	Value added / MT (\$)	81.33	120.3	77.68	94.79	122.62	77.87	89.8	211.47	158.68	130.99	163.87
42	Share capital - Value added Ratio	0.98	1.55	0.99	1.30	1.68	1.06	1.27	2.93	2.28	1.70	2.41
43	Gross sales income per employee (\$)	216502	304516	202177	256513	318520	220214	237514	492658	395629	286535	314648
44	Production per employee (MT)	1953	1968	1915	2062	2054	2031	2039	2019	2083	1704	1634
45	Profit / (loss) per employee (\$)	(41986)	27296	(54659)	(23550)	49131	(14267)	30914	254223	171412	84279	137443

() means negative value

4.2. Performance Comparison

In the previous section (A) GPIC's performance against well defined and measurable quantitative factors were made. This is an internal assessment of what the researcher perceived and presented as ethically and professionally as possible.

However, it is necessary now to compare GPIC's performance against regional and international industries of similar size and type in order to determine its true performance and to show if there has been true enhancement in the growth and development of GPIC, as compared to others in similar business.

Regional Comparison

The comparative analyses have been compiled from in-house data as well as various published reports on companies and industries in the region. The collated data serves to highlight how GPIC has performed on a regional basis.

Table 6 shows that GPIC is the most consistent and excellent performer. (For confidential reasons the names of the other participants in the survey are not included in the table but are available with the researcher for review if required). For the period 1992-1997, GPIC achieved 105.95 percent average capacity utilisation. This was 24.08 percent higher than the world average of 81.87 percent capacity utilisation for the corresponding period. Moreover, this was 8.07 percent higher than the second best performer. GPIC's achievements in Methanol capacity utilisation is truly remarkable and the statistics shown are self-explanatory.

Table - 6
Methanol Plants in Arab Region
- Ranking by Capacity Utilisation during 1992 - 1997

Company	1992	1993	1994	1995	1996	1997	1992-97 Average	% variation from World average	Ranking
	(Rate in %)								
[1.] GPIC, Bahrain	104.5	107.3	105.8	107.8	97.2	113.1	105.95	24.08	1
[2.]	108.5	97.5	91.5	93.8	106.7	89.3	97.88	16.02	2
[3.]	90.9	90.9	93.5	93.9	100	90.9	93.42	11.55	3
[4.]	90.9	90.9	90.9	90.9	90.9	100	92.42	10.55	4
[5.]	70.8	70.8	70.8	70.8	83.3	83.3	74.97	-6.90	5
[6.]	54.5	72.7	72.7	72.7	90.9	81.8	74.22	-7.65	6
WORLD AVERAGE	77.8	83.9	83.7	80.5	84.3	81	81.87		

Table 7

**Ammonia Plants in the Arab Region
- Actual Production in 1997 versus Rated Capacity**

Company	Production Capacity (x)1000 Tonnes/Day	Actual Production (x)1000 Tonnes/Day
[1.] GPIC, Bahrain	396	433
[2.]	1578	1710
[3.]	660	715
[4.]	1089	1148
[5.]	36	37
[6.]	396	403
[7.]	540	526
[8.]	138	125
[9.]	726	653
[10.]	750	566
[11.]	990	462
[12.]	300	102
[13.]	990	9
ARAB REGION SURVEYED - GROUP TOTAL	8523	6889
WORLD TOTAL	128621	125108
GROUP WEIGHTAGE (% SHARE)	6.63	5.51

Table 8
Ammonia Plants in the Arab Region
- Ranking by Capacity Utilisation in 1997

Company	Capacity Utilisation %	% Variation from Group Average	% Variation from world average	Ranking by Capacity Utilisation
[1.] GPIC, Bahrain	109.34	26.96	12.07	1
[2.]	108.37	25.99	11.10	2
[3.]	108.33	25.95	11.06	3
[4.]	105.42	23.04	8.15	4
[5.]	102.78	20.4	5.51	5
[6.]	101.77	19.39	4.5	6
[7.]	97.41	13.46	0.14	7
[8.]	90.58	6.63	-6.69	8
[9.]	89.94	5.99	-7.33	9
[10.]	75.47	-8.48	-21.80	10
[11.]	46.67	-37.28	-50.60	11
[12.]	34.00	-49.95	-63.27	12
[13.]	0.91	-83.04	-96.36	
ARAB REGION - GROUP AVERAGE	82.38			
WORLD AVERAGE	97.27			

Table 8 shows that GPIC was the best performer in terms of the rate of capacity utilisation during 1997. It achieved 109.34 percent capacity utilisation in 1997. This was 26.96 percent higher than the Arab region average and 12.07 percent higher than the world average rate of capacity utilisation. Capacity utilisation is a significant factor that focuses on the reliable operation and on-stream factor. From Table 8 above, it is clearly established that GPIC is the best performer amongst all the Ammonia Plants in the Arab Region in 1997.

International Comparison

This case study has undertaken a further comparison with similar companies and industries from an international perspective. Apart from its research benefit, this is extremely valuable information that helps to measure the progress and success of GPIC in the international arena as compared to other players in the market.

Methanol Plant

Survey of a number of Methanol plants was carried out to measure plant on-stream time and to analyse the cause of downtime. The analysis was centred on operational and maintenance aspects of the plant performance with the following objectives:-

- To establish what is “best practice” in the industry.
- To determine what are the current industry standards, and
- To identify trends in the Industry.

Nine major international Methanol plants were short-listed on the basis of the preliminary evaluation criteria and the data for each plant was obtained by means of a questionnaire. The names of the plants and units, other than GPIC, are not stated in this study for reasons of confidentiality but are available with the researcher if required.

Definition and Benchmarks

In order to establish clear and unambiguous comparisons of the data gathered the following definitions were used.

Theoretical Maximum Capacity

The maximum production achieved in any calendar month for the years 1990 to 1994, divided by the number of days in that month, multiplied by the number of days in the year. For GPIC, this month was March 1993 when 38,564 tonnes were produced. Therefore, theoretical maximum capacity is:

$$\frac{38564}{31} \times 365 = 454,060 \text{ tonnes}$$

Annualised Operating Rate

Actual annual production divided by the theoretical maximum annual capacity, expressed as a percentage.

On-stream Factor

Hours operated expressed as a percentage of total hours per year.

On-stream Operating Rate

The operating rate during the period of the year the plant operated.

The following benchmarks were used as a basis for comparison:-

- a) Annualised Operating Rate
- b) On-stream Factor
- c) On-stream Operating Rate
- d) Number of start-up/shutdown cycles

For each benchmark the figures of “worst” “average” and “best” were calculated based on the average values for each plant from 1990 to 1994

Performance

The results are given below. The figure calculated for GPIC is given in the last column.

<u>Benchmark</u>	<u>Worst</u>	<u>Average</u>	<u>GPIC</u> <u>Average</u> <u>1990-1994</u>
Annualised Operating Rate	83.4	88.6	93.6
On-stream Factor	93.6	94.3	97.0
On-stream Operating Rate	89	94.0	96.5
Number of start-up/ shutdown cycles	4	4	2

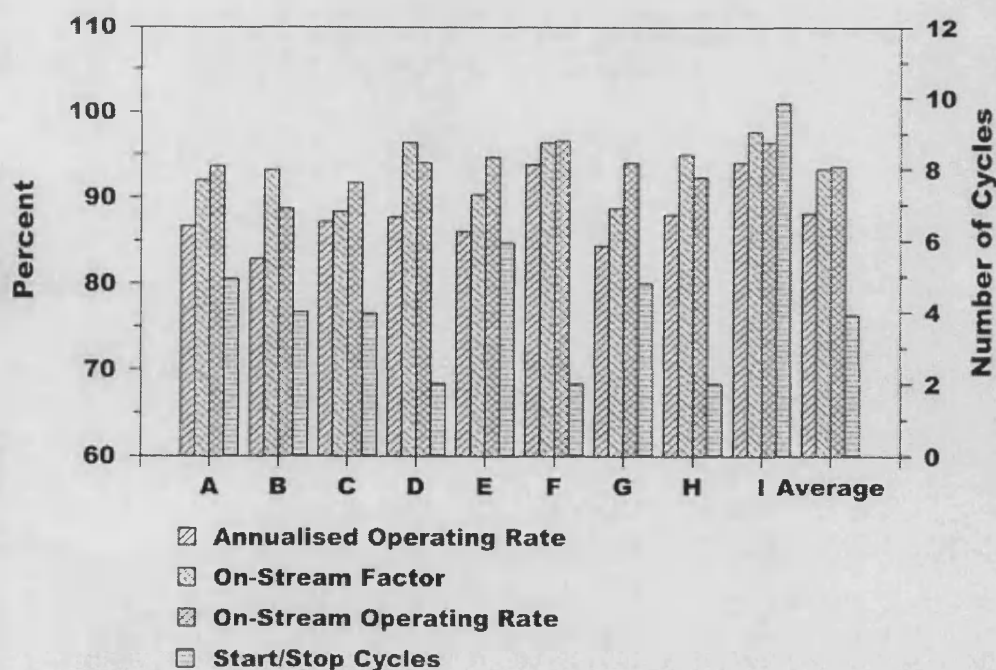
In each of the categories GPIC's figures expressed as a percentage of the "best" average figure, are the following:-

	<u>Best</u>	<u>GPIC</u>	<u>Performance %</u>
Annualised Operating Rate	94.4	93.6	99.2
On-stream Factor	97.0	97.00	100.0
On-stream Operating Rate	97.3	96.5	99.0
Number of Start-up / Shutdown Cycles	2	2	<u>100.0</u>

Average: 99.6%

Figure 45

AVERAGED KEY OPERATING PARAMETERS, 1990 TO 1994



Downtime Performance

Downtime performance was analysed in Table 9. GPIC's figures in the Downtime Performance category were found to be the best among the plants surveyed.

Table 9

COMPARISON OF METHANOL PLANT DOWNTIME PERFORMANCE

(average hours per annum, 1990-1994)

<u>Parameter</u>	<u>Average</u>	<u>Best</u>	<u>GPIC</u>
• Scheduled Turnarounds	247	200	200
• Scheduled Interim Shutdowns	54	54	54
• Unscheduled Shutdowns	174	0	0
• Trip Shutdown	54	13	13

The fact that the unscheduled shutdown of GPIC was nil during the prescribed five years period and the trip shutdown was required for a minimal duration, is proof of GPIC's exceptional good performance. The number of start/stop cycles (Figure 45) of GPIC was the minimum in the group, an average of only (two) per year. Minimal start/stop cycles help in maintaining sound conditions of the plant for a long life of operation.

In yet another survey covering International Plant Performance Analysis for 1997 for 14 selected Methanol Plants across the world, GPIC featured prominently in the comparison, e.g.

- i) In 1997 GPIC Methanol Plant had the lowest production losses and 100% operating service and reliability factors - the best year for any plant in the survey.

- ii) GPIC's Methanol Plant was one of four to have 100% "on-time-in-full" delivery of product, with "zero off-spec" and "zero customer complaint" record.
- iii) The GPIC Methanol plant had the smallest number of start-up/shutdown cycles for all the plants in the survey.
- iv) Maintenance absence in the GPIC Methanol Plant was the lowest reported amongst all plants in 1997.
- v) Costs of operation of the GPIC Methanol Plant were generally the lowest reported; this made the cost per tonne, one of the lowest of all plants surveyed.

The following performance indicators clearly establish the supremacy of GPIC Methanol Plant performance standard over other plants surveyed during the year 1997.

Table 10

**Methanol Plant: Key Performance Indicators
(1997 Operation)**

<u>Indicators</u>	<u>Average</u>	<u>Best</u>	<u>GPIC 1997</u>
Production Loss (% of MPR)*	13	0.5	0.5
Operating Factor (%)	95	100	100
Service Factor (%)	95	100	100
Reliability Factor (%)	98	100	100
Energy Use (Million BTU/Short ton)	32	28	29.9
Total number of staff	80	32	60
"OTC"(Operation Trade & Clerical) Overtime %	8	0	8.3
"OTC" absence (%)	3	<1	1.3
Annual Costs (\$ per tonne product)	12	7.0	7.57
OTIF (on-time in-full) delivery of Product to Customer (%)	100	100	100
Recordable injury rate	0	0	0
Start-up/Shutdown Cycles	5.0	2.0	2.0

** **MPR:** Maximum prove rate (MPR) is the best annual output the plant could achieve, by calculating the best production rate ever achieved over a month with no rate restrictions, breakdowns or shutdowns and annualising on the basis of a 365 day a year.*

Ammonia Plant

GPIC undertook the benchmarking study for the operating performance analysis of four producers of Ammonia (6 plants) in the Arabian Gulf region. For each benchmark the figures of “worst” “average” and “best” were calculated based on the average values for each plant from 1994 to 1997. The results are given below. The same figure calculated for GPIC is given in the last column and shown graphically in Figures 46 & 47.

<u>Benchmark</u>	<u>Average</u>	<u>GPIC</u> <u>Average 1994-1997</u>
Annualised Operating Rate	85.37	93.87
On-stream Factor	88.35	95.40
On-stream Operating Rate	96.62	98.39
Number of start-up/ shutdown cycles	15	4

In each of the categories GPIC's figures expressed as a percentage of the “best” average figure, are the following:-

	<u>Best</u>	<u>GPIC</u>	<u>Performance</u> <u>%</u>
Annualised Operating Rate	93.87	93.87	100.00
On-stream Factor	95.61	95.40	99.80
On-stream Operating Rate	98.42	98.39	100.00
Number of Start-up / Shutdown Cycles	4	4	<u>100.00</u>
			Average:99.6%

Figure 46

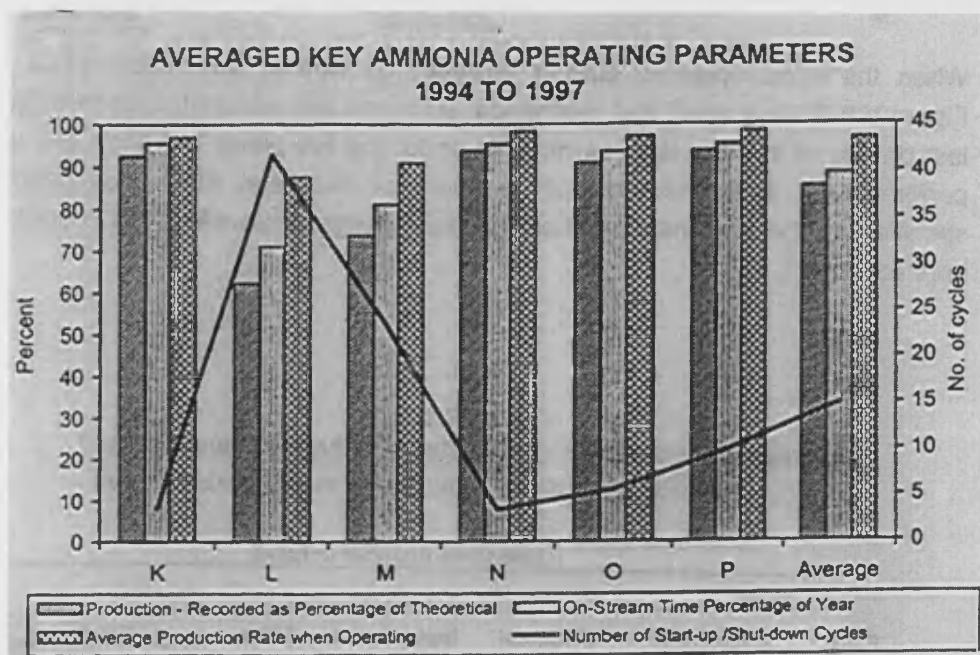
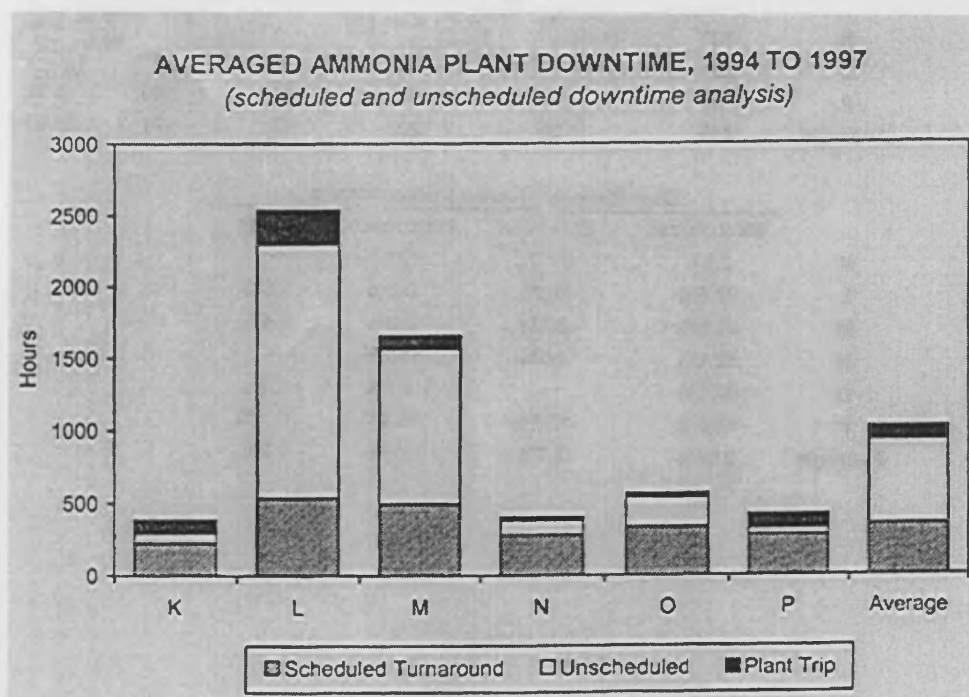


Figure 47



Downtime Performance

Downtime performance was analysed in Table 9. GPIC's figures on a per annum basis are reproduced below:-

- i) Scheduled turnaround, hours : 278
- ii) Unscheduled shutdown, hours : 103
- iii) Trip shutdown, hours : 22

GPIC's figure in the Downtime Performance category was assessed as the second best figure in Table 11 by a very marginal difference from the best performer, 16.04 days against 16.79 of GPIC.

Table 11

Comparison of Ammonia Plant Downtime Performance

(average hours per annum, 1994-1997)

<u>Parameter</u>	<u>Worst</u>	<u>Average</u>	<u>Best</u>	<u>(GPIC) Average 1994-1997</u>
• Scheduled Turnarounds hours	535	350	224	278
• Unscheduled Shutdowns hours	1,763	577	47	103
• Plant Trip hours	238	94	22	22
• Number of Start-up /shutdown cycle	42	15	4	4
• Total Downtime days	105.65	42.54	16.04	16.79

Operation analysis results rank GPIC the second best in the plant performance on average in 1994-1997. In 1996 the operation of the Ammonia plant was not at its optimum performance level due to :-

- The catalysts being at their end of run (EOR) condition for the major part of 1996 as a result of rescheduling of the planned turnaround from February to November 1996.
- The unusually long turnaround of the plant in 1996.

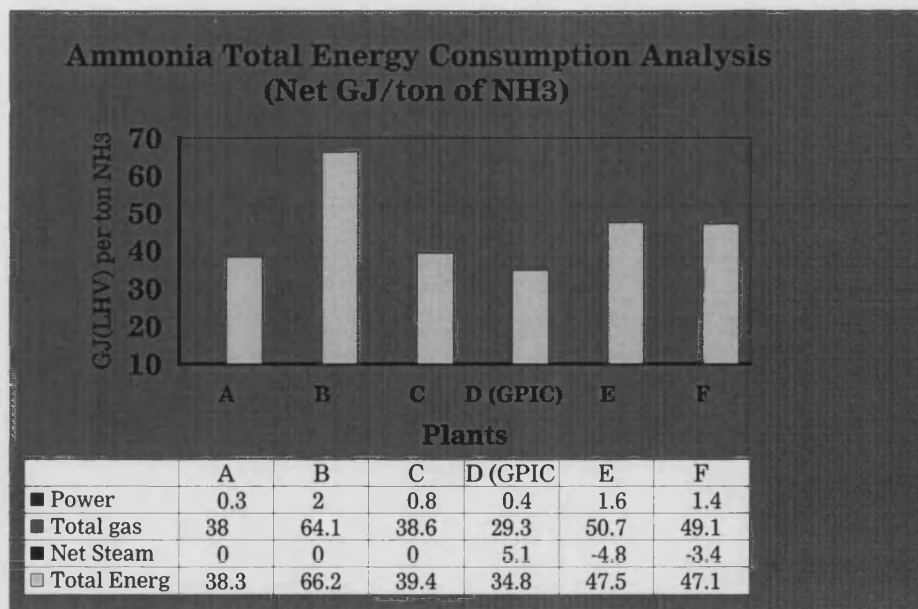
The above two factors also affected the average performance level between 1994 and 1997.

Despite these constraints, the overall performance level of the plant could still be considered 'excellent' and it is very close to the best average performance figures.

Total Energy Consumption Comparison

The total energy consumption for each plant per tonne of Ammonia produced is presented in Figure 48 below.

Figure 48



The study also included a comparison of the costs of production with :

- US Gulf Coast (USGC) Leader Plant.
- NW Europe Leader Plant.
- A major Indonesian Plant
- The estimated performance for the planned new plant in Oman.

The total gas consumption (feed & fuel) was the Lowest for GPIC even considering the Leader plants in USA and NW Europe and the total energy was also comparable terms with the leader plants in the world.

4.3 Summary

The foregoing reaffirms that GPIC's plants (Ammonia and Methanol) are indeed among the best operated and managed plants in the world. It clearly compliments and substantiates the claims and strong statements in the narrative section dealing with GPIC's progress and development. This section covered analysis of various technical and non technical parameters of GPIC's operations. While it is difficult to summarise the output of this section since each part of the study has been conclusive on its own merit, it is clear that the company's performance improved significantly over the period under investigation. GPIC had a turnaround from a losing company to a profitable one. The negative rate of return in the initial period of operation had become very positive since 1991 and continues unabated.

The remarkable rate of growth of about 150% in the networth during the period 1987 to 1997 is a noteworthy achievement recognised internationally, as demonstrated above.

Production increased by about 20%. Rate of Return on investment which was a negative of 9.26% in 1987 was significantly increased to over 23% in 1997. The Shareholders networth increased from US\$153.2 million in 1987 to over US\$371.3 million in 1997 an increase of 142%. Similar significant improvement was evidenced in other areas of the company's business performance including a remarkable improvement in profitability which turned from a loss of over US\$15.6 million in 1987 to a profit of approximately US\$74.2 million in 1997.

In addition to internal assessment and evaluation of the performance of the company, independent assessment of performance, through benchmarking also clearly shows that the company's performance is exceptional by world standard. Obviously, a culture must have existed and developed to facilitate such growth and success. This justifies a careful consideration of the factors that lead to such exceptionally good performance.

The following chapter is a literature review detailing the outlines of work carried out by various scholars and researchers on the effectiveness of Creativity, Motivation and Culture in a work organisation which is used later to correlate their findings with actions taken by GPIC Management as outlined in Chapter Six.

Chapter Five

Literature Review on Creativity, Motivation & Culture

An extensive literature review is made in order to ascertain the extent of research in the field of Creativity, Motivation and Culture and their impact on the performance of an organisation.

In his book 'The Fifth Discipline', Senge²⁰(1990), attempted to destroy the illusion that the management function is created of separate, unrelated aspects. He states that when we give up this illusion, we can then build "Learning Organisations". Organisations where people continually expand their capacity to create the results that they truly desire, where new and expansive patterns of thinking are nurtured and collective aspirations are set free and where people are continually learning how to learn together.

In this literature review, the researcher specifically attempted to find out if the interactions between these factors and their combined effects on organisational performance have been fully understood.

5.1 CREATIVITY

a. The nature and scope of Creativity

Creativity is defined as the ability to use the imagination and inventiveness, to fully utilise the mind in order to predict future conditions or possibilities.

²⁰ Senge Peter M.I. (1990): *The Fifth Discipline*, Double Day, USA

In a simplified definition of creativity Leonard D. Straus ²¹(1997) defined it as "Being creative is seeing the same thing as everybody else but doing something different." Hence, creativity involves the translation of people's unique gifts, talents and vision into something that is new and useful.

However, the path of the creative procedure, the attributes of the creative person and the creative product are more complex phenomenon. Psychological studies have produced wide ranging concepts of the important driving forces behind creative behaviour and the obstacles to creative performance.

b. The Psychology of Creativity

A review of the psychological studies to extract some understanding of the creative processes, would be useful for the purpose of this study to build upon previous work and to make new contributions in this field.

Torrance's²²(1979) model for studying and predicting creative behaviour as shown in Figure 49, and Amabile's²³(1983a) components of creative performance provide some direction in crafting a suitable hypothesis. Their work show some degree of overlap, particularly in relation to the importance of motivation or commitment to the task and creativity skills. Both authors point to a process of creativity that require three essential attributes to be evident for an individual to achieve a high level of creative achievement : ♦creative abilities ♦creative skills, and ♦an intrinsic task motivation.

²¹ Leonard D. Straus (1997): " Putting your Company's whole brain at work", *The Harvard Business Review*, August 1997, USA.

²² Torrance, E.P. (1979) *Search for Satori and Creativity*. Buffalo NY: Bearly Limited

²³ Amabile, T.M.(1983a). *The Social Psychology of Creativity*. New York; Springer Verlag

Torrance²⁴ (1988) claimed that creativity involves the five senses and perhaps even the extrasensory. He suggested that much of creativity is unseen, non verbal, unconscious, and difficult to explain. Over the past 25 years, Torrance's work has focused on the abilities that must be developed to achieve what he calls "satori" (that sudden feeling of enlightenment) and creativity. Abilities important to creativity are outlined in Table 12 (Torrance, 1979, Tardif & Sternberg²⁵ 1988; Davis²⁶ 1992). Thereafter, Torrance defined the term "creative thinking abilities" in the Torrance Test for Creative Thinking (TTCT), as "that constellation of generalised mental abilities that is commonly presumed to be brought into play in creative achievements" (Torrance²⁷ 1990, p.1.)

Table 12: Creative Abilities

• Fluency	• Able to predict outcomes, consequences
• Flexibility	• Analysis
• Originality	• Synthesis
• Elaboration	• Evaluation
• Transformation	• Logical thinking
• Sensitivity to problems	• Able to regress
• Able to define problems	• Intuition
• Visualisation, imagination	• Concentration
• Analogical/Metaphorical thinking	

Source: Adapted from Torrance, 1979; Tardif & Sternberg, 1988; Davis, 1992

24

Torrance,E.P.(1988).*The Nature of Creativity as manifest in its Testing*. In R.J.Sternberg (ED), *The Nature of Creativity*, 43-75, Cambridge, MA: Cambridge University Press.

25

Tardif, T.Z. & Sternberg. R.J.(1988) *What do we know about Creativity?* In R. J. Sternberg (ED), *The Nature of Creativity*, Cambridge, MA: Cambridge University Press.

26

Davis, G.A. (1992).*Creativity is Forever*. Dubuque, Iowa: Kendall/Hunt Publishing, 3rd Edition.

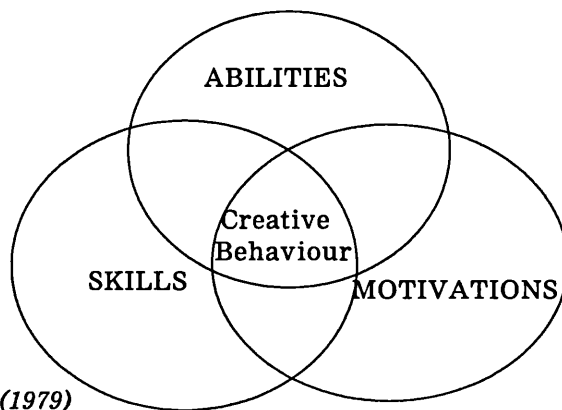
27

Torrance,E.P.(1990).*Torrance Test for Creative Thinking, Norms-Technical Manual Figural (Streamlined) Forms A&B*. Scholastic Testing Service Inc.

Accordingly, a high level of creative achievement can be consistently expected from those who are able to combine all these creative abilities (as in Table 12), creative skills (such as problem definition, idea generation, problem solving, provocative questioning) and intrinsic task motivation (or commitment towards a task).

Figure 49

Torrance's Model for studying and predicting creative behaviour.



Source : Torrance (1979)

In support of Torrance, Perkins²⁸(1981) claimed that creativity concerns what we do with our abilities, and that, any normal person can be creative in terms of some abilities he or she has or can acquire.

Taking a different perspective, Amabile²⁹ (1983b) asserted that social psychological issues had been ignored in the study of creativity and that personality and cognition must be integrated into a more general framework. In an attempt to consolidate the definitions of creativity, she argued that creativity is best conceptualised not as a personality trait or a general ability, but as a behaviour resulting from particular constellations of (i) personal characteristics, (ii) cognitive abilities, and (iii) social environments. She proposed that creative behaviour, can

²⁸ Perkins, D.N.(1981).*The Minds best Work*. Cambridge: Harvard University Press.

²⁹ Amabile, T.M.(1983b).*Social Psychology of Creativity: A componential conceptualisation*. *Journal of Personality and Social Psychology*: 45, 357-377.

only be completely explained by a model that encompasses all three sets of factors. Table 13 outlines Amabile's (1983a) conceptualisation of the sources of creativity which includes three components : (domain-relevant skills, creativity-relevant skills and task motivation) necessary for individual creativity and describes the ways in which each of those factors contribute to the creative process.

Table 13: Components of Creative Performance

1 <u>DOMAIN-RELEVANT</u> <u>SKILLS</u>	2 <u>CREATIVITY -</u> <u>RELEVANT SKILLS</u>	3 <u>TASK MOTIVATION</u>
<u>Includes:</u> -Knowledge about the domain -Technical skills required -Special domain relevant "Talent"	<u>Includes:</u> -Appropriate cognitive style -Implicit or explicit knowledge of heuristics for generating novel ideas -Conducive work style	<u>Includes:</u> -Attitudes toward the task -Perceptions of own motivation for undertaking the task.
<u>Depends on:</u> -Innate cognitive abilities -Innate perceptual and motor skills -Formal and informal education	<u>Depends on:</u> -Training -Experience in idea generation -Personality Characteristics	<u>Depends On:</u> -Initial level of intrinsic motivation toward the task. -Presence or absence of salient extrinsic constraints in the social environment -Individual ability to cognitively minimize extrinsic constraints.

Source: Amabile (1983b)

Domain-relevant skills are specific and include knowledge and experience of the task, special technical skills required for work in the domain, and domain-specific talents. Creativity-relevant skills operate at the general level; they include heuristics (or computation) for generating creative ideas as well as cognitive styles, working styles, and personality traits. Finally, task motivation is seen as the narrowly specific component, because it can vary importantly from one task in a domain to another. An individual can have a natural orientation toward one task in a particular domain (such as painting a

scene that has special emotional significance to the artist) and alternatively, an acquired orientation towards a seemingly similar task in the same domain (such as painting a commissioned potrait (Amabile³⁰ 1985). Therefore, the higher the level of domain-relevant skills, creativity-relevant skills, and intrinsic task motivation, the higher the final level of creativity in a given product.

Amabile's (1983a,b) framework attempts to account for the fairly well established creativity phenomena: the importance of talents, education, cognitive skills, innate interest and personality dispositions, all functioning interactively to influence creative behaviour (Shaughnessy 1991; Torrance³¹ 1991a). She concluded that this social psychology of creativity cannot be proposed as an answer to all questions of creativity any more than a personality approach or a cognitive approach can be proposed as the complete answer. Finally, Amabile³² (1990) argued that social factors may be responsible for only a small part of the total variance in creative behaviour, but they may account for the lion's share of the variance over which people have control. She believed this fact to be true and vitally important for anyone wishing to enhance creativity in practice.

Amabile (1983b) offered a conceptual definition of creativity which is consistent with most of the definitions in the literature for a creative product: "A product or response will be judged as creative to the extent that (a) it is both a novel, appropriate, useful, correct or valuable

³⁰ Amabile, T.M.(1985) *Motivation and Creativity: effects of motivational orientation on creative writers. Journal of Personality and social Psychology*, 48,2,393-399.

³¹ Shaughnessy, M.J. *Mentoring and E. Paul Torrance: his creative contributions. The Creative Child and Adult Quarterly*. 16,2,95-97.

³² Amabile, T.M.(1990). *Within you, without you: The social psychology of creativity and beyond. In M.A. Runco and R. S. Albert (Eds), Theories of Creativity. Newbury Park, CA: Sage Publications, 61-91.*

response to the task at hand and (b) the task is analytical rather than algorithmic".

Accordingly, a product or idea is creative to the extent that expert observers agree that it is creative (Amabile³³ 1982). Algorithmic tasks are those for which the path to the solution is clear and straightforward, tasks for which an algorithm exists, whereas heuristic tasks are those not having a clear and readily identifiable path to solution and include tasks for which algorithms must be developed. The path to a solution refers to that set of cognitive and motor operations that lead to an acceptable response or product in the domain of endeavour. Minimal empirical research has been done on the topic of creative products (MacKinnon³⁴ 1975, 1978; Besemer & Treffinger³⁵ 1981; Amabile 1982; Pearman, 1983). Mostly this is because the identification of creative products seems obvious, meaning that everyone can recognise a creative product when they see one (Mackinnon³⁶ 1978).

These same criteria are operating in high technology organisations, where products must not only be novel and useful, but also must have economic merit (Drucker³⁷ 1986).

³³ Amabile, T.M. (1982). *Social Psychology of Creativity: A consensual assessment technique*. *Journal of Personality and Social Psychology*. 43, 997-1013.

³⁴ MacKinnon, D.W. (1975). *IPAR's contribution to the conceptualisation and study of creativity*. In I. Taylor & J. Getzels (Eds). *Perspectives in Creativity*. Chicago: Aldine.

³⁵ Besemer, S.P. & Treffinger, D.J. (1976). *Analysis of creative products: Review and Synthesis*. *Journal of Creative Behaviour*. 15, 158-178.

³⁶ MacKinnon, D.W. (1978). *In Search of Human Effectiveness: Identifying and Developing Creativity*. Buffalo: Bearly Limited.

³⁷ Drucker, P.F. (1986) *Innovation and Entrepreneurship*. New York: Harper and Row, London: Wm. Heinemann.

c. *Obstacles to Creativity*

A review of literature also revealed many other works in the field of creativity including obstacles to creativity in an organisation and how to manage creative people.

Most researchers agree that the key obstacle to creativity is our belief that we are not creative. Creativity is also hampered by too-hectic environment that does not provide quiet time for reflection and introspection. Coade N.³⁸(1997) quotes from a leading consultant in this area of creative thinking, Simon Majaro: "You cannot be creative if you do not take lunch". Creativity is also hampered by:

- a sterile environment that does not feed the senses
- demands for quick production for results
- harsh words (from others or from ourselves)
- by rigid rules and barriers that prevent us from gathering information and/or from connecting with others.

Other factors that limit creative behaviour include:

- Stress: Stress is not only a distraction which drains energy which could otherwise be used creatively, it is bad for one's health.
- Routines: Routines or set ways of performing tasks have their uses, but allowing them to become too entrenched on one's life causes one to limit the range of responses available and can lead to the development of the anathema of creativity, the "bureaucratic mind".

³⁸ Coade N (1997), *Be Creative, The tool kit for Business Success- International Thomson Business Press, Boston, USA.*

- Beliefs: Having a strong belief in something not only limits our response options, but causes us to limit the way in which we perceive and process information from the outside world. We may "filter out" information which contradicts our belief, and end up in our own
- "reality tunnel", in which we remain blissfully unaware of much that occurs in front of our very eyes.
- Ego: Having a strong ego identity with a particular belief exacerbates this situation and can lead to us aggressively defending it, to the detriment of ourselves, our creativity, and society. This is not to imply that one must have no beliefs, merely that one needs to be aware of one's beliefs and consequent limitations.
- Fear: Fear of self-expression and of the judgement of others can severely limit one's creativity.
- Self Criticism: Negative thinking and self-criticism are also limiting factors of an individual's creativity.

d. Attributes of Creative People

In a book titled 'Characteristics of the Creative Individual', Raudsepp³⁹ writes that truly creative people are intensely career oriented and devote enormous amounts of energy to their work. They pay particular attention to the intrinsic satisfactions in their work (they view their work as an end in itself), they look for interesting, stimulating, challenging and creative projects. They need a variety of problems, professional and organisational recognition of their achievements (*sound familiar.... "the General Manager doesn't appreciate me"*),

³⁹ Raudsepp, E. *Characteristics of the Creative Individual*, Princeton Creative Research, 1978

ascending degrees of responsibilities and steady advancement and self-realisation. They do not look for easy, comfortable situations, but want to utilise their talents, aptitudes and interests to the fullest.

Leonard D. (1997) states that, truly creative people tend to have the following characteristics:

1. They are self-confident, often to the point of arrogance.
 2. They are enthusiastic.
 3. They are optimistic.
 4. They can examine things impartially and objectively.
 5. They are constructively discontented.
 6. They are dynamic.
 7. They have diverse interests.
 8. They are honest with themselves.
 9. They are not self-satisfied and complacent.
 10. They are not afraid to ask questions that show ignorance.
 11. They are not afraid of making a mistake and are risk takers.
 12. They do not seek approval from others or society.
 13. They will not compromise on those things they hold dear.
 14. They engage in hobbies which require concentration and exercise of problem-solving abilities.
 15. They strive for perfection.
 16. They have an uncommon capacity for self-instruction.
 17. They are flexible and can tolerate a high degree of ambiguity.
 18. They are highly motivated.
 19. They are uncommonly persistent.
-

20. They have an unusual ability to concentrate.
21. They constantly expand knowledge.
22. They dislike being bossed or policed.
23. They are intensely absorbed in their work.
24. They have above-average intelligence.

e. The Creative Process

The creative process as defined by Coade (1997) is divided into seven stages:

- 1) Orientation: pointing out the problem.
- 2) Preparation: gathering pertinent data.
- 3) Analysis: breaking down the relevant material.
- 4) Idea-generation: building idea alternatives.
- 5) Incubation: letting the idea grow to allow illumination.
- 6) Synthesis: putting the pieces together.
- 7) Evaluation: judging the resulting ideas.

Researchers also agree in general that creative activity typically comes in spurts and streaks and is rarely, if ever, continuous, and dry spells do not mean the creative juices have dried up.... they are just resting and incubating. Creativity is subject to personal, internal blocking mechanisms that can be overcome at times by discussion and verbalisation.

In another important work of Amabile⁴⁰ - "The Social Psychology of Creativity", she writes that "Criticism and imparting feelings of failure will destroy creativity.... avoiding them are the keys to fostering creativity. The author states that " the work environments most

⁴⁰ Amabile T. *The Social Psychology of Creativity*, Springer-Verlag, New York, 1983.

conducive to the fulfilment of creative potential may include a low level of interference from administrative superiors and a high stability in employment".

f. Creativity in Organisations

Organisations which successfully deal with creative employees tend to show the following characteristics:

1. Management respect individual differences.
2. Management understand the creative process.
3. Management have professional knowledge (expertise).
4. Management know how to communicate sympathetically with creative people.
5. Management give credit and recognition to the employees.
6. Management take calculated risks.
7. Management provide inspiration in the form of support and encouragement of ideas.
8. Management bolster self-confidence
9. Systems are flexible and have flexible organisations.
10. Management welcome and encourage constructive nonconformity, individuality and diversity.
11. Management involve creative people in the planning and decision-making process at the earliest possible moment.
12. Management allow creative people to try their pet projects and ideas without fear of criticism.

g. *Nurturing Creative People*

In a June 1994 Fortune article, titled "How to nurture creative Sparks", author Alan Farnham⁴¹ gives several rules for nurturing creative people:

1. *Accommodate*: Creative people tend to require more than normal attention. Managers must keep their doors open and let creative people have access to them.
2. *Stimulate*: Management must find ways to stimulate creative thinking.
3. *Recognise and Reward - the right way*: "Since creative people tend to be self-starters, giving them greater autonomy can be a powerful reward," writes Farnham.
4. *Direct (lightly) and give feedback*: Creative people need deadlines, otherwise they will stay in an exploration mode too long. On the other hand, they hate specific directions and they need feedback on how they are progressing.
5. *Protect them*: Managers have to protect creative people from dullards who do not understand the creative process.

h. *Group Creativity*

Work by Donna Shirley⁴² has shown that group creativity is the key to future prosperity for organisations and companies. Donna's "first law" is that creative enterprises are examples of collective creativity. She stresses that in groups, visions are shaped and structured into reality

⁴¹ Farham, A. "How to Nurture Creative Sparks", *Fortune*, June 1994.

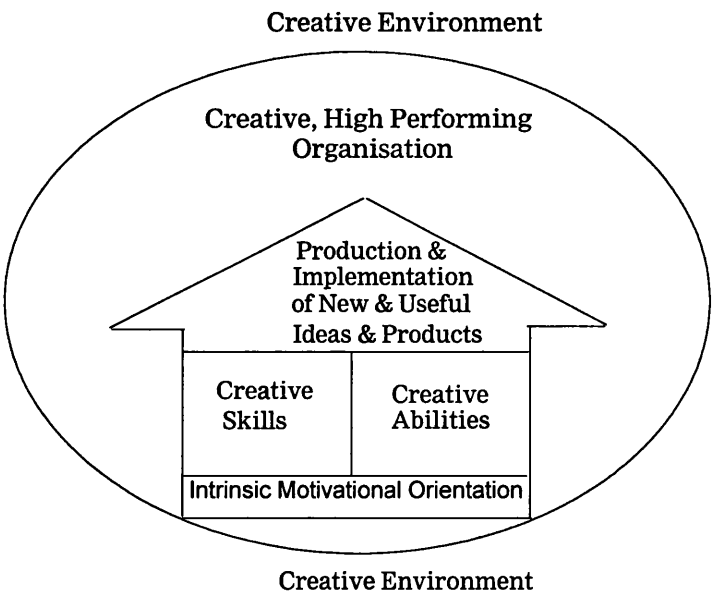
⁴² Shirley D. "Managing Creativity: A practical Guide to Inventing, Developing and producing Innovative products. <http://www.donnashirley.com>; April 1997

through a series of processes that consciously or unconsciously use tools, resources and people in complementary or competing ways.

i. *Integrated Model of Creativity*

Based on Amabile's conceptual description and other researchers work on creativity as reviewed above for purposes of this study, creativity will be defined as including the production of novel and useful ideas and products, and is dependent upon creative skills, creative abilities and motivation towards the task. This definition, encompassing the essence of this study, is presented in Figure 50 below.

Figure 50: Model for understanding creativity and its importance to organisations



Source: Amabile (182;1983 a,b; 1985) & others.

The previous model suggests that an intrinsic motivational orientation lies as the foundation of successful creativity, which combined with creative abilities and creative skills leads to the production and implementation of new and useful ideas and products.

j. *Can Individuals & Organisations be trained to be Creative?*

One of the most challenging questions facing practising managers is whether or not individuals and organisations could be trained to be creative.

Work of two management scholars in this field, will outline and discuss below some of the modern techniques that are available to enhance the creativity of individuals or organisations.

Edward de Bono - *Serious Creativity*⁴³ (1992): believes that creativity is no longer a matter of old fashioned brainstorming and wishful hopes that ideas will somehow happen. He states that there are now formal tools that can be used deliberately and systematically to teach creativity. He states in his book "*Serious Creativity*", that by learning Serious Creativity, the 'Conformist' can become more creative than 'the rebels'. He advocates that creativity need no longer be a mystery or a special gift. It is a skill that can be learned and applied.

In his book *Six Thinking Hats*⁴⁴ (1985), de Bono suggests that one of the key tools and techniques for *Lateral Thinking* is based on the logic of perception. Normal logic is based on passive information systems that record information, which is then manipulated according to certain rules of logic. In perception, there is a self-organising system in which the information interacts with the receiving system to form patterns. De Bono also believes that these patterns provide the routine perceptions without which life would be impossible. He states that we need ways to cut across patterns to reach new ones. He designed a

⁴³ De Bono Edward, (1992) *Serious Creativity*, Harper Collins Business, U.K.

⁴⁴ De Bono Edward, (1985) *Six Thinking Hats*, Penguin Books, England.

system of hats to provide a quick way of switching thinking without causing offence. The hats allow the users to think and say things they could not otherwise think and say without risking their egos. Each of the six thinking hats has a colour: *White, Red, Black, Yellow, Green, Blue*. The colour provides the name for the hat. The colour of each hat is also related to its function.

White Hat : information, data, facts, figures, questions and listening.

Red Hat : feelings, intuition, emotion- never a need to justify these.

Black Hat: logical negative, why something does not fit facts, system policy, etc.

Yellow Hat: logical positive benefits, advantages, why something will work.

Green Hat :creative, proposals, alternatives provocations.

Blue Hat : thinking about the thinking, what thinking steps to take, summaries.

White Hat: When you ask for ‘White hat thinking’ at a meeting, you are asking those present to put aside their proposals and arguments and focus directly on the information. For the moment, everyone at the meeting focuses on what information is available, what is needed and how it might be obtained.

Red Hat: signals feelings giving an opportunity for participants to opine freely in the discussions. Intuition may be a composite judgement based on years of experience in the field and may be very valuable even if the reason behind the intuition cannot be spelt out

consciously. It should also be said that intuition is not always right, and it can be wrong.

Black Hat: Being the cautious hat, no one wants to make any silly mistakes . It is the most used hat and possibly the most useful hat. Some people feel that it is enough to be cautious and negative and that if you prevent all mistakes then everything will be fine. It is easy to kill creative ideas with early negativity. The hat is very valuable but overuse of it can kill creativity.

Yellow Hat: Yellow hat thinking often requires a deliberate effort. Benefits are not always immediately obvious and we might have to search for them. Every creative idea deserves some yellow hat attention.

Green Hat: makes time and space available for creative thinking. Even if no creative ideas are forthcoming, the green hat asks for the creative effort.

Blue Hat: is usually used by the organiser or chairperson of the meeting, but other participants can put forward suggestions. The blue hat is for organising and controlling the thinking process so that it becomes more productive. The blue hat is for thinking about thinking.

According to De Bono (1992), the six hats methods allows us to get right away from argument in order to get more productive discussions. By using this technique, instead of adversarial thinking, there will be a co-operative exploration. That is why this method has been so eagerly adapted in many companies during meetings. De Bono reaffirms that the hat method separates ego from performance. The thinker, he

believes, is challenged to use the different hats and actually experience a sense of freedom because the thinker is no longer limited to one position. This way the six hat method plays a major role in creative thinking.

Another technique he believes can be used as a tool for Creative thinking is what he terms as “Creative Pause”. He states that creative attitudes and motivation can be built up by exhortation, by praising the wonderful results of creativity, by showing examples and by general inspiration. The main point of the pause is to give attention to something and to place that point in the person’s mind as being worthy of attention.

The creative pause is a simple technique which is a way of building a creative attitude. The pause is a way of turning creative attention into a habit and a concrete way of showing creative effort.

According to De Bono, focus too is a very important part of creativity. He states that focus is a much more important part of creativity than most creative people realise. He suggests that too much information hinders creative thinking and leads back to existing ideas. He feels that it is better to deal with the matter at a level of ‘innocence’.

De Bono (1992) has outlined five techniques that can be used systematically to help being creative. These techniques are :

- *Extract a principle*: the principle that the employee should be able to indicate his or her career ambitions in an unmistakable way.

- *Focus on the difference:* ambitious people could now make themselves visible. Is it better to try to give ambition to the talented or to try to give talent to the already ambitious? This is an interesting training question.
- *Moment to Moment:* when a worker gets dressed in the morning the spouse might say, “why no yellow shirt (blouse) today? So there might be the beginning of an idea to involve families in motivating workers.
- *Positive aspects:* anyone wearing a yellow shirt or blouse has made a declaration to himself or herself and may try to live up to this.
- *Circumstances:* anyone being served would prefer to go to a server wearing a yellow shirt or blouse both because service might be better and also because a complaint would have more meaning.

The Random Input, is claimed by De Bono (1992) to be the simplest of all creative techniques. According to him, this method is now widely used by new product groups, advertising agencies, rock groups, play writes and many others. He claims this technique to be very powerful, yet, totally illogical.

The general principle of the random input technique is the willingness to look for unconnected inputs and to use these to open up new lines of thinking. De Bono (1992) believes that some part of everyone’s reading should also be random. He believes, that the use of random “word” is a most convenient form of random input, because, it is so practical and so easy to use. He states that a word is a package of functions, concepts,

details and associations. He concludes that the random input technique takes its place as one of the systematic techniques for using provocation in a deliberate way and thus enhances individuals or organisations to think creatively.

Another key technique that is used to enhance creativity of individuals or organisations, is the use of 'Lateral Thinking'. According to De Bono ⁴⁵(1971) 'Lateral Thinking', which is seeking to solve problems by unorthodox or apparently illogical methods, is a very powerful tool for creative thinking and is rapidly growing in importance. He considers that all organisations reaching a plateau of competence will have to adopt better concepts to give them the competitive advantage.

According to De Bono (1992), lateral thinking cuts across the standard human perception. It encourages people to explore new options and possibilities. It often eliminates a single approach. Lateral thinking also challenges orthodox logical thinking in that it does not promote a "ridiculous approach" to solving a problem or dealing with an issue, but an out of the ordinary way of looking at life which may prove beneficial to answering a specific problem.

Another key advocate of the theory that people and organisations can be trained to be creative is Tony Buzan.

Tony and Barry Buzan⁴⁶ are the originators of mind-mapping, the SEM³ (Self-Enhancing Master Memory Matrix) and new concepts in brain

⁴⁵ De Bono Edward (1971) *Lateral Thinking for Management*, McGraw Hill Book Company, UK.

⁴⁶ Tony and Barry Buzan: (1984) *The Mind Map Book: Published by E.P.Dutton, U.K.*

functioning relating to processes of change and creative thinking. Tony Buzan is also the founder of international brain clubs.

Buzan states that mind-maps are a method of diagrammatic presentation of information using colourful diagrams, keywords and symbols, that help people capture the true essence and flow of an issue. The main theme that a mind map projects, radiates from its central image. The branches radiate and comprise key images or words in a nodal structure.

Buzan claims that these visual maps are excellent tools for enhancing a creative approach to work issues and problems. They tie-in with the concept that what is seen is absorbed much quicker and easier than what is heard. He states that it is a well known fact that images linked to words, aid individuals' recall. While sketching or developing a drawn image, people's memories code and file these thoughts in a patterned way. Mind-maps reflect the associative and connective nature of the brain and allow individuals to show relationships between key concepts. They also provide an overview and a greater insight and understanding of the topics considered. Tony Buzan continues to advocate that mind-mapping key words with colour enhancement also helps to make individual areas of study more creative and memorable. It separates ideas, stimulates creativity and aids the memory.

Another well known modern management scholar, Peter M. Senge⁴⁷ (1992), also states that intuition and creative problem solving are the way forward for individuals and organisations that need to have the

⁴⁷ Senge Peter M: (1992) *The Fifth Discipline*, Century Business, Random House U.K. Ltd; U.K.

leading competitive edge over their peers. He states that creative thinking has recently received increased attention and acceptance, thus leading experienced managers and leaders to rely heavily on these techniques to resolve complex problems. He states that there are even courses in management schools on intuition and creative problem solving, thus supporting the question that individuals and organisations could be trained to be creative in their dealings with day to day issues.

k. GPIC as a Creative Organisation

The description of creativity outlined above is consistent with the areas seen as essential for productivity and success within a high technology environment. In GPIC the production and implementation of novel and useful ideas and products is seen as the lifeblood of the organisation. In reviewing GPIC's data presented in Chapter III and IV, the researcher provided evidence of consistent management strategy to increased investment and emphasis on developing new products and services in an effort to put GPIC into a leadership position. Several processes and systems introduced into GPIC include specific elements relating to creativity for development of hardware, software and systems design. GPIC employment criteria look at a potential employee's creative ability and motivation towards work as being critical to working in a high technology and demanding environment. Also, successful teams and projects within GPIC are often attributed to multi-skilled groups working with creative ability and motivation.

At GPIC, a number of actions were taken to enhance the creative environment of the organisation:-

- Books on creative thinking techniques were made available to all employees.
- Courses on creative thinking were conducted and the ideas and techniques promoted in these courses, were put into practice.
- Management was exposed to creative thinking processes, creative environment and motivational techniques to encourage employees to keep a daily journal and record their thoughts, ideas, sketches, etc. as soon as they get them. Also they were encouraged to indulge in relaxation activities to give the mind a rest.
- Think of creativity as a skill or set of skills.
- A company suggestion scheme was established and employees' participation encouraged.
- Practice at overcoming irrational inhibitions which would help to improve employees' creativity.

The researcher has observed that GPIC management consciously set up an environment that encouraged creative output, a comfortable space within which employees feel non-threatened.

5.2 MOTIVATION

Motivation and personality are considered important determinants of behaviour and are, therefore, the subject of extensive studies by industrial and education psychologists. The importance of these variables is demonstrated by a long history of research which spans from philosophers to experimental research on the variables associated with successful work performance.

a. Motivation Theory

Motivation was described by Jones⁴⁸(1955) as being involved with "how behaviour gets started, is energised, is sustained, is directed, is stopped". McClelland⁴⁹ (1987) defines motivation as the "why of behaviour" versus the "how of behaviour". He further states that a working definition of a motive is "a recurrent concern for a goal state based on a natural incentive - a concern that energises, orients and selects behaviour".

Neff⁵⁰ (1985) stressed the importance of understanding motivation and domains of human activity that - in one way or another - shape the lives of almost all of us".

Numerous studies on behaviour in the workplace have focused on the relationship between needs and motivation. While several intrinsic motivation theories exist, three theories have been widely researched and focus specifically on intrinsic needs: Maslow's Hierarchy of Needs, Aldefer's ERG Theory and McClelland's Trichotomy of Needs.

b. Maslow's Hierachy of Needs

Abraham Maslow⁵¹ (1954, 1970) was one of the first and most often cited psychologist to develop a theory of needs. Maslow identified five prepotent needs which direct behaviour: physiological needs, security needs, social needs, ego needs, and self-fulfilment needs. He believed that there is a logical sequence of needs. He termed the physiological

⁴⁸ Jones, M.R.(1955). *Nebraska Symposium on Motivation: 1955. Lincoln: University of Nebraska Press.*

⁴⁹ McClelland,D.C.(1987). *Human Motivation. Cambridge: Cambridge University press*

⁵⁰ Neff,W.S.(1985) *Work and Human Behaviour, New York: Alding Publishing Company*

⁵¹ Maslow,A.(1954,1970). *Motivation and Personality. New York: Harper and Row.*

and safety needs as lower order needs which are satisfied through external means. He defined higher order needs as those needs which are satisfied internally and include social, esteem and self-actualisation. Self-actualisation was described as the highest level within the hierarchy because it involves an individual's ultimate self-fulfilment and achievement of one's potential. As each need in the hierarchy is sequentially satisfied and no longer in a state of deprivation, the next need becomes dominant. Maslow (1970) stated, "need gratifications lead to only temporary happiness which in turn tends to be succeeded by another and (hopefully) higher discontent". The theory postulates that while no need is ever fully gratified, a substantial amount of satisfaction of a need means it no longer motivates. Therefore, Maslow believed that to effectively motivate individuals it is important to assess the person's level on the hierarchy and attempt to satisfy needs at or above that level. Maslow's hierarchy of needs theory has been cited as explaining behaviours at work, such as the need for salary (physiological needs), health care and insurance benefits (security needs), informal or formal network (social need) employee recognition program (ego needs) and optimising one's professional talents (self-fulfilment needs). Robbins⁵² (1991) stated that it is often quoted by practising managers because the theory is intuitively logical and fairly easy to understand. However, a review of the research on this theory reveals that despite the theory's popularity, it has received little empirical substantiation (Korman, Greenhaus and Badin⁵³, 1977; Wahba & Bridwell⁵⁴, 1976). Researchers attempting to

⁵² Robbins, S.P.(1991) *Organisational Behaviour* Englewood Cliffs, N.J: Prentice Hall.

⁵³ Korman, A.K. Greenhouse, J.H. & Badin, I.J.(1977). *Personnel attitudes and motivation*. Rosenweig, M. R. & Porter, L. W.(Eds.) *Annual Review of Psychology*. Palo Alto, CA.178.

⁵⁴ Wahba, M.A. & Bridwell, L.G (1976). *Maslow reconsidered: A review of research on the need hierarchy theory*. *Organisational Behaviour and Human Performance*, 4,212-40.

validate the theory were unable to provide empirical evidence of a hierarchical order to the needs or that a gratified need motivates individuals to the next need level (Wahba & Bridwell, 1976).

c. *ERG Theory*

Clayton Alderfer (1969) revised Maslow's hierarchy of needs theory, in accordance with empirical research, to develop the ERG theory. This theory involves three groups of core needs: existence, relatedness and growth.

The existence group is the need for meeting our key material existence requirements, which correlates to Maslow's physiological and safety needs. Relatedness is concerned with the need for maintaining valuable interpersonal relationships. The relatedness group aligns with Maslow's need for esteem. Growth is defined as an intrinsic need for personal development, which is similar to the intrinsic aspect of Maslow's esteem and self-actualization categories (Alderfer, 1969, Robbins, 1991).

d. *McClelland's Trichotomy of Needs*

A systematic approach to understanding motivation was developed by Henry Murray⁵⁵ (1938). Murray conducted research with psychologists from different theoretical backgrounds. He attempted to bring these various theoretical orientations together to formulate a conceptual scheme for describing personality. His research differed from personality theorists of his time who focused on consistency of behaviour to infer traits. Instead, Murray focused on the underlying

⁵⁵ Murray, H.A. (1938). *Exploration in Personality*. New York: Oxford University Press.

motives of personality. McClelland⁵⁶ (1951) said the importance of Murray's work was in his attempt to study the "normal individual life in all its richness and variety". McClelland felt that previous research on personality had been "guided by the desire to find out what was wrong with the person so that they could cure him. Consequently, the personality pictures which they drew were warped to some extent by their purpose". Murray developed a thorough list of motivation needs which relate to personality. McClelland stated needs, as defined by Murray, were:

"Concentrated, extensively defined and taken together to provide a complete motivational system for summarizing the dynamic aspect of personality. But they have the disadvantage of being so heterogenous.... (and) so extensive as to be scarcely more economical than the original behaviour they are supposed to represent."

In 1987, McClelland stated:

"Science is an economising enterprise. Its purpose is to explain as much as possible of the bewildering variety of events with as few basic constructs and laws as possible."

Accordingly, McClelland aggregated Murray's list of twenty needs into the three needs which account for most social behaviour, nAch, nPow and nAff. While McClelland believes there is only one pure form of motivation and arousal, the three needs, nAch, nPow, and nAff are

⁵⁶ *McClelland, D.C. (1951). Personality. New York: William Sloane Associates*

social expressions of arousal. The three needs were described as the Trichotomy of Needs and found to be directly correlated with behaviour in the workplace (McClelland⁵⁷). He found particular profiles of the needs for achievement, power and affiliation to be highly predictive of success in particular occupations. McClelland's work on these needs laid a foundation for extensive research on motivations in work behaviour which will be discussed below:

e. Need for Achievement (nAch)

Early research on job performance and needs theory focused on the need for achievement. McClelland⁵⁸ (1984) said the nAch is "one of the keys to economic growth because men who are concerned about doing things better have become active entrepreneurs and created the growing business firms which are the foundation of a developing economy".

Stahl⁵⁹(1986) defined nAch as, "goal-directed behaviour where the goal is moderately difficult - that is, there is a reasonable chance of success - and the individual is provided with specific feedback about personal performance". Individuals with high nAch prefer situations in which they are personally responsible for the results and feel satisfied upon successful completion of moderately difficult tasks (Horowitz, 1961). Due to the personal aspect of this need, it is most often correlated to success on individual achievements. One study showed that subjects high in nAch demonstrate greater levels of muscle tension and galvanic skin response than individuals low in nAch when

⁵⁷ McClelland, D.C. (1961). *The Achieving Society*, New York: Van Nostrand

⁵⁸ McClelland, D.C. (1984). *the two faces of power*, Kolb, Rubin and McIntyre (Eds). *Readings in Organisational Psychology*. Englewood, N.J: Prentice Hall.

⁵⁹ Stahl, M.S. (1986). *Managerial and Technical Motivation*. New York: Praeger Publishers.

concentrating or personally working on tasks (Mucher and Heckhausen⁶⁰ 1962). Furthermore, subjects high in nAch prefer working on tasks in which the probability of success is less than 50% (deCharms & Carpenter⁶¹ 1968; French⁶² 1955; McClelland, 1987). Investigators found that individuals high in nAch are more attentive to tasks involving performance of a moderately difficult level (Heckhausen, 1967; Wendt⁶³ 1955). This research demonstrated that tasks which involved simple mathematical or conceptual tasks did not generally correlate with greater performance for subjects with high nAch than those with low nAch. This was also true for extremely difficult tasks. McClelland (1987) argued that when individuals with high nAch are assigned tasks which are easy or routine they have little motivation to perform well because the task itself does not allow these individuals to demonstrate their efforts, since almost anyone can achieve similar results. In contrast, McClelland says that tasks which are extremely difficult to do, elicit greater efforts among individuals with a strong nAch because the probability of failure is so high. Therefore, completion of the task will most likely result in failing and does not meet the need to achieve or succeed which is high among these subjects.

Weiner (1980) stated that individuals high in nAch prefer moderately difficult tasks because these tasks are more diagnostic of the

⁶⁰ Mucher, H. and Heckhausen, H. (1962). *Influence of mental activity and achievement motivation on skeletal muscle toneness. Perception and Motor Skills*, 14, 217-218

⁶¹ DeCharms R. and Carpenter V. (1968). *Measuring Motivation in Cultural disadvantaged school children. Klausmeirer H.J. and O'Hearn. G.T. (Eds). Research and Development toward the improvement of Education*, 31-41. Madison, WI: Educational Research Services

⁶² French, E.G. (1955). *Some correlates of achievement motivation. Journal of Experimental Psychology*, 50, 232-236.

⁶³ Wendt, H.W. (1955). *Motivation, effort and performance. McClelland D.C. (Ed). Studies in Motivation. New York: Appleton-Century-Crofts.*

individual's level of performance. Weiner's argument is consistent with the definition of the nAch which involves the need for accurate and consistent feedback. It follows that moderately difficult tasks provide more valuable feedback than easy tasks on which almost all individuals succeed and extremely difficult tasks where most individuals fail.

Several studies indicate that persons with a high nAch are not only drawn to tasks of moderate difficulty, but perform better on those tasks, as well (Atkinson, 1957, Litwin⁶⁴, 1958, Raynor & Entin⁶⁵ 1982). Atkinson's classic study purports that the level of achievement is a function of the need to achieve, probability of success, and the incentive value of success (1957). He formulated a model that implies that the value of success is directly proportional to the difficulty associated with attaining success. Raynor and Entin (1982) confirmed Atkinson's theory in a study which asked subjects to choose a criterion of difficulty regarding the number of anagrams to be completed before being able to move on to the next task. Most of the subjects high in nAch selected the criterion which was moderate (30 of 60), while the majority of subjects low in nAch chose the criterion which was either very difficult (54 of 60) or very easy (6 of 60) .

Individuals with high nAch are generally promoted into lower levels of supervisory management positions which require some levels of personal contribution or technical expertise, but not into higher managerial positions which require influencing others. In a

⁶⁴ Litwin, G.H.(1958). *Motives and Expectancy as Determinants of preference for Degrees of Risk*. Unpublished thesis, University of Michigan.

⁶⁵ Raynor, J.O. and Entin, E.E.(1982). *Future orientation and achievement motivation*. Raynor J.O. and Entin, E.E. (Eds). *Motivation, Career Striving, and Ageing*. New York: Hemisphere Publishing.

longitudinal study of 311 managers at the AT &T Company, the nAch, nPow, and nAff of entry level managers were determined and correlated with their promotion into management levels over a 16 year period. It was found that subjects high in nAch had been successfully promoted into lower level supervisory positions after 8 years at AT&T. However, at 16 years, those individuals had not been further promoted into higher levels of executive management (McClelland & Boyatzis⁶⁶ 1984). This study suggests that a curvilinear relationship exists between nAch and management level attained by individuals within organisations. Career types often associated with individuals high in nAch are those which require individual achievement. Examples of such career types which have been researched include: sales, engineering, research, education, individual athletics, and entrepreneurial activities (Stahl, 1986).

Research indicates that nAch can increase with appropriate training and job placement (McClelland & Winter, 1969, Szilagyi & Wallace⁶⁷1983). Furthermore, one study found that positive visualisation of achieving goals increased nAch (Burris⁶⁸ 1958). Szilagyi and Wallace (1983) found that nAch is the easiest of the three needs to train.

f. Need for Power (nPow)

Almost all behavioural disciplines including anthropologists, biologists, philosophers and psychologists, have recognised some form of power,

⁶⁶ McClelland D.C. and Boyatzis, R.(1984). *The leadership motive pattern and long-term success in management. Motives, Personality and Society.* McClelland D.C.(Ed). New York: Praeger Publishers.

⁶⁷ Szilagyi, A.D. & Wallance, M.J.(1983). *Organisational Behaviour and Performance.* glenview.IL: Scott, Foresman.

⁶⁸ Burris, R.W.(1958). *The effect of counselling on achievement motivation.* Unpublished doctoral dissertation. University of Indiana.

aggression, or dominance as an important human characteristic of behaviour. (McClelland, 1987). Veroff⁶⁹ (1957) devised the original coding system for nPow by examining the stories of student candidates who were waiting for election results in comparison to a control group. He found that stories written by individuals high in nPow included many references to controlling and influencing others. Therefore, his definition of the power motive was the need to exert influence. More recently, nPow has been defined by Chusmir⁷⁰ (1989) as, "a desire to coach, influence, teach, or encourage others to achieve, with little interest in doing things alone". Furthermore, he states the persons high in nPow have a desire to "lead others, to have an impact on them or on society".

Characteristics most often associated with individuals with high nPow include: aggression, a strong interpersonal style, high visibility, social competence, negative self-image, drinking problems, and enjoyment of gambling and watching sports (Chusmir 1989). McClelland found that persons high in nPow tend to have strong feelings of anger and thoughts of aggression, but do not act out more than persons low in nPow (1987, 1975). The tendency to act on aggressive thoughts is correlated to social class with lower socioeconomic classes demonstrating stronger acting out behaviours (Winter⁷¹ 1973). Because aggressive thoughts and actions are viewed as antisocial, many individuals with high nPow indicate problems with low self-esteem and intimate relationships (Chusmir⁷² 1985, 1989; McClelland, 1990; Veroff⁷³, et.al. 1980, Winter, 1973).

⁶⁹ Veroff, J. (1957). *Development and validation of a projective measure of power motivation. Journal of Abnormal and Social Psychology*, 54 1-8.

⁷⁰ Chusmir, L. H. (1989) *Behaviour: A measure of motivation needs. Psychology, A Journal of Human Behaviour*. 26, 1-10.

⁷¹ Winter, D. G. (1973). *The Power Motive*. New York: The Free Press.

⁷² Chusmir, L. H. (1985). *Motivation of Managers: Is gender a factor? Psychology-*

The nPow concept gained importance in current organisational behaviour research as a result of the research on AT & T employees by McClelland and Boyatziz (1984). This study made researchers question the importance of nAch in long-term managerial success and instead focus on nPow as a predictor of promotion into high level management positions.

The nPow factor involves the need for building solidarity within one's inner circle of power, to compete against an external goal (Chusmir, 1989; Haley⁷⁴ 1969; Winter⁷⁵ 1973). McAdams, Healy, and Krause (1982) found that college men with a strong nPow prefer situations in which they can attain high visibility and are, therefore, most often in the company of four friends or more. The researchers argued that dyadic relationships do not allow individuals to stand out as group situations do. Winter claims that these behaviours associated with nPow are especially effective in business leaders whose goal is to achieve high visibility and lead a team to directly attack an organisation's competition (1973).

Studies further reveal that some careers outside of business benefit individuals with strong power needs. High nPow has been correlated to individuals in the fields of teaching, psychology, clergy, politics, and nursing (Chusmir, 1985; Stahl, 1986; Winter 1973). These professions

Women Quarterly, 1985, 9 153-159.

⁷³ Veroff, J. Depner C. Kuka, R. & Douban, E. (1980). *Comparison of American Motives. 1957 versus 1976. Journal of Personality and Social Psychology*. 39, 1249-1262.

⁷⁴ Haley, J. (1969) *The Power Tactics of Jesus Christ and other essays*. New York: Grossman.

⁷⁵ Winter, D.G. (1973). *The Power Motive*. New York: The Free Press.

require the ability to influence and work through others, which is a critical component of nPow.

g. The Subscales of Power (pPow, sPow)

The need to influence others, or nPow, can be further explained by two subscales of power: the need for personal power (pPow) versus social power (sPow). In 1970, McClelland developed these subscales and described them as "the two faces of power" (1984).

Power, in general, is often viewed negatively by society because it is associated with authoritarian, dictatorial, Machiavellian behaviours in which there is dominance versus submission or winners versus losers. Chusmir⁷⁶ (1986) argued that this negative interpretation of power is associated with a particular type of power, pPow, "in which expressions of power for the sake of personal glorification become paramount". McClelland defines pPow as, "a kind of unsocialised concern for personal dominance".

In contrast, the need for social power (sPow) is a positive, mature type of power which is "associated with group or organisational influence/leadership and goal accomplishment.... this dimension is the essence of organisational leadership" (Stahl, 1986). Socialised power involves influencing others for a recipient's benefit or for some common good. The study revealed that the ability to influence others for their own empowerment versus the leader's power is the key differentiating factor between pPow and sPow.

⁷⁶ Chusmir, L.H.(1986). *Personalised vs. socialised power needs among working women and men. Human relations*, 39, 2, 149-159.

h. The Need for Affiliation (nAff)

Several definitions for nAff have been proposed; however, the consistent theme apparent in all descriptions is the need for establishing and maintaining cordial relationships with others (Buss⁷⁷ 1986; McClelland & Burnham⁷⁸ 1976; Hill⁷⁹ 1987; Stahl, 1986; Veroff, 1980). Buss (1986) related nAff to the need to be liked and loved, whereas Veroff (1980) described nAff in terms of love, a feeling of belonging, social relatedness, and a sense of intimacy. Hill (1987) researched the definitions of nAff and developed an instrument which lead to Hill's definition consisting of four dimensions of nAff: social comparisons, emotional support, positive stimulation, and attention. Hill proposed that individual differences in the dimensions of nAff affect the particular reasons for reward associated with social contact. Research further indicates there may be two motivations to nAff which involve the hope of being included with others and fear or rejection from others (deCharms⁸⁰ 1957; Stahl, 1986). According to Stahl (1986), both motivations result in similar behaviour which is to please and to avoid offending others.

Persons with a high nAff tend to behave in ways which promote relationships with others. Constantian⁸¹ (1981) conducted a study in which subjects were provided electronic pagers and randomly beeped throughout a week. She measured the frequency of affiliative acts and

⁷⁷ Buss, A.H. (1986). *Social Behaviour and Personality*. Hillsdale, N.J: Erlbaum.

⁷⁸ McClelland, D.C. and Burnham, D.H. (1976). *Power is the great motivator*. *Harvard Business Review*. 54, 100-110.

⁷⁹ Hill, C.A. (1987). *Affiliation motivation: People who need people... but in different ways*. *Journal of Personality and Social Psychology*. 52, 5, 1008-1018.

⁸⁰ deCharms, R (1957). *Affiliation motivation and productivity in small groups*. *Journal of Abnormal and Social Psychology*, 55, 222-226.

⁸¹ Constantian, C.A. (1981). *Attitudes, beliefs and behaviour in regard to spending time alone*. *Doctoral dissertation: Harvard University*

found that individuals with high nAff were more likely to be speaking with or writing to others than individuals with a low nAff.

Performance among individuals high in nAff is greater in situations where affiliative needs are met (Chusmir, 1989; McClelland, 1990). French⁸² (1955, 1956) conducted key research which has laid a foundation of understanding for current organisational behaviour research. In a study involving college students, French (1955) found that individuals with high nAff put forth greater effort and achieved better grades than individuals low in nAff in situations where the instructor was viewed as cordial and friendly. Conversely, students with high nAff did not perform better than students with low nAff in a classroom which was judged as unfriendly. Furthermore, research conducted by French (1956) suggests that individuals high in nAff prefer working with an incompetent friend versus a competent stranger.

Avoidance of conflict is critically important to persons high in nAff because of the importance of harmony and fear of rejection associated with this need (Chusmir, 1989; Exline⁸³ 1962; Hermann⁸⁴ 1980). These individuals tend to care about the feelings of others. Therefore, they generally avoid unkind remarks, criticism of others and competition with others (McClelland, 1985).

⁸² French, E.G. (1955). Some Correlates of achievement motivation. *Journal of Experimental Psychology*, 50, 232-236. (1956)- Motivation as a variable in work partner selection. *Journal of Abnormal and Social Psychology*, 53, 96-99.

⁸³ Exline, R. (1962). Need affiliation and initial communication behaviour in problem-solving groups characterised by low interpersonal visibility. *Psychological reports*, 10, 79-89

⁸⁴ Hermann, M.G. (1980). Assessing the personalities of Soviet Politburo Members. *Personality and Social Psychology Bulletin*. 6, 332-352.

McClelland and Burnham (1976) and McClelland and Boyatzis (1984) claim that characteristics associated with nAff are inconsistent with successful managerial leadership. Studies indicate that strong nAff is associated with lower rates of promotion into upper management levels in business organisations (McClelland & Boyatzis, 1984). The exception to this argument is the "integrator" motivational profile, according to McClelland (1984), in which a moderate nAff can be beneficial. Integrator profiles are most commonly seen in human resources and employee relations management positions where the goal is to bring opposing sides together. Therefore, positive relationships with others facilitate the processes associated with these positions (Chusmir, 1989; Litwin & Siebrecht, 1967; McClelland, 1984). High nAff may be found in "helping professions", according to Stahl (1986). He states, "The concern and caring for others, which seem to be part of jobs in the helping professions, are part of nAff" (1986). Stahl concluded that while nAff has not been shown to be beneficial in management positions, it is functional to professions which provide helping service.

i. Motivational Profiles of Managers

The motivational profiles of particular occupations have been studied by many researchers; however, management positions have received specific attention due to the pervasiveness and importance of those positions to the success of organisations (Campbell, 1970; Chusmir, 1986; McClelland, 1987; Stahl, 1986). Overall, it has been found that the motivational profile of managers is a low to moderate nAch, high nPow, and low nAff.

nAch: Much of McClelland's (1961) early work focused on the nAch as it relates to managerial success. He found that nAch is important to lower levels of managerial effectiveness.

nPow: More recent research reveals the strongest predictor of performance differentiating between successful and nonsuccessful managers, as well as, promotion of *nPow* (McClelland & Burnham, 1976; Steger⁸⁵ et al; 1975; Stahl 1986). Researchers indicate that a high need for power is most often determined by the performance of their subordinates, thereby requiring managers to influence the activities and thoughts of others.

nAff: Stahl found a negative correlation between high *nAff* and managerial success (1986). *nAff* involves the need for friendly interpersonal relationships above task orientation (French, 1958). Therefore, individuals with high *nAff* may perform poorly as managers because of their tendency to place more importance on warm relationships versus completion of goals. (McClelland & Burnham, 1976; Stahl, 1986).

j. Personality Trait Theory

Personality trait theory has developed from the identification and labelling of factors which describe consistent patterns or tendencies of an individual's behaviour. "The more consistent the characteristic and the more frequently it occurs in diverse situations, the more important that trait is in describing the individual". (Robbins, 1991).

One of the most frequently quoted definitions of personality was provided by Allport in 1937. He stated that personality is, "the dynamic organisation within the individual of those psychophysical systems

⁸⁵ Steger J. A. Manners, G. Bernstein, A. J. & May, R. (1975). *The three dimensions of the R & D Managers Job. Research Management*, 18, 32-37.

that determine his unique adjustments to his environment" (Allport⁸⁶ 1937). Allport and Odbert⁸⁷ (1936) identified 17,953 specific personality traits that describe behaviour. However, Cattell^{88, 89}(1946, 1973) argued that such a large number of identifiable traits results in superficiality and low predictive power among the traits. Therefore, Cattell and his colleagues at the University of Illinois set out to condense this large number into a more manageable number of personality traits which were fully descriptive, measurable and functional. He continued Allport's research and empirically tested the correspondence of the adjectives with actual observations of subjects' behaviours. His initial research was based on actual observations of behaviours. A factor analysis was conducted on the results which yielded 12 factors. He labelled the emerging factors A through O and designed a self-report questionnaire based on these factors. Following the administration of the questionnaire, he conducted another factor analysis which found four additional factors. They were identified as Q1, Q2, Q3 and Q4. Because these factors were found from subjective data they were believed to be internal, covert responses versus observable manifestations or behaviours. In 1949, Cattell refined his list to include all 16 primary factors to measure personality.

Cattell designed a questionnaire to assess the 16 factor - analytically derived traits entitled the 'Sixteen Personality Factor Questionnaire' (16PF). These 16 personality factor questionnaire include basic traits of temperament and orientation toward types of thinking, perceiving, and

⁸⁶ Allport, G.W. (1937). *personality: A Psychological Interpretation*. New York: Holt, Rinehart and Winston 48.

⁸⁷ Allport, G.W. & Odbert, H.S. (1936). *Trait names, a psycholexical study*. *Psychological Monographs*, 47.

⁸⁸ Cattell, R.B. (1946). *The description and Measurement of Personality*. New York. World Book.

⁸⁹ Cattell, R.B. (1973). *Personality Pinned Down*. *Psychology Today*. 7 40-46

behaving. These factors are predictive of apparent behaviours in a wide range of environment and situations.

The 16 primary constructs measured by the 16PF are coded by letter and described by Cattell, in order of importance to the individual's overall personality, as follows: (A) affectothymia-sizothymia: orientation toward others; (B) ability to discern relationships; (C) adaption to the environment; (E) control and deference to the environment; (F) exuberant and somber orientations; (G) content and action of moral values; (H) constitutional determinism: reactions to fear producing stimuli; (I) modes of evaluating experiences; (M) social orientation and identity; (N) social mask; (O) guilt proneness; (Q1) orientation towards change; (Q2) self-sufficiency; (Q3) investment in maintaining socially approved self-image; and (Q4) ergic tension. Several combinations of these traits have been developed to form secondary composite traits.

k. Leadership Profile

A profile of leadership has been developed based on a composite of 16PF first order traits. The Leadership Potential Index was developed in 1954 from a study of effective, elected leaders in the military (Cattell & Stice, 1954). An experimental research study involved dividing eight hundred military personnel into leaderless groups. The characteristics of leaders who emerged from these groups were identified as: intelligent (A+), conscientious (G+), practical (M-), conservative (Q1-), self-confident (O-), and dominant (E+) Cattell & Stice (1954). The Leadership Potential Index has since been used in personnel selection

as a predictor of successful performance in managers (Bartram⁹⁰ 1992; Guastello & Rieke⁹¹ 1993).

5.2.1. SITUATIONALLY SPECIFIC MOTIVATION

Two theories of motivation are reviewed: Social Cognitive Theory and Goal Theory. These theoretical studies have achieved comprehensive empirical support for their hypothesis (Locke & Henne⁹² 1986).

a. *Social Cognitive Theory*

Social Cognitive Theory views motivation as involving a triadic reciprocal causality among personal, environmental and behavioural factors (Bandura⁹³ 1986). Bandura suggests that people are products and producers of their own environment. Expectations and goal-setting processes respond to and regulate the effects of three motivators: (1) incentive motivators (external), (2) vicarious motivators, and (3) self-regulatory motivators (Bandura, 1986). Unlike the behaviourist's view that consequences control subsequent action directly, Bandura suggests that incentive motivators regulate behaviour through conclusions reached about external outcomes. Outcomes offer feedback that is interpreted by the individual and used to subsequently make decisions.

⁹⁰ Bartram, D.(1992). *The Personality of UK Managers: 16PF norms for short-listed applicants. Journal of Occupational and Organisational Psychology*, 65, 159-172.

⁹¹ -Guastello.S.J.&Rieke, M.L.(1993). *The 16 PF and Leadership: Summary of Research Findings 1954-1992. Champaign, IL: Institute for Personality and Ability Testing.*

-Guastello, S.J. Choi, J. Rieke, M.L. and Billings. S.W. *Personality and Volunteer Service Orientation. Unpublished manuscript, Marquette University.*

⁹² Locke, E.A.& Henne,D (1986). *Work Motivation Theories. In C. Cooper & I. Robertson (Eds). International review of Industrial and organisational psychology. Chichester England: Wiley Ltd.*

⁹³ Bandura, A.(1986). *Social foundations of thought and action: A Social cognitive theory. Englewood Cliffs, N.J: Prentice Hall.*

While Bandura (1986) accepts the notion that people are motivated by external incentives (piece rates, etc.), he stresses that motivational learning also occurs by observation of other's behaviour and its consequences (modelling). This vicarious learning occurs when the observer's attentional processes are activated and when information from observation is translated symbolically by and into memory codes. Symbolic conceptions guide subsequent actions.

Modelling the behaviour of others can for instance affect the choice of entrepreneurship as a career and help identify career paths that lead to successful entrepreneurial careers (Bird⁹⁴ 1989; Timmons, Smollen⁹⁵ & Dingee, 1990). Modelling influences can operate through all forms of social contact including presentation of exemplar entrepreneurs in classrooms, regional career choice forums, business incubators, mentor programs, and the home. Self-regulatory motivators include self-efficacy which is "....concerned with judgement of how well one can execute courses of action required to deal with prospective situations" (Bandura⁹⁶ 1982: 122), and "beliefs in one's capabilities to mobilise the motivation, cognitive resources, and courses of action needed to meet given situational demands" (Wood & Bandura⁹⁷ 1991: 408).

Self-efficacy is important for understanding entrepreneurship growth because it helps to explain why people of equal ability can perform differently. Positive self-efficacy can be acquired by modelling (the

⁹⁴ Bird, B.(1989). *Entrepreneurial Behaviour*. Glenview, IL: Scott Foresman & Company.

⁹⁵ Timmons, J. A. Smollen, L.E. & Dingee. A.L.M.Jr:(1990). *New venture creation: entrepreneurship in the 1990's*, 3rd edition. Homewood Ill. Richard D. Irwin.

⁹⁶ Bandura, A. (1982). *Self efficacy mechanism in human agency*. *American Psychologist* 37, 122-147.

⁹⁷ Wood R & Bandura, A.(1991). *Social cognitive theory of organisational management*. In R. M. Steers & L. W. Porter (Eds). *Motivation and work behaviour* (pp 179-191). New York NY: McGraw-Hill.

observer completes a self comparison with the model that enhances the observer's feelings of competence) and by persuasion.

Wood and Bandura (1991) theorise that self-efficacy is affected by intervening processes such as a person's choice of environments, motivation level, and experienced stress. The choice of environments affects behaviour and performance, so that future levels of self-efficacy are affected. This process is embedded in the choice of career and the resultant performance. In Chapter Six, it will be shown how GPIC management used this theory to create an environment that would positively affect the response of its employees for enhancing the company's business performances.

A single test of Social Cognitive Theory would be very difficult because "...the triadic systems are interactive.... and each subsystem itself contains multiple reciprocal processes" (Bandura, 1986: 28). However the theory has received wide empirical support for many of its proposed relationships (Locke & Henne, 1986). Mastery modelling has been widely used successfully to teach behaviour (Bandura, 1986, 1988). Self-efficacy has been shown to relate strongly with performance (Bandura, 1982, 1986; Earley⁹⁸ 1986; Lee & Gillen⁹⁹ 1989; Locke & Lathan¹⁰⁰ 1990), and goal-setting (Bandura & Cervone¹⁰¹ 1986; Locke, Frederick, Lee & Bobko¹⁰² 1984).

⁹⁸ Earley, P.C.(1986). *Supervisors and shop stewards as sources of contextual information in goal setting. A comparison of the United States with England. Journal of Applied Psychology.* 71-111-117.

⁹⁹ Lee, C & Gillen D.J. (1989). *Relationship of type A behaviour pattern, self-efficacy perceptions on sales performance. Journal of organisational behaviour.* 75-81.

¹⁰⁰ Locke E. A. & Latham G.P. (1990). *A theory of goal setting and task performance.* Englewood Cliffs, NJ: Prentice Hall.

¹⁰¹ Bandura, A & Cervone, D.(1986). *Differential engagement of self-reactive influence in cognitive motivation. Organisational Behaviour and Human Decision Processes,* 38, 92-113.

¹⁰² Locke, E. A. Frederick E. Lee, C. & Bobko, P. (1984). *Effect of self-efficacy, goals and*

b. Goal Theory

Goal Theory focuses on performance, positing that specific challenging goals motivate high performance (Locke & Bryan¹⁰³ 1967). It is based upon a causal chain that begins with a desired end which leads to actions; the result is then evaluated against the standard of the person's values and goals.

Goal-setting directly regulates action and, thereby, behaviour and performance. Goal setting has been far more successful at predicting behaviour than general value theories, because goals are more immediate regulators of human action (Locke & Latham, 1990). Goals are not motives or traits, they are the result of choices which reflect subconscious motives or values.

Support for Goal Theory suggestion, that there is a positive linear relation between goal difficulty and performance on work tasks, has appeared in many studies. The theory holds that hard goals that are accepted cause greater performance than easy goals because the actor expends greater effort and is more persistent. (Locke & Latham 1990).

While goal difficulty relates positively with performance, many studies show that specific difficult goals cause higher performance than non specific difficult goals ("do your best" goals). Locke and Latham (1990) suggest that ambiguous goals permit satisfaction at lower levels of performance than specific goals.

task strategies on task performance. Journal of Applied Psychology. 69, 241-251.

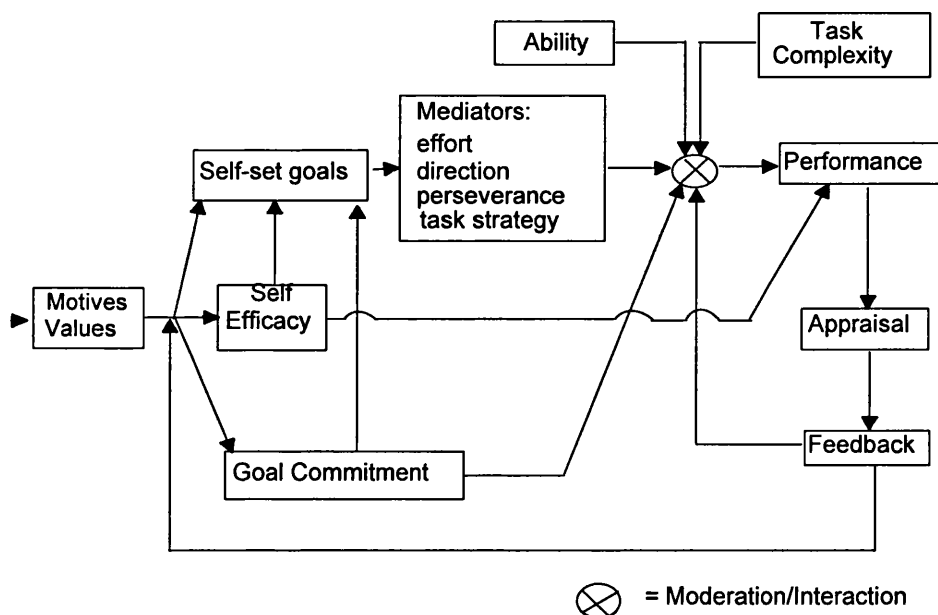
¹⁰³ Locke, E.A. & Bryan, J.R.(1967). *Performance goals as determinants of level of performance and boredom. Journal of Applied Psychology, 51, 120-130*

A modern configuration of Goal Theory is shown in Figure 51. This lends support for some of the mediating paths that appear in some research models, as well as offering support for the notion that performance is the result of multiple causality. For example, ability, self-set goals and self-efficacy appear as antecedent of performance in the Goal Theory Model. Perseverance mediates the goal to a performance relationship.

The goal to performance process is moderated by ability, commitment, feedback and task complexity (Locke & Latham, 1990). Mediators include direction, effort, persistence and task strategy. {Task strategy appears as an individual level variable in Goal Theory. This research extends the goal theory variable of task strategy to the entrepreneur's organisational level by studying strategic actions/behaviours}. The results of performance include satisfaction levels and consequences.

Figure 51

Goal Theory Model



[adapted from figure 3-4, P.70; figure 4-2, P.103; and figure 11-1, P.25-3; Locke and Latham (1990)]

Self-efficacy has an important place in Goal Theory because of its direct effects and its effect on goal choice and goal-commitment (Bandura, 1986; Bandura & Cervone, 1986; Locke, Frederick, Lee and Bobko, 1984; Taylor, Locke, Lee & Gist, 1984). In addition, goal commitment is affected by external factors such as legitimate authority, peer group influence, models and external rewards and internal factors like performance-reward expectancy and self efficacy (Locke¹⁰⁴ Latham, & Erez, 1988).

Self-set goals are formed based on the same internal and external factors as goal commitment. Incentives, rewards, models, peers, expectancy, self-efficacy, feedback, and dialogue with one's own values determine the difficulty and specificity of the goal choice. Research has supported the position of Goal theory that goals themselves, whether self-set, participatively-set, or assigned, are key determinants of performance (Locke & Latham, 1990).

Clear and believable feedback is a moderator of goal-performance relation (Locke, Bryan & Kendall¹⁰⁵ 1968). Additionally, Locke & Latham (1990) note that ability and situation moderate goal effects and that several personality variables may have moderating effects: e.g. need for achievement, (ambitious, aggressive, competitive and impatient), self esteem (I like myself), and locus of control (my actions determine outcomes more than chance).

¹⁰⁴ Locke, E. A. Latham G.P. & Erez, M (1988). *The determinants of goal commitment. Academy of Management Review. 13, 23-39.*

¹⁰⁵ Locke, E. A. Bryan J. F. & Kendall, L.M. (1968). *Goals and intentions as mediators of the effects of monetary incentives on behaviour. Journal of Applied Psychology, 52, 104-121.*

Extensive laboratory and field research has supported Goal Theory (Locke & Latham, 1990). This, together with Social Cognition Theory is the most consistently supported motivation theory (Mento, Steele & Karren, 1987; Pinder, 1984)¹⁰⁶.

The importance of goal difficulty was verified in studies by Latham and others (Latham & Locke, 1991), and the importance of goal commitment to the positive relation with performance has been verified (Erez & Zidon¹⁰⁷ 1984; Locke, Frederick, Buckner & Bobko, 1984). The use of specific clear goals relates with career success (Gould¹⁰⁸ 1979). The moderating effects of feedback and task complexity have been supported with consistent research (Locke & Latham, 1990).

While goal-setting produces strong results across tasks, its effect upon new venture creation and organizational transformation is largely untested. However, a study of the impact of goals setting upon the financial performance of entrepreneurial printing firms has shown strong associations (Tracy¹⁰⁹ 1992).

Goal Theory may explain new venture creation and successful venture operation. Gartner, Bird and Starr¹¹⁰ (1992:25) note that "studies of goals set by entrepreneurs (e.g. making the first sale, obtaining

¹⁰⁶ Mento, A. J. Steele, R.P. & Karren, R.J.(1987). *A meta-analytic study of the effects of goal setting on task performance: 1966-1984. Organisational Behaviour and Human Decision Processes*, 39 52-83

¹⁰⁷ Erez M & Zidon, I (1984). *Effect of goal acceptance on the relationship of goal difficulty to performance. Journal of Applied Psychology*. 69, 69-78.

¹⁰⁸ Gould S.(1979). *Characteristics of career planners in upwardly mobile occupations, Academy of Management Journal*, 22, 539-550.

¹⁰⁹ Tracy, K.B.(1992). *Effects of need for achievement, task motivation, goal setting and planning on the performance of the entrepreneurial firm. Unpublished Doctoral Dissertation, University of Maryland*.

¹¹⁰ Gartner, W. B. Bird, B. J.& Starr, J.A.(1992). *Acting as if : Differentiating entrepreneurial from organisational behaviour. Entrepreneurship Theory and Practice*, 16, 13-30

financing, developing the prototype), as well as studies of the goals entrepreneurs establish for other individuals involved in the emerging organisation might reveal that entrepreneurs who set higher goals are more likely to enable their emerging organisations to survive and grow larger than entrepreneurs without such goals".

The operation of a new venture should benefit from entrepreneur's self-goal setting. New or newly transformed ventures are strong reflections of the entrepreneur/manager/leader, so application of goal-setting by individual organisation should enable their businesses to survive and grow.

The researcher finds that both theory and research work reviewed in literature, strengthen and support the use of Social Cognitive Theory and Goal Theory variables for the specific motivation domain of an organisation with a constantly high performance need.

In Chapter Six, ample evidence is shown of how GPIC Management used such motivational techniques as reviewed in the literature to enhance the employees motivation.

The researcher also undertook a separate literature review that was relevant to the background and basis for the staff surveys contained in Chapter Seven.

The literature review relevant to the Attitude Survey can be divided into three segments. Segments 1 and 2 relate to the impact of human resource management on the financial performance of an organisation and on the aspect of productivity/ enhancement of quality, respectively. Segment 3 relates to individual characteristics and

attributes in the field of human resource management that have an impact on the performance of an organisation.

Segment 1 : Financial Performance

- a. Both *Kravetz*¹¹¹ (1988 & 1991) and *Terpstra - Rozell*¹¹² (1993) found a direct and positive relationship between good human resource management practices and five year growth in sales and profit margins, dividends, earnings per share, equity values and P/E ratios covering different types and sizes of industries in USA.
- b. *Gerhart and Milkovich*¹¹³ (1992) stated that in organisations where the human resource culture prevailed to link employee performance appraisal to employee incentive compensation, there was a positive return on investment and return on equity.
- c. *Ostrow*¹¹⁴ (1992) conducted research across industries in the USA and concluded that higher investment in staff training and development resulted in improved return on equity.

¹¹¹ -*Kravetz, D.J. (1988). The human resource revolution: Implementing progressive management practices for bottom-line success. San Francisco: Jossey-Bass.*

-*Kravetz, D.J. (1991a). Human resources revolution. San Francisco: Jossey-Bass.*

-*Kravetz, D.J. (1991b, February). Increase finances through progressive management
HR Magazine, pp. 57-62.*

¹¹² *Terpstra, D.E., & Rozell, E.J. (1993). The relationship of staffing practices to organisational level measures of performance. Personnel Psychology. 46. 27-48.*

¹¹³ *Gerhart, B., & Milkovich, G.T. (1992). Employee compensation: Research and practice. In M.D. Dunnette & L.M. Hough (Eds.), Handbook of industrial and organisational psychology, Vol. III. Palo Alto, CA: Consulting Psychologists Press.*

¹¹⁴ *Ostrow, M.H. (1992). The relationships among competitive strategy, human resource management practices and financial performance. Unpublished doctoral dissertation, University of Michigan, Ann Arbor.*

Segment 2 : Productivity

- a. *Thompson*¹¹⁵ (1994) examined the effects of human resource management on safety, grievances, absenteeism and customer satisfaction in 71 districts of a large electrical utility in the USA and established that there was a direct correlation between the two.
- b. *Arthur*¹¹⁶ (1992) concluded that effective human resource management improved productivity in steel mini-mills across the USA, as was evident from lower rates in the generation of scrap and employee turnover.
- c. *MacDuffie*¹¹⁷ (1995) summarised that the quantitative measure of productivity in the automobile industry in the USA (labour hours per completion of vehicle) and the quality measure of productivity (number of defects per hundred vehicles) had a direct and positive relationship with the human resource management of the organisation.

[The empirical evidence that emerged from the above studies was in the predicted direction, namely that effective human resource management does contribute positively to organisational productivity and financial performance].

¹¹⁵ *Thompson, J. (1994). Relationship between employee satisfaction and organisational performance. Working paper.*

¹¹⁶ *Arthur, J.B. (1992). The link between business strategy and industrial relations systems in America steel mini mills. Industrial and Labour Relations Review, 45, 488-506.*

¹¹⁷ *MacDuffie, J.P. (1995). Human resource bundles and manufacturing performance: Organisational logic and flexible production system in the world auto industry. Industrial Labour Relations Review. 48(2).*

Segment 3 : Characteristics/Attributes in human resource management

- a. *Employee motivation:* This topic is being extensively covered in this section of the research. Theories on motivation generally assume that employees are motivated by unsatisfied needs. Various experts have tried to classify these needs to aid and assist human resource management. *Maslow*¹¹⁸ (1954) defined a hierarchy of needs under five levels, namely:
- i Self actualisation (through growth and development).
 - ii Esteem needs (title, promotions, etc.).
 - iii Psychological needs (relationships with peers, bosses and family).
 - iv Safety needs (job security, pensions, etc.).
 - v Physiological needs (salary, perquisites and job benefits).

*Herzberg's*¹¹⁹ (1966) two-factor theory was an extension of the *Maslow* theory in which he reclassified the aforesaid five levels into two factors:

- i 'Hygiene Factor' : corresponding to the lower three levels of Maslow and;
- ii 'Motivators' : corresponding to the top two levels of Maslow.

*McClelland*¹²⁰ (1953) introduced the 'Three Needs Theory' :

- i Need for achievement (drive to excel);
- ii Need for power (the need to make others behave in a way that they would not have behaved otherwise);
- iii Need for affiliation (desire for friendly and close interpersonal relationships).

¹¹⁸ *Maslow, Abraham H. (1954). Motivation and Personality. New York: Harper & Row.*

¹¹⁹ *Herzberg, Fredrick (1966). Work and the Nature of Man. Cleveland: World.*

¹²⁰ *McClelland, David C., et al. (1953). The Achievement Motive. New York: Appleton-Century-Crofts.*

One of the extreme hypothesis on motivation are Theory X and Theory Y, proposed by *McGregor*¹²¹ (1960). According to Theory X, most people are lazy, irresponsible, passive and dependent and must be tightly controlled and supervised. According to Theory Y, most people will take responsibility, care about their jobs, wish to grow and achieve and if given a chance, excel at work. *McGregor* believed high performance teams can exist only in high performance organisations that ascribe to the Theory Y.

- b. *Commitment:* The traditional concept on workforce management was that efficiency can best be achieved by imposing management control over workers' behaviour, the underlying assumption being that the management had all the right answers, thereby gaining subordinate acquiescence to predetermine tasks and monitoring the quality of work. However, as tasks and priorities changed, as a result of the introduction of new technology and shift in the work environment, solutions that worked in the past ceased to be relevant in the current environment. This environment called for a new commitment based approach characterised by jobs that involved greater responsibility and flexibility. According to *Walton*¹²² (1985) this resulted in a shift from a 'control oriented' approach to a 'commitment oriented' approach.
- c. *Job Satisfaction :* Certain characteristics tend to be related to job satisfaction and others to dissatisfaction. Intrinsic factors

¹²¹ *McGregor, Douglas. (1960). The Human Side of Enterprise. New York: McGraw-Hill.*

¹²² *Walton, R.E. (1985). "From Control to Commitment in the Workplace." Harvard Business Review 63, 2: 77-84.*

such as achievement, recognition, the work itself, responsibility, advancement, and growth, seem to be related to job satisfaction. Extrinsic factors such as company policy and its administration, supervision, interpersonal relations, working conditions, tend to be related to job dissatisfaction. Researchers have stated that the opposite of dissatisfaction is not satisfaction because removing dissatisfying characteristics from a job does not necessarily make that job satisfying. According to *Herzberg (1966)*, a management that takes cognisance of the intrinsic factors will be successful at motivating its employees.

- d. *Teaming* : According to *Rees¹²³ (1991)*, it is essential to obtain cohesion, understanding and integration of motivated and high performing employees into a high performing team in order to obtain a high performance organisation. It is generally believed that team work can be effective in addressing the twin problems of the old paradigm - viz. under-utilisation of talents of individual employees and isolation of individuals. The synergy from team work offers benefits to organisations in dealing with these twin issues.

According to *O'Connor and Erickson¹²⁴ (1992)* high performance team members see themselves as integral parts of a comprehensive whole and consequently consider themselves jointly responsible for everything the team does and accept responsibility for resolving issues at hand.

¹²³ *Rees, Fran. (1991). How to Lead Work Teams: Facilitation Skills. San Diego: Pfeiffer & Company.*

¹²⁴ *O'Connor, Michael, and Betsy Erickson. (1992). "The Team Advantage." American Printer 208, 5: 34-37.*

- e. *Communication* : As work teams become increasingly involved in resolving issues in a high performing company, in order to enable prompt and correct decisions, they want and need more accurate and speedy information. An organisation can not reach high performance levels without effective, open and prompt communication, which thus becomes critical in such organisations. High performance companies are distinguished by the greater effort they make to communicate to all employees (Johnson and Grey 1988)¹²⁵.

- f. *Continuous Training* : High performance organisations must recognise that training is essential to bridge the gaps between what employees know and what they need to know to do their job. Such organisations also recognise that training never ends when it comes to high performance, self-directed teams (Wellins and George 1991)¹²⁶.

According to Bartel ¹²⁷(1994) research concerning training and its relation to productivity has been forthcoming. Across manufacturing industries the presence of formal training programmes for managers, professional and technical employees, clerical employees and production workers, demonstrated positive association with increases in labour and productivity and this fact has been proved in tangible terms as improved net sales/profits per worker.

¹²⁵ Johnson, Gail Cook & Ronald J. Grey (1998). "Employee Motivation in High Performance Companies." *The Canadian Business Review* 15, 3: 26.

¹²⁶ Wellins, Richard S., Jill George. (1991). "The Key to Self-Directed Teams." *Training and Development Journal* 45, 4: 26-31.

¹²⁷ Bartel, A.P. (1994). *Productivity gains from the implementation of employee training programs. Industrial Relations*, 17.

- g. *Labour Management Relations* : Traditional labour management relations were linked to higher costs and more worker hours were lost to scrap and high levels of defects per worker, increased delivery variance and lower net return on labour hours worked. *Katz, Kochan and Weber*¹²⁸ (1985) concluded that non adversarial labour management and industrial relations resulted in fewer grievances, lower absenteeism and fewer disciplinary actions. Such relations were associated with enhanced labour efficiency and fewer production defects and demerits, resulting in improved product quality and increased output.
- h. *Employee Participation* : *Katz, Kochan and Weber* (1985) stated that across manufacturing firms, researchers have demonstrated a positive relationship between employee participation in suggestion schemes and product quality and quantity.

The researcher came to the conclusion that there was no single comprehensive theory which can effectively blend these theoretical bases into a cohesive whole. Accordingly, each organisation which aims to attain this high level of success needs to select elements that are most appropriate to the product, process and culture of that organisation and consistent with its workforce environment.

5.3 ORGANISATIONAL CULTURE

a. *Introduction and Definitions*

The word 'culture' as described in the dictionary is a "state of civilisation; customs and values, especially, a high level of

¹²⁸ *Katz, H.C., Kochan, T.A., Weber, M.R. (1985). Assessing the effects of industrial relations systems and efforts to improve the quality of working life on organisational effectiveness. Academy of Management Journal. 28. 509-526.*

development, improvement or pertaining to culture specifically, of the training and refinement of the intellect, emotions, manners, interests, tastes, skills and arts; obtained by breeding of cultivation. Also the results of this culture; refined ways of thinking, talking, and acting, or the ideas, customs, skills or care (body culture, voice culture) etc. of a people or group that are transferred, communicated or passed along, as in or to succeeding generations such ideas, customs etc. of a particular people or group in a particular period; civilisation”.

But what is 'organisational culture'? Where does it come from and how does a company acquire it?

The first systematic attempt to understand modern work organisations in cultural terms occurred in the early 1930s during the last phase of the well-known Hawthorne studies at the Western Electric Company in Chicago, Illinois. In this, as in so many other ways, these studies proved to be seminal for the study and understanding of human behaviour in work organisations.

However, the early 1980's 'organisational culture' became a central concern in the study of organisational behaviour. Hundreds of researchers began to work in this area. Numerous books were published, important academic journals dedicated entire issues to the discussion of culture, and almost overnight, 'organisational behaviour' textbooks that omitted culture as a topic of study became obsolete and outdated.

Interest in 'organisational culture' was not limited just to the ivory towers of academia. Businesses expressed an interest in culture that was far more intense than their interest in other aspects of

organisational behaviour. A lot of business periodicals published stories that touted 'culture' as the key to an organisation's success and suggested that managers who could manage through their organisational culture would almost certainly be industry leaders. The enormous amount of study of culture that was completed in the early 1980's fundamentally shifted the way both academics and managers looked at organisations. Some of the concepts developed in the analysis of organisational culture have become basic parts of the business vocabulary and the analysis of organisational culture is one of the most important specialities in the field of organisational behaviour in this day and age.

A surprising aspect of the recent rise in interest in 'organisational' culture is that the concept, unlike virtually any other concept in the field of organisational behaviour, has no single widely accepted definition. Indeed, it often appears that authors feel compelled to develop their own definitions, which range from very broad to highly specific. For example, the definition of a firm's culture as "the way we do things around here" could include the way a firm manufactures its products, pays its bills, treats its employees and performs any other organisational operation. More specific definitions include those as the pattern of basic assumptions that a given group has invented, discovered, or developed in learning to cope with its problems of external adaptation and internal integration, and as a dominant and coherent set of shared values, conveyed by such symbolic means as stories, myths, legends, slogans, anecdotes, and fairy tales.

According to Pheysey D¹²⁹ (1993), the term culture is derived from the same term as the verb "to cultivate". In Biology, cells are grown in a

¹²⁹ Pheysey D (1993). *Organisational culture*. Routledge. London 1993

culture; in Anthropology, culture, sometimes refers to the whole way of life, in which people grow up and the way things happen and hence the following list of definitions could give a fair reflection of the totality, simplicity and at times complexity of organisational culture:-

- ♦ "a belief system shared by an organisation's members"
- ♦ "strong, widely shared core values"
- ♦ "the way we do things around here"
- ♦ "the collective programming of the mind"
- ♦ "collective understanding"
- ♦ "a set of shared, enduring beliefs communicated through a variety of symbolic media creating meaning in people's work lives"
- ♦ "a set of symbols, ceremonies and myths that communicate the underlying values and beliefs of that organisation to its employees"
- ♦ "a dominant and coherent set of shared values conveyed by such symbolic means as stories, myths, legends, slogans, anecdotes and fairy tales"
- ♦ "the pattern of basic assumptions that a given group has invented, discovered, or developed in learning to cope with its problems of external adaptation and internal integration"
- ♦ "Team Work!!"

b. A Brief History of Cultural Research on Organisations

Cultural research on organisations is not a recent development. While it became more prominent in the 1980s following the publication of popular books like - *In Search of Excellence* and *Theory Z*, there had been a fairly steady stream of research on cultural phenomena in

organisations dating back to the 1930s. Other efforts were scattered. All of this research did not come from a consistent theoretical perspective, but much of it has yielded valuable insights that have been important for the study of organisations. Thus, it may be useful to describe some of this research and summarise its findings to underline in still another way how the cultural approach is distinctive.

c. *The Pioneers*

The Hawthorne studies began with experiments on the relationship between productivity and the physical work environment. This phase of the studies grew naturally out of the concerns of industrial engineers employed by the company. When the results of these experiments proved puzzling and not explicable in purely technical terms, the company decided to turn to behavioural scientists and incorporate them into the program of ongoing research.

In early 1930's Elton Mayo, a faculty member in the Harvard Business School, was hired as a consultant by Western Electric. He, in turn, had to persuade the business school Dean to allow him to employ an experienced, but still young assistant professor from the anthropology department to assist him in the Hawthorne studies. The young anthropologist was W. Lloyd Warner. Mayo argued that Warner would adapt the anthropological methods he had employed to uncover social structure and belief system in tribal societies to the current work community within the Western Electric Plant. This had never been done before. The result of Mayo and Warner's discussions was the famous bank wiring room observation study, which began in November 1931 and lasted until May 1932. Careful analysis indicates

that "this study was primarily designed by W.Lloyd Warner". (Moore 1989.p.3)¹³⁰.

Warner did not come to this new challenge totally unprepared. He had not only done classical anthropological fieldwork among the Murngin of Northeast Australia, he had also recently begun an extensive ethnographic study of the community of Newburyport, Massachusetts. One of the purposes of the community study was "to shed light on the way in which behaviour, values, and attitudes that had shaped the community, influenced the behaviour, values and attitudes of employees in the workplace" (Moore¹³¹ 1982, p.117). This classic and very influential research, begun in 1929 and not completed until 1937, was eventually published in six volumes, known as the Yankee City Series. In one of these volumes, Warner focused on how a community's culture shaped the cultures of workplaces within it (Warner and Low¹³² 1947). At Western Electric, he focused on how work group cultures affected work behaviour and productivity in a specific work setting. This work becomes relevant when we discuss the way GPIC management used work group culture to affect productivity and efficiency in all areas of its activities.

Warner went on to complete his research for the Yankee City Series (Warner and Lunt¹³³ 1941) and joined the faculty of the University of

¹³⁰ Moore, David G. (1989) *Comments during a symposium on the Committee on Human Relations in industry at the University of Chicago. Working paper of the Management History Division, William Mhus (ed).*

¹³¹ Moore, David G. (1982) *The committee on human relations in industry at the University of Chicago. Pp 117-21 in Academy of Management Proceedings. Kae H. Chung (ed) 42nd Annual Meeting. New York.*

¹³² Warner, W.Lloyd and O.J. Low, (1947) *The Social System of the Modern Factory. New Haven, Conn: Yale University Press.*

¹³³ Warner, W.Lloyd and Paul S. Lunt: (1941) *The Social Life of a Modern Community. New Haven, conn: Yale University Press.*

Chicago in 1935. From there he and his students began another community study - this time of the Deep South (Davis¹³⁴ et al.1941). Unfortunately, Warner himself did not continue to do anthropological studies within work organisations. However, he stayed at Chicago, where he and one of his students, Burleigh B. Gardner, began a consulting firm to help employers deal with personnel problems.

All of this research occurred more than three decades before popular books made organisational culture a management fad in the early 1980s. It was made possible by an unusual degree of close cooperation between the progressive managers of two major corporations - Western Electric and Sears Roebuck and a group of capable and respected academic researchers. Without the long term access to workplaces, provided by these corporations' managers, such research was not possible. Writing in 1978, Whyte commented, "This strong beginning justified hopes that organisational studies would become a major field for applied anthropologists, yet in succeeding years, very few anthropologists joined these pioneers".

Other than Warner, cultural anthropologists had shown little interest in the workplace. Under the influence of Claude Levi-Strauss, the trends in anthropology moved towards examination of exotic and distant cultures rather than those in the West. Even Warner himself had done little actual fieldwork in work organisations. While Whyte did extensive fieldwork, his work focused mostly on group phenomena and only peripherally on cultural matters - specifically on symbolism. In organisational sociology there was a steady decline of interest in

¹³⁴ Davis, Allison, Burleigh B. Gardner, Mary R. Gardner, and W.Lloyd Warner: (1941) *Deep South: A Social Anthropological study of Caste and Class*: Chicago: University of Chicago Press.

small groups and a concomitant turn towards formal structure. The promise inherent in a cultural approach to the study of organisations had only been partially implemented; descriptions and interpretations of cultural forms in the workplace, such as myths, stories or rites, were rare.

At the same time, the qualitative field methods that characterise the cultural approach were being supplanted by the heady attractions of the computer. High speed computing permitted the collection of large bodies of quantitative data and the flowering of the techniques of the social survey. The trend had begun with research carried out on the military during World War II; the statistical approaches developed for that research (Stouffer¹³⁵ et al. 1950) could now be diffused and practised by anyone with appropriate training and access to a high speed computer. Soon a torrent of quantitative studies appeared, they encouraged research into other questions. The structural and psychological variables and theories that lent themselves to quantification became the dominant trends in organisational research from the 1960s to the late 1970s.

But there had been a beginning for the cultural approach. "In five short years there was an unusual flourishing of anthropological and sociological research... a unique combination of circumstances involving academia, business, a great industrial city, and the times" (Moore 1982, p.121). It did not revolutionise all of the research on organisations or all of management thought - as quantitative methods and the computer did later. However, it did provide the foundation for a modest stream of imaginative research and writing on work and

¹³⁵ *Stouffer, Samuel A. Louis Guttman, Edward A. Suchman, Paul F. Lazarsfeld, Shirley A. Star and John A. Clausen: (1950)*

organisations done primarily by industrial ethnographers (Gamst¹³⁶ 1977).

d. Scattered Efforts

During the 1950s and 1960s, a few American researchers continued the anthropological tradition begun by Warner and his students. Perhaps the most sustained efforts were made by Donald Roy¹³⁷ (1952, 1953, 1954, 1960) who used participant observation to study culture within small work groups and produced results resembling those from the back wiring room in the Hawthorne studies. Undoubtedly the best known work from this period was Melville Dalton's ¹³⁸ "Men Who Manage" (1959). Dalton, who worked in the two companies he studied, focused his research on the extent to which subcultures naturally emerged from workers' needs and documented how these informal groups actually governed much of what happened in these companies. In his accounts, the formal system of rules, titles, and the like served as a backdrop for the real dynamics of social life in industry.

Somewhat related and far more influential in mainstream organisational research was the work of scholars like Philip Selznick, who described the interactions of affected communities and the fledging Tennessee Valley Authority in terms of how institutions respond to changing circumstances (Selznick¹³⁹ 1949). Selznick used the

¹³⁶ Gamst, Frederick C.: *An integrating view of the underlying premises of an industrial ethnology in the U.S. and Canada. Anthropological Quarterly*, 50 (1): 1-9

¹³⁷ Roy Donald: 1952 *Quota restriction and gold bricking in a machine shop. American Journal of Sociology*, 57:427-42.; 1953: *Work Satisfaction and Social Reward in quota achievement. American Sociological Review*, 18:507-14; 1954 *Efficiency and the fix: informal intergroup relations in a piece-work machine shop. American Journal of Sociology*, 60:255-66; 1960: *Banana Time: Job satisfaction and informal interaction. Human Organisation*, 17:158-61.

¹³⁸ Dalton, Melville: *Men who Manage: (1959) New York- John Wiley.*

¹³⁹ Selznick, Philip: *T.V.A. and the Grass Roots. (1949) Berkeley, Calif: University of*

term 'institution' to indicate that organisations were more than rational instruments, they were infused with value beyond the technical requirements of tasks (Scott¹⁴⁰ 1987; Selznick¹⁴¹ 1957). Although a sociologist, Selznick conducted his research much like a cultural anthropologist, gaining his insight on cooption and institutional leadership from long-term observations and extensive interviewing within the organisations and the communities studied.

Meanwhile, in England, a group of social scientists known as the Tavistock Institute began research on organisations as cultural systems (Jacques¹⁴² 1951). They experimented in introducing various innovations into organisational cultures, especially beliefs about the positive value of worker participation in organisational decision making. A U.S. researcher in this trading was F. L. W. Richardson¹⁴³ (1955, 1961), who showed how the stress and conflicts generated by the structuring of work relations affected social interactions, employees' feelings, and productivity in a large electrical design and manufacturing concern.

A few cultural studies of a typical workplace also appeared during this period. For example, Hortense Powdermaker¹⁴⁴ (1950) made extensive

California Press.

¹⁴⁰ Scott, W. Richard: (1987) *Organisations: Rational, National and Open Systems*, 2nd ed. Englewood Cliffs, N.J: Prentice Hall.

¹⁴¹ Selznick, Philip:(1957) *Leadership in Administration*: New York - Harper & Row, Pub

¹⁴² Jacques, Elliott: (1951) *The changing culture of a factory*: London-Tavistock Publication

¹⁴³ F.L.W.Richardson (1955) *Anthropology and Human relations in business and industry*. Thomas W.L.(ed) *Yearbook of Anthropology*. Special publication of the American Anthropological Association. 1961: *Talk, work and action: Human reactions to organisational change*. Monograph No: 3, Society for Applied Anthropology, Ithaca, N.Y: School of Industrial and Labour Relations, Cornell University.

¹⁴⁴ Powdermaker, Hortetnse: (1950) *Hollywood, the dream factory: An anthropologist looks at the movie-makers*. Boston: Little, Brown.

observations in the motion picture industry on the relations of film making crews with those behind the scenes - writers, producers, and studio executives. William Caudill studied patients in a psychiatric hospital. Jules Henry's¹⁴⁵ (1963) study of public schools documented how the schools acted as the cultural transmitters of the values of thrift, industry, competitiveness, and cleanliness.

But it was not until the late 1960s that the efforts of several researchers broke through the relative obscurity to which cultural research had been relegated in organisational and management studies. In the United States, a team of researchers led by Harrison Trice interpreted their observations of personnel practices as cultural rites and ceremonies (Trice, Belasco, and Alutto¹⁴⁶ 1969). In England, Barry Turner¹⁴⁷ (1971) wrote a book explicitly exploring both the substance and forms of organisational cultures. His analysis relied heavily on the concept of British cultural anthropologists. Somewhat later, Andrew Pettigrew, an English Sociologist (1973)¹⁴⁸ studied a large retail firm on a long-term basis. His detailed study of the introduction of computer into a retail firm not only continued the anthropological tradition of participant observation, but also capitalised on multiple methods and sources of data collection to achieve added confidence in the results of his qualitative observations.

In the pursuit of everyday tasks and objectives it is all too easy to forget the less rational and less instrumental, the more expressive social

¹⁴⁵ Jules Henry: (1963) *Culture Against Man*. New York : Random House.

¹⁴⁶ Trice, Harrison M. James Belasco and Joseph A. Alutto: (1969) *The role of ceremonies in organisational behaviour: Industrial and Labour Relations Review* 23 (October): 40-51.

¹⁴⁷ Barry Turner: (1971) *Exploring the Industrial Subculture: London-The Macmillan Press*.

¹⁴⁸ Andrew Pettigrew: (1973) *The politics of organisational decision making: London - Tavistock Publication*.

issue around us that gives those tasks meanings. Yet, for people to function within any given setting, they must have a continuing sense of what that reality is all about in order to be acted upon. Culture is the system of such collectively accepted meanings operating for a given group at a given time.

A second important study done in the United States at about the same time was Burton Clark's - 'The Distinctive College (1970)¹⁴⁹, which documented the importance of what he called "organisational sagas" in the long term survival and relative prosperity of three of these institutions. His concept of "saga" is very similar to that of organisational culture and he may have chosen the term to emphasise the important role that founders and historical tradition played in these colleges (1972)¹⁵⁰. In an earlier study, he had focused on how organisational values shifted as school organisations adapted to their environments (Clark¹⁵¹ 1956). Both of these studies used qualitative methods.

The work of another researcher focused attention on the value of qualitative methods. Quantitative methods had become so dominant in mainstream management research that it was almost revolutionary when Henry Mintzberg¹⁵² systematically observed managers at work. His reports of this research on 'The Nature of Managerial Work' (1973) received considerable scholarly attention and were rewritten for several popular publications, including the Harvard Business Review

¹⁴⁹ Burton Clark: (1970) *The Distinctive College: Antioch, Reed and Swathmore: Chicago: Aldine.*

¹⁵⁰ Burton Clark: (1972) *The organisational saga in higher education. Administrative Science Quarterly*, 17: 178-83.

¹⁵¹ Burton Clark: (1956) *Organisational adaptation and precarious values; A case study: American Sociological Review*, 21:327-36.

¹⁵² Mintzberg, Henry: (1973) *The Nature of Managerial Work: New York - Harper & Row. Pub.*

(Mintzberg ¹⁵³1975). Although Mintzberg did not focus on organisational culture, his detailed observations of the daily activities of five managers uncovered some cultural aspects of the managerial role. Perhaps because of the topic, or perhaps of the business oriented academic circles in which he moved, Mintzberg's work made systematic qualitative methods - the primary tools for studying culture.

The rediscovery of the benefits of qualitative methods, in turn, led to an influential special issue of the *Administrative Science Quarterly* (1979). While this issue did not focus on culture *per se*, the guest editor was John Van Maanen¹⁵⁴, a professor at the Massachusetts Institute of Technology, who specialised in studying occupational cultures.

The research findings of Pettingrew, Clark and Mintzberg caught the attention of prominent organisational and management scholars. Their work was published in leading journals and their books were widely cited. Such was not the case for the industrial ethnographers who were active over the same period. They were based in anthropology or folklore departments, where their work was hardly in vogue. They had little contact with organisational researchers, who were in sociology departments or management schools. Five researchers of this type deserve mention. Frederick C. Gamst¹⁵⁵ (1980a, 1980b) and Robert S. McCarl¹⁵⁶ (1974, 1976) studied the cultures of

¹⁵³ *The Managers Job: (1975) Folklore and fact. Harvard Business Review, 53(4): 49-61*

¹⁵⁴ *Van Maanen, John: (1979) The fact of fiction in organisational ethnography. Administrative Science Quarterly, 24: 539 -50.*

¹⁵⁵ *Gamst, Frederick C.: (1980a) Toward a method of industrial ethnography: Rice University Studies, 66 (1): 15-42.*

Gamst, Frederick C: (1980b) The Hoghead: An Industrial Ethnology of the Locomotive Engineer: New York - Holt Rinehart & Winston.

¹⁵⁶ *Robert S. McCarl: (1974) The production welder: Product, process and the industrial craftsman. New York Folklore Quarterly, 30:244-53.*

Smokejumper initiation: (1976) Ritualised communication in a modern occupation. Journal of American Folklore, 81:49-67.

colorful occupations. C. S. Holzberg and M. J. Giovannini¹⁵⁷ (1981) integrated a broad range of prior research on work cultures from many different societies in an annotated bibliography. Marietta Baba¹⁵⁸ (1986) summarised the practical implications of these and other studies for workplace cultures.

e. Recent Revitalisation

Although the study of organisational cultures was not new, it certainly received a big impetus in the 1980s. Two best selling books were widely interpreted as saying that organisational cultures were important for organisational productivity and adaptability: Peters and Waterman's¹⁵⁹ 'In Search of excellence' (1982) and Ouchi's 'Theory Z'¹⁶⁰(1981). At about the same time, two other books on organisational cultures garnered widespread attention from managers and the press (Pascale and Athos¹⁶¹ 1981; Deal and Kennedy¹⁶² 1982). Many business and trade magazines featured articles on the topic. Between March 1983 and October 1984, five major conferences on corporate culture and organisational folklore and symbolism were held (Jones¹⁶³ 1984, p.8), many of them bringing managers and scholars together. The proceedings of three of these were published as books (Pondy¹⁶⁴ et al

¹⁵⁷ Holzberg, C.S. and M. J. Giovannini: (1981) *Anthropology and industry: Reappraisal and new directions. Annual Review of Anthropology*, 10-317-60.

¹⁵⁸ Baba Marietta: (1986) *Business and Industrial Anthropology: An Overview: Washington.D.C. American Anthropological Association.*

¹⁵⁹ Peters Thomas J and Robert H. Waterman: (1982) *In Search of Excellence: Lessons from America,s Best run Companies. New York-Harper & Row Pub.*

¹⁶⁰ Ouchi William: *Theory Z: (1981) How American business can meet the Japanese challenge. Reading, Mss: Addison Wesley.*

¹⁶¹ Pascale, Richard T and Anthony G. Athos: (1981) *The art of Japanese Management. New York: Simon & Schuster.*

¹⁶² Deal Terrence E. and Allan A. Kennedy: (1982) *Corporate Cultures: The Rites and Rituals of Corporate life: Reading Mass: Addison - Wesley.*

¹⁶³ Jones, Michael O. (1984) *Corporate Natives confer on culture. The American Folklore Society News letter*, 13 (October)6, 8.

¹⁶⁴ Pondy, Louis: (1983)*The role of metaphors and myths in organisation and in the facilitation of change. Pp157-66 in Pondy et al (eds). Organisational Symbolism.*

1983; Frost¹⁶⁵ et al. 1985; Kilmann¹⁶⁶ et al. 1985). Three academic journals - The Journal of Management Studies (1982), Administrative Science Quarterly (1983), and Journal of Management (1985), and one journal oriented to managers, Organisational Dynamics (1983) - published special issues on the topic. Two academically oriented textbooks on organisational cultures appeared in 1985 (Schein¹⁶⁷ 1985; Sathe¹⁶⁸ 1985). More recently, four books of readings (Jones, Moore and Snyder¹⁶⁹ 1988; Turner¹⁷⁰ 1990c; Gagliardi¹⁷¹ 1990; Frost et al. 1991), another textbook (Ott¹⁷² 1989), a book-length research report (Denison¹⁷³ 1990, and a book-length ethnography (Kunda¹⁷⁴ 1991) have appeared.

During the early 1980s, meetings of professional associations like the Academy of Management and the Institute for Decision Sciences began to include special symposia on culture. Since 1980, an international group of scholars calling themselves - The Standing Committee on

Greenwich, Conn: JAI Press.

¹⁶⁵ Frost, Peter J. Larry F. Moore, Meryl R. Louis, Craig C. Lundberg, and Joanne Martin (eds): (1985) *Organisational Culture: Beverly Hills, Calif: Sage Publications Inc.*

¹⁶⁶ Kilmann, Ralph H. Mary J. Saxton, and Roy Serpa and Associates (eds): (1985) *Gaining Control of the corporate culture. San Francisco; Jossey - Bass.*

¹⁶⁷ Schein, Edgar : (1985) *Organisational Culture and Leadership. San Francisco: Jossey Bass.*

¹⁶⁸ Sathe Vijay: (1985) *Culture and Related Corporate Realities: Homewood, Ill: Richard D. Irwin.*

¹⁶⁹ Jones Michael O. Michael D. Moore, and Richard C. Snyder (eds): (1988) *Inside Organisations: Understanding the Human Dimension. Beverly Hills, Calif: Sage Publication, Inc*

¹⁷⁰ Turner Barry: (Ed). *Organisational Symbolism, New York: (1990c) Walter de Gruyter.*

¹⁷¹ Gagliardi, Pasquale (ed): *Symbols and Artifacts: (1990) Views of the Corporate Landscape: New York: Water de Gruyter.*

¹⁷² Ott J. Steven : (1989) *The organisational Culture perspective: Pacific Grove, Calif: Brooks/Cole Publishing.*

¹⁷³ Denison, Daniel: (1990) *Corporate Culture and Organisational Effectiveness: New York : John Wiley.*

¹⁷⁴ Kunda Gideon: (1991) *Engineering Culture: Control and Commitment in a High Technology Corporation. Philadelphia: Temple University Press.*

Organisational Symbolism has held annual conferences in Canada and Europe and published a newsletter, "SCOS Note-work" .

What made the concept of organisational culture suddenly so attractive to managers, the press and scholars? Two sets of parallel developments led in this direction. One was the turbulence and difficulties that U.S. firms were experiencing in competing with organisations from countries with very different cultures. The second was a growing realisation by some organisational scholars that structural-rational approaches to understanding organisations missed crucial aspects of how organisations functioned and how they affected the lives of their members (Pondy and Mitroff ¹⁷⁵1979).

Following World War II, the supremacy of U.S. Management went practically unchallenged. Many other societies looked to the United States to solve major productivity problems of the world with technical and managerial know-how. But in the 1970s, the superiority of U.S. managerial skills and ideas came into question as Japan, a country with a drastically different culture, became the United State's chief competitor for economic leadership of the world. The question on everyone's mind was whether it was cultural differences that accounted for the unparalleled productivity of Japanese Organisations. The culture of U.S. work organisations became candidates for blame. Environmental forces were demanding change and many U.S. managers began to see that past practices may have discouraged innovation, quality and cooperation; they apparently even failed to achieve the high productivity to which they were oriented. Managers

¹⁷⁵ Pondy, Louis R. and Ian Mitroff: (1979) *Beyond open system models of organisation. Research in Organisational Behaviour*, 1:3-39.

and analysts also began to realise that changing organisations would not be easy without an understanding of the cultures that had grown up within these organisations; they began to see culture as both an impediment to change and a possible vehicle for achieving it.

The downturn in the U.S. economy in the 1970s had generated much anxiety and conflict between workers and management. Many U.S. workers and managers were unemployed for the first time in their lives. Learning of the apparent harmony in Japanese workplaces, U.S. managers began to see culture as a way to integrate managers' and workers' concerns to create some consensus and cooperation in their organisations. Managers and workers needed reassurance; increasing the coherence of the internal cultures in their organisations seemed a good way to achieve it. And if harmony could be achieved, it was bound to contribute to managerial control, increase performance and profits, and generally help to make U.S. industry competitive again. Culture became in some managers' eyes just another seductive 'quick fix' for their problems (Kilmann¹⁷⁶ 1984).

Even before the 1970s, some organisational scholars were growing disillusioned with the assumptions inherent in largely rational, bureaucratic models or organisations. The rational model had been modified and stretched to its limits (Thompson¹⁷⁷ 1967), and still something essential to the realities of organisational life was missing. Perhaps, the most influential work to set forth an alternative, much more subjective view of organisations was Karl Weicks's¹⁷⁸. The Social

¹⁷⁶ Kilmann, Ralph: (1984) *Beyond the quick Fix: Managing five tracks to organisational success*. San Francisco: Jossey-Bass.

¹⁷⁷ Thompson, Lawrence: (1967) *Organisations in Action*. New York: McGraw Hill.

¹⁷⁸ Karl Weick: (1969) *The Social Psychology of Organising*. Reading, Mass: Addison-Wesley.

Psychology of Organising', published in 1969. Weick emphasised how people's cognitive processes and social interactions shaped organisations in nonrational ways. Like its title, his analysis also emphasised the fluidity and emergent nature of organisational life. Other researchers had become frustrated trying to apply the bureaucratic model to universities (Cohen, March and Olsen¹⁷⁹ 1972) and to Japanese organisations. One set of researchers, who studied Japanese managed organisations in the United States, reported " we cannot describe adequately how different the atmosphere is in an organisation where 50 to 80 percent of the personnel have Japanese origins" (Lincoln, Olson and Hanada¹⁸⁰ 1978, p.834). By the late 1970s, several researchers had advanced theories that severely questioned the rational bureaucratic view; they suggested organisations were loosely coupled system (Weick¹⁸¹ 1976) and were permeated with myth and ceremony (Trice, Belasco, and Alutto, 1969; Meyer and Rowan¹⁸² 1977). Closely aligned with models of organisations are the methods used to study them. Some researchers were also becoming disillusioned with quantitative methods and quasi-experimental designs (Ouchi and Wilkins¹⁸³ 1985) because of the relatively trivial amount of variance they explained, the lack of comparability of results across studies, their failure to achieve much predictive validity, and the incomprehensibility their sophisticated methods contributed to reports of research. Furthermore, causality was often indeterminate or so

¹⁷⁹ Cohen, Michael D. James G. March and Johan P. Olsen: (1972) *A garbage can model of organisational choice*. *Administrative Science Quarterly*, 17: 1-25.

¹⁸⁰ Lincoln James; Jon Olson; Mitsuyo Hanada: (1978) *Cultural effects on organisational structure: The case of Japanese firms in the United States*. *American Sociological Review*: 43(6): 829-47

¹⁸¹ Weick, Karl E.: (1976) *Educational organisations as loosely-coupled systems*. *Administrative Science Quarterly*, 21 (March): 1-19.

¹⁸² Meyer John, and Brian Rowan: (1977) *Institutionalised organisations: Formal structure, myth and ceremony*. *American Journal of Sociology*, 83, 340-61.

¹⁸³ Ouchi William and Alan Wilkins: (1985) *Organisational Culture: Annual Review of Sociology*, 11:457-83

complex that managers could not gain much insight from such research into how to change organisations in beneficial ways (Van Maanen, 1982). In addition, critics pointed out, quantitative methods encouraged researchers to separate themselves from the phenomena that made up organisational life and spend limited time - if any- in organisations to collect their data (Beyer¹⁸⁴ 1984). The resulting reports seemed sterile; they missed the drama, excitement, and high emotion that characterises much of what happens daily in organisations. In an effort to be scientific, organisational researchers had reduced their phenomena to such simplistic models that it had lost its richness and human character. Managers were understandably suspicious of the relevance of such abstracted research because it ignored many of the specificities their experiences told them were important; so they did not use its results. Research on utilisation found that managers were more likely to use the results of more detailed, qualitative studies (Beyer and Trice¹⁸⁵ 1982).

These dissatisfactions led to a revival of interest in qualitative methods as well as in culture. Each revival reinforced the other, for qualitative methods almost invariably surfaced something of cultural significance and the accepted ways of doing cultural research involved qualitative methods. While there has been a decrease in managerial attention to culture since the early 1980s, organisational research seems to have been permanently transformed. More researchers have been doing more qualitative studies than in the past, and more of these focus specifically on cultural phenomena.

¹⁸⁴ Beyer, Janice: (1984) *Cultures within cultures: Whose are we talking about? Paper presented at the Annual meeting of the American Institute of Decision Sciences, Toronto, Canada.*

¹⁸⁵ Beyer Janice and Harrison M. Trice: (1982) *The utilisation Process: A conceptual framework and synthesis of empirical findings. Administrative Science Quarterly, 27:591-622.*

Large amounts of literature is accumulated in the field of human resource management and organisational culture and of course there is room for further research. The related forces of management functions such as creativity, motivation and culture are regarded by the researcher as worthy of serious and critical investigation since the above literature review showed that no study of the combined effect of the interaction of these elements was carried out; though on single basis each element has been extensively researched.

Review of previous research works showed that all the studies were carried out in developed countries. Hence, this research becomes very significant in the context of managing industrial organisations in developing countries.

Based on the accumulated literature, the researcher has attempted to quantitatively and qualitatively determine the culture that the management of GPIC has consciously created during the study period. Analysis of the employees perception of such a culture, effects on the morale of the employees and determination of their views on the importance of this work by the management will be outlined through detailed surveys the researcher has conducted. These surveys have been conducted in order to examine the hypothesis that organisational culture and management tools, such as motivation and creativity in their combined cumulative mode, could have a significant bearing on the business performance of an organisation.

Before undertaking the cultural survey, the researcher undertook a literature review that was relevant to the culture study. Theories have been developed to explain the relationship between culture and the key

factors that influence, promote and sustain organisational growth and success.

Some of these philosophies and well known theories have involved in-depth research, whilst others have been based on the relationships or links with other popular theoretical models. Relevant examples pertaining to this survey include:

*Peter F. Drucker's*¹⁸⁶ research in his book – ‘Management: Tasks, Responsibilities, Practices’, particularly part three - ‘Productive work and achieving worker’ stresses the significance of differentiating between what is ‘work’ and what is a ‘worker’. Drucker investigates the dynamics of a society of employees working in an organisation and encourages management to look at the ideas, concepts and theories of workers rather than what is done by hand and traditionally considered work. Drucker identifies the limitations of depending on Theory X and Theory Y for the behaviour of people at work. He promotes an approach that demands a shift in company managerial practices. It encourages worker responsibility by shifting management direction from personnel management to the effective leadership of people by trying to understand what motivates and encourages them. In almost all of his research, it is the employee focus that Drucker believes is the key. In GPIC there was a change in management style where the focus shifted to the employees, through which they were motivated and encouraged to contribute to the company’s success in a caring and healthy environment.

¹⁸⁶ *Peter F. Drucker: Management: Tasks, Responsibilities, Practices.*
Publisher- Butterworth- Heinemann Ltd. 1988.

In her book 'The Cultural Crisis of the Firm', *Erica Schoenberger*¹⁸⁷ emphasises the importance of culture and its strategic realignment to suit the organisation's conditions. She argues that this approach helps firms to confront, challenge and alter their state of competitiveness and market environment as well as new organisational and technical challenges. She identifies case studies of successful companies such as Lockheed and Xerox and highlights that often these types of organisations have had to face considerable traumatic challenges and difficulties earlier in their corporate development that have challenged their very existence. Addressing these challenges has forced the organisations to take an intensive, introverted look at themselves and their workplace organisational culture to determine the best ways in which to resolve these difficulties and move forward. The traumatic difficulties faced had often placed these organisations in a stagnant state of development.

The corporate culture of these organisations was embodied in their people and the need to change culture was paramount to turning the corner and moving on to success and productivity. In the same way, GPIC seems to have weathered the storms of traumatic challenges and difficulties in its earlier days. The results of the following survey seem to support this concept.

According to *Wheelen & Hunger*,¹⁸⁸ in their book 'Strategic Management and Business Planning', the key elements that determine a company's strategic success or failure and emphasise that company's distinct competence to ensure competitive advantage, are expressions of an organisation's Critical Success Factors (CSF). Wheelen and Hunger's

¹⁸⁷ *Erica Schoenberger : The Cultural Crisis of the firm: Publishers: Blackwell Publishers 1997.*

¹⁸⁸ *Wheelen & Hunger: Strategic Management and Business Policy: Publishers: 5th Edition - Addison -Wesley Publishing Company. 1995.*

research proved that organisations with strengths in these CSF areas tended to outperform their competitors.

Michael Armstrong,¹⁸⁹ in his book 'A Handbook of Personnel Management Practice', outlines a number of factors which create organisational success. Armstrong argues that organisational success depends on people management practices, which stimulate and focus on a number of key issues. These practices incorporate two types of factors, each with their own individual sets of attributes. Armstrong firstly promotes managerial factors, which include visionary leadership, clear mission, well understood values systems, good strategic capabilities and finally, thrust from the top that pervades and is driven through all layers of the whole organisation.

Armstrong identified the key qualities for success that should be found in abundance amongst employees and which should be concentrated upon and developed by management. Those people factors included initiative, creativity, motivation, judgement, capability, adaptability, business orientation, responsibility and willingness to contribute. Armstrong believed that "people made the difference" and as such, people had to be the focus for the management of successful organisations.

The next chapter will attempt to link the findings and concepts discussed in this review to GPIC's performance and will review the success or otherwise of the application of these concepts in an industrial work place in a developing country.

¹⁸⁹ *Michael Armstrong: A handbook of Personal Management Practice: Publishers: 6th Edition - Kogan Page 1996.*

Chapter Six

Managing Creativity and Motivation to change Organisational Culture - The GPIC Experience

Having researched the performance of several petrochemical plants and illustrated that GPIC is regionally and internationally the best run complex, in terms of technical and financial excellence, the researcher further focused on GPIC's performance and in this chapter will analyse the main actions taken to improve the situation, hoping the findings of this unique experience will make a useful contribution to the field of management.

The use of dates and specific sequential timing has been reduced to the minimum in order to place the emphasis on the actions taken to handle various activities. The narrative part in Chapter Four covers the history of GPIC's development in a more systematic manner.

Having reviewed the literature and research work in the field of creativity, motivation and organisational culture in Chapter Five, the researcher undertook a detailed examination as to the implication of these theories and concepts on the actual business performance of the company and to what degree such issues could be put into practical application for sustained and reasonably long periods. Following this brief introduction, some very interesting parallels between organisational theories on motivation, creativity and culture and actual occurrences in GPIC will be vividly highlighted.

Therefore, the researcher in this chapter will focus on actions that GPIC undertook to change its organisational culture. The key actions being highlighted in this chapter have to be taken in the full context of the research work and should be read in conjunction with the data presented in previous chapters and in particular those detailed in Chapters Three and Four of this study so that a complete and detailed picture of the events can be drawn.

The environment which was prevailing more than ten years ago i.e. pre 1987, at the beginning of the study period, resulted in poor business performance of the company in virtually all areas of its activities. Data analysed in Chapter Four shows that the Ammonia and Methanol Plants had low onstream factors which is a measure of how reliably the plants were operated, low utilisation factors, which is a key efficiency measuring indicator as well as heavy financial burdens, loans in excess of US \$ 350 million, low net worth, less than US \$ 160 million and very low return on investment, -9.25%. These factors created an environment in which the workforce felt that no job security existed in the company especially since the company had engaged a contract workforce to oversee its activities. Company documents showed that out of 355 permanent staff with the company, 273 were supplied by the contractor, representing over 77% of the workforce. This of course meant not only heavy costs to the company, but also a lack of long term loyalty from the contract staff in general.

The difficult situation at the time was further aggravated as a result of adverse market conditions and by the inability of the company to meet its financial obligations against bank loans.

Faced with the possibility of bankruptcy, there was a need to create a

new management style and turn the company round from its prevailing poor performance into a successful and reputable organisation that would reward its shareholders, contribute to the country's economy and above all look after its employees and customers.

In 1988, the new management team recognised the severity of the company's position and knew that the organisational culture that it had inherited was not efficient nor was it entrepreneurial.

The first step taken by the team was to review all the technical and financial data in order to ascertain the root cause of the company's problems and then to define and share with the workforce understanding of what the company stands for, where it is heading, what kind of a world it wants to live in and how to make that world a reality. The management team had also to embrace highly subjective insights, intuitions and hunches in order to determine the speed and flexibility with which the company had to develop its new culture.

The management team at the time also recognised that irrespective of developing its strategies and plans, it needed to accept the fact that some actions had to be determined on the spot, based on direct experience, trial and error. It also recognised that to succeed it required an intensive and demanding interaction among members of the team.

The management understood that one quick solution to the immediate financial problems of the company was to request shareholders to increase the level of their paid up capital thereby injecting further cash into the company. This solution was quickly and very sharply rejected by all the parties concerned since it did not provide the platform for

change. It would have only momentarily fixed what was defective. Other solutions such as a merger with a suitable entity and downsizing were also considered but found unsuitable.

With limited resources and many constraints, the management team soon recognised that it had to undertake an unconventional, innovative approach. Based on theoretical knowledge, review of the performance of other organisations and study of management concepts, the team developed a recovery plan that would utilise the available resources and work creatively within the limitations and constraints that prevailed at the time. It recognised that it needed to change the organisation's culture through the workforce in order to improve productivity, lower production cost and use innovation and creativity.

In 1988, a key strategy was established to use creativity and motivation of the workforce to change and create a more positive and productive organisational culture to meet the challenges that the company faced.

There were different options available to solve management problems and GPIC considered three different approaches to tackle the question of the desired culture change as follows:-

Option 1. Comprehensive efforts to seek drastic and rapid changes in systems and personnel throughout the whole organisation.

Option 2. Similarly radical changes, but confined to specific sub-cultures and sub-units within the organisation.

Option 3. Smaller but definitive changes in selected areas that were gradual and incremental, but nevertheless culminated in a

gradual and comprehensive reshaping of the entire culture of the organisation.

While planning the way in which it wanted to effect the organisational culture change, the management emphasised the following attributes that needed to be considered before choosing which way to proceed.

- *'Pervasiveness'* of the envisioned culture, i.e. the proportion of activities and number of staff that would be required to be changed.
- *'Magnitude'* of the change, i.e. the distance between old understandings and behaviours and the new ones staff members were expected to adopt.
- *'Innovativeness'*, i.e. the degree to which the ideas and behaviours required by a desired culture are unprecedented within the organisation.
- *'Duration'*, i.e. the time frame required to effect that change.

After reviewing all the options available, the management team selected to proceed with the third option which involved smaller but definitive changes in selected areas that were gradual and incremental, as well as the utilisation of the first two options in limited areas where urgency necessitated it. This path was found to be the most suitable since it made best use of the available potential resources to achieve the goal of developing a new and stronger culture.

A key factor considered by GPIC management team to effect the organisation's culture change was the availability of a qualified and suitably skilled workforce in Bahrain.

It is a recognised fact that a hi-tech petrochemical complex, such as GPIC, requires a dedicated, skilled and specialised workforce to ensure consistently high quality product output, while ensuring safety and reliability of the plant and people. As the major component of the workforce at GPIC was made up of expatriate staff provided by a contractor, it would have been impracticable to replace them in a short span of time due to the absence of suitably skilled staff within Bahrain or the Arabian Gulf region. Management calculated that a time frame of 2 to 3 years would be required to train a suitably qualified local workforce for various job levels and to embark on direct recruitment of experienced and qualified expatriate staff to take over from the contractor.

The management also recognised that cultures could not be readily manipulated but had to evolve gradually. The company also knew that culture change is best initiated at propitious moments when some obvious problem, opportunity or change in circumstances makes change desirable. The market scenario and the cash constraint situation within GPIC provided the opportunity to the management to convince staff and external entities (banks and marketing partners) that a culture change was justified and was the way forward for transforming the company in the absence of other cost effective means. Thus, a conscious effort was made to gradually change the organisational culture to be able to effectively address the negative issues that prevailed at the time.

Understandably, there was resistance to culture change in GPIC, as there would be in any other establishment. During the researcher's detailed review of the situation with the company's management, a number of common sources of resistance to change were observed. At the individual level there was the fear of the unknown, self-interest, selective attention, habit, dependence and need for security. At the organisation or group level there was threat to power and influence of some managers and key personnel, lack of trust, different perceptions and goals, social disruption, resource limitations, fixed investments, inter organisational agreements.

Like any realistic and open minded management the GPIC team realised that people depend on each other for shared values and some degree of emotional support. Thus, individuals may be reluctant to support change until they see others doing so. People vary in the strength of their dependencies, i.e. some are relatively more independent than others. It is known that team members are unlikely to give up whatever security they derive from existing cultures and follow a leader in the new direction, unless that leader exudes self-confidence, has strong convictions, a dominant personality and can preach the new vision with persuasiveness and eloquence (Weick¹⁹⁰1979). It is also well documented (Weick 1979) that strong cultures have been built under the leadership of strong individuals or teams with a clear vision of what kind of organisation they wished to create.

Apart from illustrating how the corporate culture and strategy was drawn up and executed, this section will also throw light on how the

¹⁹⁰ Weick, Karl E. *Cognitive Processes in organisations. Research in Organisational Behaviour*, 1: 41-71, 1979.

leadership tapped the talent, creativity and cooperation of the entire workforce to achieve cultural change at the functional level.

In the course of this study the researcher noted that the management team knew that subcultures could lead to different perceptions and goals within groups and organisations and thus create resistance to pervasive cultural change efforts. This resistance to change was perceived by the management to be a natural behaviour. This called for a change in the management organisational and communication pattern to overcome this resistance. Researchers in the field of organisational culture, as was discussed in Chapter Five, agree that the core problem in the creation of a new culture is to attract and unite a group of followers. In GPIC the management attracted a core team of selected individuals with high potential who shared the new management vision and goals. The researcher has found documented records showing that the key managers and core team members of GPIC management team were given extensive training in leadership, communication and other management skills, not only at the time at which a decision was made to undertake an organisational culture change, but records show that this extensive and comprehensive programme continued throughout the study period. The determined strategy was that such core team members would be able to influence their teammates in a uniform and consistent style. This contrasted sharply with the management style which had previously prevailed. This finding is further supported by the results of the surveys that are discussed in Chapter Seven of this study.

By the middle of 1988 the management team had developed a set of values which they regarded as important and believed to express the

factors that would assist in objectively changing the performance of the company, creating and maintaining a positive organisational culture.

The team recognised that the more strongly based the values, the more they will affect behaviour. This does not depend upon their having been articulated. Implicit values which are deeply embedded in the culture of an organisation and are reinforced by the behaviour of management can be highly influential, while espoused values which are idealistic and are not reflected in managerial behaviour may have little or no effect. Areas in which values were expressed by the GPIC Management were:

- care and consideration for employees
 - care for customers
 - competitiveness
 - enterprise
 - equal opportunity
 - equality in the treatment of employees
 - growth
 - innovation & creativity
 - managing diversity
 - market/customer orientation
 - priorities between employees' and organisational needs
 - productivity
 - quality
 - social responsibility
 - teamwork
 - safety
-

All these attributes were considered and evaluated in the Culture Survey that was conducted by the researcher at GPIC.

The next management task was to generate trust and create an environment in which resistance to change was minimised and to develop a motivating style which encouraged creativity and innovation and set the scene for an overall improvement in the company's business performance. This task also required the management team to make visible efforts to understand and be fully aware of the details of all the important issues that affected GPIC's work. This knowledge was vital to assist the management team to make the correct decisions when needed and to make the full use of the potential of all the employees.

A knowledgeable management team appreciates the potential of its employees and these employees would no doubt respect managers that know their business well and show their genuine desire to improve things.

In the following part of this chapter some of the key actions taken by the GPIC management team in order to create the environment in which employees were motivated and encouraged to be innovative and creative will be outlined. Where relevant, GPIC's actions will be viewed against some of the theoretical concepts discussed in Chapter Five of this study.

On reviewing the actions taken by the company in its desire for a culture change, the researcher found three distinct phases of action plan. In the first phase, the most basic needs of employees were addressed as well as those of the organisation. The second and third phases of the planned programme addressed the more mature and developed needs of the organisation and the employees.

Phase I

- As stated earlier, this phase of the GPIC action plan addressed the very basic and fundamental issues that affected the employees and the organisation. Identifying these issues and addressing them in the manner that GPIC did was critical in developing the new culture through which the company enhanced its business performance.
 - A mission statement was developed by the management team in a formal setting defining the objectives and goals of the company. This was widely displayed throughout the organisation in order to ensure that the entire workforce became aware of it.
 - This action physically demonstrated to the employees that the company that they work for had clear objectives and goals that it wanted to achieve. Therefore, this action created a message of purpose, a purpose towards which the company needed its employees to work in order to achieve its objectives and prosper.
 - A rationalised and detailed organisation structure was drawn up which clearly defined each position and the responsibilities that
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was assigned to that position. This replaced the previous ad hoc staff structure. It involved a detailed review of similar organisations in the region and most importantly was developed in a way to make the organisation less bureaucratic by minimising the vertical reporting layers and making it more action oriented with clear lines of reporting. Employees could clearly see that the new management was not there to put in effect a downsizing exercise as might have been perceived by the pessimists.

This exercise was carried out with the assistance of a reputable, qualified and internationally recognised organisational specialist which demonstrated the needed credibility and fair play to both the contractor's workforce and the indigenous employees.

Another key to the success of the organisation structure was a review with the full involvement and participation of the management team.

- A formalised staff policy document was developed detailing every aspect of the human resources programme in GPIC.
 - This human resources programme and the policies that were established to manage it , involved addressing issues such as grade level, pay structure, benefits and amenities that each employee received.
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Again the company took a strategic decision of not developing such policies in isolation but to establish a team that comprised individuals with experience in this field to evaluate what other organisations in the country and in the region do in this regard. They compared GPIC's pay scale and benefits to those of similar industries. The basis was to pay a fair salary to employees and dispense benefits on the basis of job evaluation and criticality.

Whilst establishing and implementing these policies the management succeeded in ironing out all the anomalies that existed in the pay structure. Employees, including some managers received a salary commensurate with their stated position. This action reaffirmed that the company will be administering rules that apply to all and was seen to be fundamental in turning the employees' loyalty towards the company as they experienced the effect of the management's action rather than verbal promises or statements.

- Job designs were developed to ensure GPIC staff could maximise their efforts to willingly and efficiently perform their duties. It was essentially a process whereby three aspects of work were addressed separately in order to ensure that each job within the organisation was sufficiently stimulating and that people would not be dissatisfied in performing them. The three elements were:
 - a) Job engineering: The technical aspects of each job were identified through product identification, processes involved, detailed engineering and technical layout, standard operating procedures, safety and health requirements, standards and measurements associated
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with the job and the specific human- machine interface element.

- b) Job characteristics: The design approach took into account the actual job requirements and associated them with employee motivation. Job characteristics such as skills and knowledge, nature of the job, importance of the job and the degree of autonomy of the job were essential attributes that related to a particular job.
- c) Job enrichment: The job was designed to provide opportunities for growth, achievement, recognition, responsibility and advancement. Care was taken to design the job to ensure that it did not become monotonous and also to include the qualities highlighted in the job enrichment element.

Job descriptions for each position were developed based on the aforesaid job design approach, clearly specifying the individual grades, duties, responsibilities, and academic qualifications and experience required. This information was made available to the employees for the first time in early 1990. It also defined the applicable salary scale, allowances and other entitlements for each level and position.

- A job appraisal scheme was launched in 1991 in which different aspects of the job requirements and actual performance were evaluated and the results discussed between the employee and his supervisor. This exercise provided a method for the employee
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to ascertain areas for improvement in job performance as well as for the company to invest in further training and development. The evaluation rating set the basis for annual merit increments in the salary.

- The appraisal scheme was initially received with some apprehension by the employees. The culture that they had worked under did not require the employee to be accountable for his or her action throughout the evaluating year. With this new system, employees soon realised that their actions and reactions to events would come under scrutiny. However, they soon also realised that the management did not intend to use this scheme to catch and punish the under-performers, rather the reverse was true. Managers and Supervisors had to develop programmes to enhance the performance of those who needed it most. Employees soon realised that this system provided them with true opportunities to know their strengths and weaknesses. They could ask for development courses and they systematically received them. This system also provided a good and independent performance record which the management utilised to indentify those with the greatest potential who showed consistently good performance. These individuals could then be developed for senior positions.
 - A comprehensive plan was prepared in 1989/1990 for training and development of Bahraini staff who would eventually take over the positions held by contract staff, within a specified time frame. Through detailed review of the company's financial records it was evident that GPIC had to spend a significant
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amount of money on people management, despite the financial constraint prevailing at the time.

A dedicated training centre equipped with a well stocked library, a state of the art auditorium, classrooms, conference rooms and professional staff to impart in-house training, was established. The training centre also contained a scaled model of the entire Ammonia/Methanol complex, a computerised simulation model of the operating and utility processes, audiovisual facilities, computers, and other high technology equipment. Records show that the management succeeded in its endeavour to make GPIC's training centre into a showpiece throughout the Gulf.

Documents reviewed also revealed that in order to give a concentrated push towards Bahrainisation, the company engaged a team of qualified and experienced staff to impart training on a professional level. Specific training programmes were developed for Bahrainis graduating from schools and colleges. Both academic and on-the-job training was imparted to these graduates to take up positions held by expatriates, from operators to senior supervisory levels.

The company sponsored selected staff to pursue further studies including diplomas and degrees. They were also sponsored to attend various conferences and visits to other companies in Bahrain and abroad to widen their knowledge and experience.

All employees regularly attended appropriate courses on topics such as supervisory and communication skills, first aid, health, safety, computer literacy and other human resource

programmes. Refresher courses on these topics were also given where necessary.

- It was through these programmes that the company soon began to realise the fruits of its endeavour to create a new culture, a culture that gained the loyalty of its workforce. In a developing economy, it was evident that what employees in companies such as GPIC would need is care and attention from employers. Job security and genuine attention to the local workforce played a key role in motivating the workforce to give more, be more diligent in their duties and to always try to find ways to do the job in a more efficient and reliable manner.

The company received the Bahrainisation Shield awarded by the Government of Bahrain for the first time in 1993 for its genuine drive to give the local workforce appropriate training and development courses and to create opportunities to hold key positions within the organisation.

By the end of 1990, all the contractor personnel were replaced by a well qualified local workforce or directly recruited expatriate employees.

At the same time data in Chapter Four of this study shows that technical and financial performance indices began to show signs of improvement.

The management's commitment to further invest in the training of its workforce was reinforced when its employees, both local

and expatriate remained with the company and reported to work with no absenteeism during the Gulf War. This action on the employees' part demonstrated their loyalty to the company in a most unquestionable manner.

- The company commenced a programme of supplying a variety of uniform clothing, shoes and other protective and safety equipment for personnel in the different departments. The uniforms symbolised the employees' importance and fostered team spirit and a strong identification with the company. A conscious attempt was made to ensure that the quality of these items was of a high standard, with the objective of enhancing the 'feel good' factor amongst employees. These items carried the company logo to reinforce the sense of belonging.
 - Despite the financial difficulties and the insecurities that were apparent at that difficult time, GPIC still implemented a policy to pay monthly salaries on or before the 25th of each month. Remittance of salary has never been delayed or defaulted in GPIC even during the most stringent financial situation. This action was significant and provided the employees with the necessary confidence in the company and demonstrated the commitment to the financial well-being of employees irrespective of the financial situation of the company.
 - In addition to the statutory monthly contribution required to be made by the company to the General Organisation for Social Insurance (GOSI) and Ministry of Health, for normal insurance and health cover, GPIC took additional private insurance cover
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under which up to 36 months' salary was payable upon death/permanent injury to an employee, irrespective of the accident occurring at work or not. This cover was extended to pay 72 months' salary if the death occurred at the workplace or whilst the employee was on official duties. This action was instigated to reassure the employees' families and to create a positive culture.

- All expatriate employees on GPIC payroll were provided with a good standard of furnished accommodation.

This action was used as a motivator for the expatriate workforce. The management recognised that a happy worker at home will be a more productive one at work. Providing the expatriate employees with good accommodation ensured that employees' families lived comfortably and made up for the inconvenience of leaving their relatives and friends at home.

- Senior Bahraini employees and all expatriate employees on family status were reimbursed for their children's education, thus removing a heavy financial burden from these employees and providing a key incentive for loyal and motivated staff.
 - Expatriate employees and their families were provided annual return leave passages to their home country.
 - A well equipped and professionally supervised Medical and Health Centre was established to provide employees with
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medical facilities and gymnasium/recreation facilities.

The above benefits provided the staff with a good level of job security and job satisfaction. The Bahraini staff regarded employment at GPIC as long term with adequate career advancement opportunities and a fair financial reward.

The records show that all of these actions were taken by the management in a well planned and studied programme and, where necessary, effective use was made of professional and experienced internationally recognised human resource specialists. These actions were all contributing towards developing a motivated and loyal workforce.

Phase II

- Having satisfied the basic needs of the employees under Phase I of its recovery and culture change programme, the GPIC management embarked on further actions to enhance the employees' motivation. Furthermore, in this phase the objective was also to start tapping into the employees' potential and creativity.
 - The employees were provided training into aspects of work other than their own, with a view to providing versatility and satisfaction in their jobs, as well as to enable job rotation, transfer and promotion.
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- Employees were sponsored to obtain higher academic qualifications abroad. Selected employees were sent to licensor and vendor companies as well as to other petrochemical complexes in the region to gain further experience. Key Bahraini employees with high potential were also sent on programmes in USA, UK and other parts of Europe to enhance leadership qualities.
 - With a view to encouraging thrift amongst local staff, a voluntary staff saving scheme was launched by which a specified percentage of salary was voluntarily deducted from local staff and credited to a fund. To add incentive, the company agreed to match the salary deduction by an equivalent contribution, up to 10% of the basic salary. The money collected from this scheme was placed by the company in secure investments instruments which ensured capital growth as well as decent rates of interest.
 - Local employees above a certain grade were given housing allowance equivalent to 25% of their salaries. In addition, eligible employees were provided further assistance by way of housing loan arrangements in which the interest burden was borne by the company.
 - An independent Joint Labour Committee (JLC) was formed through a democratically elected system for employees to discuss issues on their behalf with management. This has a similar function as trade unions in the Western Countries.
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This provided the workers representation at the highest level. The decision to provide this representation came spontaneously from the management since there is no law enforcing such a representation in Bahrain. The existing laws allow organisations to voluntarily establish this type of representation. Since the initial step was taken by the management team, the employees realised that this is another goodwill gesture from the company to build on the much improved working environment that prevailed at that stage.

The representatives of the workers were treated with the respect appropriate to senior staff members and afforded the dignity and attention that loyal workers deserve.

The Joint Labour Committee became a body that both management and workers regarded highly. The committee discussed issues of substance and avoided wasting time on trivial and confrontational issues.

A number of proposals put forward by the workers were implemented. This demonstrated the seriousness with which management viewed the work of this committee. It also proved that cooperation and not confrontation is the key to improvement.

- Senior employees were reimbursed membership fees to social clubs and subscriptions to professional bodies.

- Car allowances were paid to employees using their own vehicles to come to work. Employees in senior positions were provided with company cars.
 - To tap into the creative potential of the employees, an Employee Suggestions Scheme was established to provide a formal basis to encourage employees to contribute to the success of the company with their ideas and suggestions. These were evaluated by the Suggestion Evaluation Committee and when feasible, the suggestion was implemented. This scheme will be elaborated on later in this chapter as it holds particular importance for employee involvement.
 - An Employee of the Month award scheme was launched through which nominated staff members selected by the suggestion committee were recognised for exceptional performance with a certificate and cash award. This presentation was given wide publicity, not just within the company, but also in the media.
 - On-the-spot appreciation letters were given to individual employees to recognise excellence, not only in their jobs, but also for initiative shown outside the sphere of work. The management created the appropriate environment for employees to "get caught" doing the right thing!
 - Special luncheons and events were held to recognise contributions by employees beyond the realm of normal duties. These occasions included recognition of staff serving on the quality team or employees whose suggestions had been accepted
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and implemented.

- The company established a practice of giving appropriate mementos to staff leaving the organisation after a specified length of service in recognition and appreciation of their contribution to the success of GPIC.

Phase III

Subsequent to the improved profitability situation and production cost reduction, a reward scheme was introduced. In this scheme, employees are given monetary bonus at the end of each budgetary year. The magnitude of the bonus given is dependent on the profitability, growth and achievement of objectives during that year. This is management's way of sharing the fruits of success with the employees.

Apart from monetary benefits, employees were also encouraged on other fronts:

- The company encouraged participation in extra curricular and sports activities. These included in-house and interdepartmental tournaments as well as participation in intercompany tournaments in Bahrain in sports such as football, tennis, volleyball, table tennis and bowling.
 - In keeping with Bahrain's affinity with the sea, annual fishing competitions are held in which interdepartmental teams spend a day at sea fishing. The catch is judged and awards given in various categories. Afterwards, the fish are distributed to needy families in the country.
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- The above two activities were encouraged by management in recognition of the fact that the company had an obligation to create a loyal, considerate and helpful workforce within the boundaries of its complex. In addition, the management has a belief that such good virtues must extend well beyond these boundaries. With these actions the management created fellowship among employees, employees of other industries and the society at large.
- By the same token an annual desert camp is organised over a period of a month, when a large traditional Bedouin tent is pitched in the desert. Employees from all departments are invited at various times during this camping month to share the local traditional food and music, thus creating fellowship and team spirit.
- GPIC holds an annual staff celebration when all the employees are invited for dinner. During this occasion the management takes the opportunity to convey their appreciation for the achievements and hard work of the employees. Long term employee awards are presented along with awards for distinguished service in categories such as: Employee of the Year (three categories:- Sustained Performance, Outstanding Performance, Best Idea/Innovation), Early Bird, Best Trainee, Quality Auditor of the Year as well as Department of Year.

The awards given by the company are self-explanatory. However, the Early Bird award needs some elaboration. This award was established in order to encourage employees to come to work on time. It is a way by which management recognises punctuality

and self-discipline and rewards those employees who exert efforts to come to work a few minutes early. This might sound a small gesture, however, in practice this award had a significant impact on employee punctuality. Employees recognised that management was monitoring and recording time keeping and rewarding those employees who consistently arrived at work on time, rather than punishing those who were late on occasion.

- In addition to the above an annual family safety day celebration was organised. Here, the guest list was enlarged to include spouses and children of the company employees. The atmosphere is enlivened with music, magic shows and games. The occasion, apart from providing an opportunity for socialising amongst employees' families, gives the company an opportunity to convey the important message of safety around the home to employees and families. As part of the celebration competitions are organised for staff members and their families on various aspects of safety and environmental preservation. Works are displayed and prizes awarded.
 - A charity fruit and vegetable garden was established at the company's complex. All the produce from this garden is distributed to needy families.
 - A fish farm was established near the sea water outlet of the plant. Local fish are cultivated in a purpose-built enclosure and then harvested, at which time 20% of the harvest is returned to the sea to replenish stocks and the remaining 80% is again distributed to local needy families. This idea will also be elaborated on later
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in this chapter since it represents a true picture of the company's new culture.

The above two creative projects are evidence of GPIC's pollution-free environment and commitment to environmental preservation. They also serve to demonstrate GPIC's social obligation. The consequent media coverage has enhanced the company's reputation which in turn serves to boost employees' sense of pride and belonging to the organisation.

When the above measures introduced under the three phases were reviewed by the researcher, he found an immediate parallel between the GPIC model and the classic theory of motivation ascribed under Maslow's Hierarchy of Needs which was discussed in detail in Chapter Five of this study. According to Maslow, once a given level of hierarchy of needs was satisfied it ceased to be a motivational factor and a higher level of need had to be identified to restart the motivational process. GPIC satisfied these needs in a similar manner. The five key elements of Maslow's theory of motivation will be compared below:

- a) **Physiological needs:** The physiological needs were satisfied by ensuring timely payment of salaries irrespective of the cash constraints. This was followed by a host of other benefits and emoluments, as listed above.
 - b) **Safety needs:** Evidence of investment in the company's manpower, training and development in addition to the investment in safety, operations, maintenance and capital projects for expansion/debottlenecking, ensured a high level of job security and held promises of career growth opportunities for Bahrainis.
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- c) Love needs: The social and belongingness needs were met through measures such as inclusion of all levels of staff in various committees, empowerment at place of work and social programmes such as annual days, fishing, sports and other extra curricular activities.
- d) Esteem needs of employees were met by encouragement given to employees through schemes such as employee of the month (and other awards presented on annual day) long service awards, special luncheons for outstanding performance and on-the-spot appreciation certificates. All these events were recognised by certificates and were given wide publicity within the company and in the media.

In subsequent years, from 1991 onwards, the company was also the recipient of various prestigious awards such as excellence in business awards, benchmarking ratings by internationally independent agencies of the GPIC ammonia and methanol plants as being the best run in the world, the Bahrain government Bahrainisation Shield for effectively training the GPIC Bahraini workforce and various international safety awards. These awards and recognitions were given both extensive media and in-house publicity. Naturally, employees felt proud to be part of this company.

The above actions by the management developed a 'winning atmosphere.' As the saying goes "nothing succeeds like success" or "success breeds more success." In GPIC too, success has been

responsible for employee motivation, which in turn caused a chain reaction to achieve greater success.

- e) Need for self-actualisation was met by enabling people to realise their potential through channels such as suggestion schemes and career advancement programmes.

Here again, Herzberg's two factor theory was clearly evident from GPIC's point of view. The researcher found that the hygiene factors at GPIC were elements such as the company policy and administration, salary, interpersonal relationships, working environment and the motivators were factors such as recognition, nature of job, responsibility and authority, growth and progress, all were evident in the above measures.

GPIC management attempted and succeeded in developing a core set of ideas that captured every member of staff's mind and heart. This was done by making the strategies (e.g. mission statement, statements on quality policy and safety policy) understandable and convincing. These were communicated widely through framed displays throughout the company and published in-house newsletters. They were mentioned at departmental and section meetings so that every staff member came to share them. This vision was expressed in the form of a mission statement (on display throughout the company) which was **"to operate safely, efficiently, economically and to strive to be one of the best run petrochemical plants in the world."** This mission statement was complemented with goals set out for the immediate future in specific areas identified, namely safety, people, quality, finance, environment, technology, community service and growth. The goals set

up the basis for the transformation of subcultures into each of the selected areas.

Moreover, the researcher reviewed the goals and the measures in each area to achieve them, he found that these encompassed most of the points listed by W.E. Deming¹⁹¹ in 'Quality, Productivity and Competitive Position'.

It was observed that:

1. With the management defining the mission for the company as a whole and the core management team defining goals for the specified areas, a constancy of purpose for continual improvement of products and service was created. Accordingly, it was possible to allocate financial and human resources to provide for long range needs rather than for short term quick-fixes.
2. The philosophy of creating quality in every sphere of activity led to continuous improvement and elimination of waste, delays and defects. This was achieved through implementation of the motto "Do it right the first time every time."
3. A culture was established amongst employees to strive for continuous improvement of productivity in every sphere of activity.
4. Planned programmes for continuous training for all employees including managers were put in place to develop new skills and keep abreast with new methods and latest technologies.

¹⁹¹ *W. Edwards Deming: Quality, productivity and competitive position.*
Published/Created: Cambridge, MA: Massachusetts Institute of Technology,
Center for Advanced Engineering Study, c1982.

5. Fear was eliminated from the workplace by encouraging effective communication and breaking down barriers that usually exist between departments and functions by creating teamwork.
6. Social activities were enhanced within the organisation by means of regular company events.

Having set the goals in various areas and deciding upon the measures to achieve them, management proceeded to constitute a core team to execute the tasks and guide them forward as was mentioned earlier.

The core management team consisted of a very close-knit group of individuals who were hard working, professional and knowledgeable. The researcher found that each member has contributed greatly to the innovative, creative and motivational management style that has characterised GPIC's new management team. They have a very strong professional ethic that is perpetuated through each of their respective departments and areas of responsibility. That professionalism is very obvious when one looks at the number of activities individual GPIC senior staff members have in their areas of responsibility. A good example is when key personnel are unavailable due to travel, leave and/or work commitments. The responsibility of overseeing their respective departmental activities fall to another manager to take the position in an acting capacity, until their return. Each senior staff member is skilled and experienced enough to satisfy this requirement. Management development has also been achieved by intensive training, job enrichment and promotion of senior personnel through several positions of responsibility within the organisation. As professionals in their fields of expertise, they are able to use this

background for the improvement of their departments and overall benefit of GPIC.

A key factor in successfully transmitting the strategies and action plans that the management developed in early 1988 and 1989 was effective communication. Good communication was vital to the management's knowledge of on-going work and in keeping up to date with the developments that were taking place in managing the culture change.

Involvement and effective communication were key factors in the new management practices. The management successfully removed the notion that an organisation had first a management team and then workers. This notion was removed by clearly advocating that all employees were considered managers since they were charged with managing the assets of the company. This implied that all individuals were responsible for managing themselves, i.e. "self-management" style. This style of empowering employees to be responsible for their work stemmed from the management's belief in the human relations theory that an organisation's performance and effectiveness are direct functions of the level of involvement and participation of the organisation's workforce. The management's aim was to create a culture that encouraged forming and sustaining an active involvement system.

Clear rules and administrative guidelines were laid down to give guidance to each committee to allow controlled movement that was in line with the goals of that committee and the overall mission of the organisation. The rules were not seen to be an end in themselves but were linked carefully with the overall corporate objectives.

During the course of the field work, the researcher studied through direct participation, the functions of the following main committees that were formed after 1987.

Executive Management Team (EM)

The Executive Management Team was led by the General Manager of the Company and consisted of all the nine departmental managers. The committee was entrusted with developing the company's strategies, policies, goals and the rules and guidelines that were needed to effectively translate these objectives into the day to day practices. The committee meets on a weekly basis or as found necessary and approves and provides necessary resources. It also promotes a culture that encourages all employees to work to their full potential.

Quality and Environment Council (QEC)

This committee is composed of the General Manager, Deputy General Manager, all the Departmental Managers and the Quality and Environmental Facilitator. The council has the ultimate executive responsibility for establishing and maintaining the Quality and Environment Management Systems through the Quality and Environment Implementation Committee and the Quality and Environment Facilitator.

The Quality and Environment Facilitator has the overall responsibility for establishing, maintaining and verifying the documented quality and environment management system in the company.

Budget Committee (BC)

The committee is composed of the General Manager, Deputy General Manager and three other senior managers. The committee is responsible for preparing and submitting the company's annual budget to the Board of Directors through the General Manager.

Technical Division Team (TD)

This committee is composed of the Deputy General Manager and all Technical Department Managers. They meet to review and make decisions on issues relating to the operation, maintenance, safety and security and engineering and other support services needed for the efficient and reliable operation of the plants.

Quality and Environment Implementation Committee (QEIC)

This committee is composed of the Deputy General Manager, key departmental managers and section heads and the QEF. The committee has the ultimate responsibility in effectively implementing the strategies and objectives of the Quality and Environmental Council.

Safety, Health and Environment Committee (SHE)

This committee has the ultimate responsibility to establish and maintain the company's Safety, Health and Environment Policies and Strategies. This committee is composed of the Deputy General Manager, all Technical Department Managers, Personnel Superintendent, Chief Medical Officer, Chairman of Safety Subcommittee and the Training Superintendent.

This committee oversees three specialised subcommittees, the Safety Subcommittee, the Environment Subcommittee and the Health Subcommittee. Participation of all section heads within the company is evident in these subcommittees. The senior employee representative from the Joint Labour Committee is also a member of the Safety Subcommittee.

These subcommittees provide a direct avenue for shop floor participation in the three key areas of the company's activities which are safety, health and environment.

Suggestion Evaluation Committee (SEC)

The Suggestion Evaluation Committee consists of an appointed Department Manager as the Chairman, Personnel Superintendent as the Vice Chairman and members are senior staff from various departments as nominated by the department heads. It acknowledges and evaluates all suggestions submitted by employees. The suggestions are then dispatched to the concerned departments for their comments and recommendations. If a suggestion is accepted, it is earmarked for implementation within a specific time schedule.

Joint Labour Committee (JLC)

The purpose of this committee is to establish a rapport between the management and the employees. The committee consists of 6 employees elected democratically as labour representatives and 6 management representatives nominated by GPIC General Management.

Housing Loan Committee (HLC)

The Marketing Manager is the chairman of this committee and members include the Technical Services Manager, Financial Coordinator, Financial Accountant, Personnel Superintendent. The objective of this committee is to appraise the requirements and eligibility of the individual employees to determine qualification for the company's approved housing loan scheme.

Saving Scheme Committee (SSC)

This committee is chaired by the Administration Manager and the members comprise the Finance Manager, the Financial Coordinator, Financial Accountant and labour representatives. The objective of this committee is to establish a saving scheme for Bahrainis with a view to contribute a certain percentage of their salary which would be placed in secure investment with a reasonable return but at a low risk exposure.

Quality and Environment Publicity Team (QEPT)

This committee's objective is to increase awareness amongst employees with respect to the quality and environment systems. It organises various campaigns concerning quality or environmental issues. The meeting is chaired by the General Services Superintendent and members representing this committee are selected from various other departments.

Plants Operating Morning Meeting (POMM)

A daily morning meeting is held at the Main Control Room chaired by the Plants Operation Manager and attended by the Maintenance Manager Technical Services Manager, Safety & Security Manager, all

Plant Superintendents, maintenance and technical and engineering section heads. The objective of this meeting is to be proactive and keep abreast of all developments in the plants and to alleviate any foreseen problems on a day to day basis.

Training Committee (TC)

This committee, composed of key departmental managers is chaired by the Deputy General Manager. The training centre is represented by the Training Superintendent who has a coordinating role. The committee's function is to translate the management training and development strategies into action plans and to oversee their effective implementation.

Since human resource management and in particular training and development program of GPIC was a key factor in the transformation of the company's organisational culture, it would be appropriate to venture somewhat in detail as to the committee's objectives which are:

- To formulate a Bahrainisation plan as a GPIC policy.
 - To motivate and encourage the Bahraini staff indentified by training need analysis to take up higher positions and responsibilities by providing them suitable development courses, thereby enhancing the quality, reliability and productivity of the Bahraini manpower thus achieving GPIC's objective of Bahrainisation.
 - To continually support and improve the qualification of the potential Bahraini staff by sponsorship for higher studies so as to
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consider them for promotions to fill up the future vacancies as part of the Bahrainisation plan.

- To set the guidelines for devising the training and development programmes for the trainees and to follow their progress of training regularly to prepare them for fulfilling the requirements of their future positions so as to carry out the jobs responsibly, efficiently, safely and diligently.
- To nurture training in Total Quality Management (TQM) and ensure implementation for efficient and safe profitable operations including environmental, safety and health preservation.
- To provide the Bahraini students the facility for industrial training in GPIC so as to fulfill the policy of the Government of Bahrain.

Through this very important committee the management succeeded in providing an efficient service to the employees to allow them to thrive and excel, undertake jobs where competence is assured, while creativity, continuous improvement and innovation are made to be an integral part of the training programmes.

There was regular follow up on the committees' working to ensure that their objectives remained in focus and it was made clear that a failure of their activities would have a direct impact on the success of meeting other major organisational objectives. This helped to ensure a team approach and accountability of the committee and also motivated the constituent members to work at a consistent pace in the same direction, i.e. "march to the beat of the same drum."

It was observed that the committee leaders were chosen with extreme care. Managers and core personnel were given leadership training prior to taking up the chairmanship of the various committees. These chairmen were able to:

- a) Select competent people who can work well as a team.
- b) Assign stimulating tasks that were important to the committee's objectives and goals.
- c) Provide leadership that was not restrictive or prescriptive, but open and not overly interfering in nature.
- d) Include members who appeared to be negative to make them feel part of the company.

All the above stated committees meet on regular basis at the set time and date to avoid overlap and to ensure proper scheduling. Committees succeed because they are able to tap ideas that emerge from brainstorming by constituents. The idea of brainstorming is that one person's remarks would act to stimulate another person's ideas in a chain reaction of ideas. The team then formulates these ideas, puts them into focus and emerges with solutions. If the brainstorming is done in an organised and methodical way such as utilisation of the Six Thinking Method of de Bono.. The management also believed that individuals need not necessarily be gifted with an inborn talent for creativity and that there were formal tools which could be used deliberately and systematically to train people to be more creative and thus make the work of these committees more effective. This belief

that creativity could be developed within individuals and organisations is in line with the teachings of scholars such as Edward de Bono and Tony Buzan, as was reviewed in Chapter Five.

An interesting aspect of these committees was that they comprised not only managers but members of staff from various levels and from all departments. Managers thus established mentoring relationships and put committee members in contact with certain peers and leaders through the work groups to which they were assigned. To the degree that managers themselves serve as role models and mentors to some members, their own actions carry a social message to the junior participants.

Furthermore, at GPIC, management and employee participation was found to be wide ranging, crossing departmental boundaries and levels in the organisation. In addition to normal direct reporting routes, as indicated by the organisation structure, management's influence flows throughout the company network by means of the above committees.

These committees also emphasised that team building and employee participation were fundamental concepts in the new business paradigm which both aimed at improvement. Factors such as individual and group behavioural dynamics formed an important part of this approach, especially in the way in which the groups communicated, competed and dealt with conflict. The organisational culture was emphasised at all these committee deliberations, conflict of ideas was welcomed as healthy rather than disruptive. This involved a deliberate management approach that minimised domination (using power and position to override others), promoted compromise and integrated everyone's input. This provided a creative and productive working

approach and environment that looked for solutions to problems, not just identification of problems. It is worth noting that this approach to problem solving falls in line with the theories and teachings of management scholars such as Edward de Bono, Tony Buzan & Peter M. Senge.

The solutions that emerged from this group approach were the result of encouragement of trust, sharing of information, knowledge and experience, as well as participation in decision making. What emerged from the above style of functioning was trust and openness, two factors that are a key to empowerment.

These behavioural patterns were adequately supported by documented systems and procedures to ensure unambiguous communication as well as to serve as a reference in every aspect of work. The importance of documented communication was emphasised in 'Key Principles of Quality' displayed throughout the company. The slogan was:

'Say what you do, do what you say, record what you do and improve what you do'.

The logical conclusion of this enthusiasm for documenting systems and procedures eventually led to the creation of a formal quality management system. Accordingly, when the management decided to obtain external certification under the internationally recognised Quality Management System of ISO 9002 the majority of the requirements were already in place and the accreditation was achieved at the first assessment. This action consolidated GPIC's position in the international arena as a reliable, productive and a quality orientated company with consistent high product quality. A certificate of

registration from the British Standards Institute (BSI) was issued to the company on 15 February 1995.

Apart from the technical aspects covering operations, maintenance and material management services, the scope of the documentation system covered fire, safety, security and environment. This was significant from the viewpoint of unifying the organisational culture. Not only did the relevant part of the company develop the necessary systems and procedures to meet the requirement of registration to the Quality Management System, but these systems and procedures were extended to encompass all aspects of the organisation's activities such that a unified approach existed.

These measures were taken in a phased manner with the ultimate aim of improving not only the quality of the products, but also the quality of work life. Apart from fiscal benefits and perquisites to employees the company stressed the aspect of safety at the workplace. This approach gained the employees' support since they could see a tangible benefit for them as well as for the company.

In order to optimise the financial performance, GPIC deemed it necessary to operate the plant at its maximum capacity for as long an uninterrupted period as possible. However, the overriding concern was not to compromise on reliability and safety of the plant and personnel. This was achieved by setting up a dynamic maintenance planning section in the maintenance department for developing and monitoring the adherence to a comprehensive and detailed predictive, preventive and corrective maintenance schedule, without compromising on safety, reliability, cost or quality. Where necessary capital project expenditure

was also undertaken to attain the highest standards of safe operation and maintenance possible.

The company recognised that such a maintenance programme would not be successful without full involvement of the operating personnel, the owners of the plant, and support of the engineers. To achieve a teamwork spirit and cooperative approach, the departmental managers and section heads embarked on daily, weekly and monthly review meetings. Ideas were exchanged and put into practice to show that there was one aim in all activities and that was to have a safe and reliable operation. Besides initial difficulties, this programme proved to be an overwhelming success which led to significant enhancement of GPIC's business performance.

The company also implemented the 'HAZOP' approach to risk management with a view to enhancing safety levels in the complex. The Hazard and Operability Analysis (HAZOP) is a technique developed to identify and evaluate safety hazards in a plant and to identify operability problems which, although not hazardous, could compromise the plant's ability to achieve design productivity. In GPIC the team had members with practical experience in operation, maintenance and engineering, with a special knowledge of process chemistry, inspection, instrumentation, environmental regulations and industry safety standards. This team used a creative and systematic approach to identify hazard and operability problems resulting from deviations from process design that could have led to undesirable consequences. The team produced a host of recommendations and appropriate corrective action was initiated by management. HAZOP continues to be a part of project engineering culture in GPIC and the reviews are performed on a periodical basis for

existing plant. HAZOP studies are invariably undertaken for any new capital project, for modifications or replacement of plant equipment.

The HAZOP programme again depended on the involvement of the employees in determining the risks that existed in company operations and the way forward to minimise these risks. Soon the employees saw the practical benefit of these techniques in their day to day activities. The programme did not need to be vigorously marketed to the employees since it was accepted as a platform for innovation and creativity and a forum for achievement and scientific exchange of opinion and experience.

In addition to the above, the company has a fully fledged fire, safety and security department manned by experienced and professional staff and equipped with state of the art surveillance and fire fighting equipment. Apart from these, it is the GPIC's management policy to impart basic training in first aid, fire, safety and health hazards to all employees as well as contractor and vendor personnel working in the plant. Refresher courses are conducted regularly and adequate handouts, literature and videos are made available to the staff. The department has comprehensive documented procedures for reference and guidance. This commitment to safety comes as a result of management's true beliefs that no potentially hazardous industry could survive or gain the loyalty of its workforce without first demonstrating to them that their safety is considered to be the most important undertaking the management is facing.

As a consequence, GPIC has an exemplary record of safety. This is evidenced by extended periods of no lost-time accident man-hours which are substantially above the industry norms. This achievement,

together with the entire safety security organisation, has been reviewed and assessed by external agencies such as the Royal Society for the Prevention of Accidents, UK (RoSPA) and The National Safety Council, USA both of whom have presented a number of awards to GPIC.

In view of GPIC's success in this field, the risk factor has diminished to a large extent and this is reflected by the annual insurance premium being halved from US\$ 1.6 million to US\$ 0.8 million over the study period. This achievement reaffirms that success in one area of the company's activities, in this case technical, would have a positive spill-over on to other activities, financial in this instance.

The researcher has found that the automated processes in the highly technical petrochemical plants entailed a lot of computerised equipment not only for data processing and information gathering but also for controlling parameters in the plant operations. The Y2K problem, for instance, was envisaged as early as 1994 and GPIC spared no time, effort or resources to ensure a smooth rollover to the millennium. This farsighted approach was necessary in GPIC's case, since a problem in any of the software systems used in the complex could have had a disastrous effect on the technical aspects of its operations .

All these efforts had positive results. The normal industry intervals for uninterrupted production period in Ammonia and Methanol plants worldwide are between 300 to 400 days. In GPIC world records were achieved when its Ammonia and Methanol plants operated in excess of 600 and 700 days respectively without a single day of loss of production, thereby demonstrating the effectiveness of the maintenance schedule,

operational efficiency and above all the safety programme that the company so vigorously undertook. Chapter Four gives a detailed analysis of the production data during the study period. The direct consequence was incremental product output and revenue without a corresponding increase in fixed costs, resulting in higher operating profits. However, the research work has established that the management made a conscious effort to communicate to the employees that, apart from profitability, the company's policy was always to ensure the safety and well-being of their employees in the workplace. This safe and caring environment was appreciated by the employees and has been a major factor in motivating them to give their best to the company.

The researcher observed a key finding and a very significant one in terms of theoretical management. That was that monetary rewards were not necessarily the prime motivators in GPIC. A mix between monetary and non-financial rewards and incentives were deemed to be the most effective motivators. The management stressed that the most important element in the motivation process was the person himself. With determination, positive thinking and clear objectives, nothing would stop a GPIC employee from going forward, being creative and achieving success, as long as the work environment nurtures, encourages and rewards self-improvement and performance skills.

This observation is contrary to that expected by management statisticians for developing countries where monetary reward is seen to be the key motivating factor for the workforce. In developing countries and in an organisation such as GPIC, other factors such as safety, participation, empowerment, dignity, respect, long term

prospect of employment and being part of a winning team also play major roles in motivating the workforce.

Listed below are a number of examples that the researcher found important to elaborate on in order to further demonstrate the effect of motivation and creativity on the performance of an organisation like GPIC.

Example 1: As mentioned earlier, a concerted effort had to be made to tide over the financial situation in the days soon after the commissioning of the plant. GPIC was a capital intensive US\$ 450 million project, of which US\$ 300 million was financed through external debt. The revenues envisaged at the project feasibility stage did not materialise at the commissioning stage. Cash flow projections indicated that in the near future GPIC would be confronted with a default situation due to its inability to meet its debt obligations. The management established a task force to tackle the problem immediately before the default occurred. The management emphasised that the mode of tackling the problem should be innovative.

The task force approached the bankers and explained the impending problem faced by the company. They also unveiled a strategy devised to tackle the situation. The bankers were invited to the GPIC premises to acquaint themselves with the new culture that was emerging as a result of measures being taken to revive the organisation and enhance the staff morale. The bankers noted evidence of creativity at work in the operation and maintenance sections of the plants that ensured maximisation of output and consequently the revenue and operating profits. This exercise put

the bankers in a positive frame of mind to consider favourably the rescheduling of the debt prior to the actual occurrence of default.

The steering committee of bankers recommended a repayment schedule which stipulated uniform instalments for repayment over a ten year period. This was based on conventional cash flows. The task force was of the opinion that the tenure could be reduced by modifying each instalment amount depending on the surplus in the cash flows on annual basis. Although this was not a conventional approach the bankers were convinced to reschedule the debt in accordance with GPIC's request.

Further, the task force went on to convince the steering committee of bankers that despite the cash constraint and the consequent rescheduling, it would be to their mutual advantage if the bankers could finance a debottlenecking project while the capacity of both plants would be expanded concurrently. The task force explained to the bankers that the debottlenecking project would enhance the output (and consequently the revenue and profits) by 20%, with a less than proportionate increase in cost. The banks agreed to G.P.I.C's request, which subsequently proved to be a wise decision.

Example 2: This example which is small in terms of monetary value but indicative of innovation was the suggestion by an employee in the maintenance workshop to fabricate a particular spare part in-house instead of purchasing it. Consideration has to be given to the fact that Bahrain does not have many specialised manufacturing or fabricating establishments and GPIC does not have the facilities to fabricate most of the spare parts required in the plant. The company therefore has to rely on procuring spare

parts from abroad, sometimes at exorbitant price. In this instance, the employee observed that this particular spare part could probably be made in-house and proceeded to fabricate an identical item at a much reduced cost, thus not only saving money but also displaying a great deal of innovation and creativity.

Example 3: Like many others in the petrochemical industry worldwide, GPIC could have been the subject of unfair criticism by uninformed environmentalists for discharging process cooling water into the sea. In GPIC the discharged process water is clean however, and the issue in the past had been one of those negative perceptions generated by lack of understanding of the company's operation by the public. To help rectify this issue, a novel idea needed to be introduced to demonstrate and prove that the complex was safely managed and environmentally friendly.

It was decided to do more than just inform and educate the public about the company's environmentally friendly policies and practices. The publicity and educational campaigns, and the many international awards received for safety, quality and operation excellence were not enough to completely eliminate the public's misconception. Here was a real challenge to solve a pressing issue.

A suggestion by an employee to construct a fish farm was accepted. A specially fenced enclosure was erected in the sea forming a fish farm, adjacent to the company's major cooling water outfall. Small young fishes were introduced into the farm, they were regularly tested by the Government Fisheries Authorities and the National Environment Protection Committee to confirm the cleanliness of the sea water surrounding the

complex. The conclusion was that the fishes were very healthy, as indicated by their excellent growth rate, and fit for human consumption. This clearly demonstrated that the sea area around the plant was clean and that the company's processes were indeed environmentally friendly. It also portrayed very clearly GPIC's care for the environment. The company is very proud to be able to show this facility to visitors, especially environmentalists.

Based on another employee's suggestion, in order to demonstrate GPIC's commitment to the community, Eighty percent of the fish produced in the fish farm is annually given to needy local people as a charity, and the remainder are released to the sea to replenish the fish stocks in local waters.

These steps were very well received by the public, other companies and relevant government authorities. It effectively eliminated the misconceptions about the company's environmental policies. Relevant authorities responsible for fisheries in the country have also learnt a great deal from GPIC's experience with the fish farm and actively support and endorse GPIC's efforts. Other industries in Bahrain, as well as other countries with similar situations, are now being challenged to support similar innovations and initiatives.

The fish farm is a prime example of a simple idea generated by a desire to be creative and to demonstrate commitment to a worthwhile cause. It has also transformed a potential public relations problem of misconception into a very successful promotional exercise for GPIC's operations and its related products.

Example 4: What can you do with a large empty yard forming the rear view of a large office block? The obvious answer is to plant flowers, grow a lawn or reserve it for future expansion. Few people can view, utilise or benefit from such a decision however.

A GPIC employee proposed a much better and more creative utilisation. It was suggested that this area be developed as a reasonably sized vegetable garden to grow different types of vegetables. This creative suggestion was implemented. The produce from the garden was to be regularly distributed to needy people living in the neighbourhood close to the complex. This simple innovation achieved distinct goals, namely:

- It demonstrated that the general environment (soil and air) around the complex is clean enough to sustain the abundant growth of healthy vegetables and plants.
- It pleased the company's employees as they were now surrounded by a verdant vegetable garden offering a pleasant view from their workplace.
- It also gave employees another concept of pride in being able to feed and assist others less fortunate in the community.
- This also improved the social standing of the company in the community and portrayed the image of a company that cared for the community.

This was a direct positive achievement for all concerned, creating from a small suggestion a major garden asset for the company, employees and neighbouring community.

Example 5:

A problem in one of the process units arose, which would have necessitated shutdown of both the Ammonia and Methanol plants for over ten days, resulting in millions of dollars loss of revenue. A very creative suggestion, attempted an alternative solution requiring bypassing the defective equipment while maintaining the process plants on line. This suggestion was adopted after careful study and full evaluation of the risks involved. This required teamwork between the operating personnel and their colleagues in the engineering section, maintenance department and laboratory, plus a vigilant operating workforce to keep the risks to a minimum. The solution was successfully adopted and was subsequently also adopted by other organisations and engineering firms when similar problems arose. This is only one example of how the company benefited from the efforts of creating a new environment where employees' ideas were put into effective use rather than ignored as was the case in the pre 1987 environment.

According to the researcher the above were a few of the many examples found that fitted with the concept of creativity as defined by Leon Strauss, i.e. seeing the same thing as everybody else but doing it differently through translation of people's unique gifts, talents, imagination and vision into something that is new and useful.

Transformation of the organisation culture in GPIC revealed a creative behavioural pattern of the employees that was in line with Torrانا's model, namely the result of interaction between:

- Abilities and skills of employees - harnessed by constituting the right organisation structure and positioning the right set of
-

employees (qualification and experience based on job design and description) in the right jobs and augmenting their skills through training and the correct work environment.

- Motivation - by creating the right organisation culture and work environment that gave adequate opportunity and scope to do things differently and better.

Viewed from another perspective the researcher saw the same concept in the new cultural behaviour resulting from an interaction of the attributes proposed by T.M. Amabile in 'Social Psychology of Creativity' which are outlined in Table 13, Chapter Five.

In order to demonstrate the strength of GPIC's culture and how creativity means activity, the management conscientiously supported the company's suggestion scheme and effectively executed its implementation. The Suggestion Scheme was initiated in 1993 to formally utilise and encourage the creativity of the workforce and give them a genuine opportunity to contribute to company's progress.

There have been numerous instances where modifications have been suggested by employees relating to their specific work areas to improve processes or enhance safety, reliability or profitability. A few examples are listed below.

1. New valves, having a dual access single action selector, were fitted at critical locations throughout the ammonia and methanol plants, instead of conventional safety valves. This permitted remedial work to be carried out while the equipment was still
-

running instead of necessitating a partial shutdown in the process area.

2. A temporary bypass for the strainer was installed in the process air compressor in the ammonia plant to enable removal of the strainer to clear any rust deposited there, thus allowing the compressor to be operated uninterruptedly.
3. An internal bypass was installed in the ADIP Sulphur removal unit to allow a significant quantity of feed gas to be provided to the ammonia and methanol plants while clearing the fouled sulphur absorber, without necessitating temporary shutdowns.

The above are just a sample of the many suggestions that were the result of empowering staff to suggest modifications for improvement in operational areas and maintenance practices.

Similarly, throughout the complex, inside and outside the process areas, numerous suggestions have been forthcoming from employees. The suggestion scheme is a platform which enables employees to express their ideas for management to review and implement as appropriate. The scheme reflects the managements' commitment to intellectual development and creative and innovative thinking on the part of employees.

When the suggestion scheme was formally launched by GPIC in 1993, the management had issued the following communiqué:-

“Beyond the organisation’s strategists and visionaries, the rest of the employees of the organisation can also constructively contribute to

strategy and growth. Employees that deal with the day-to-day running of the business, customers and suppliers, are better qualified to provide suggestions in those areas than management, who, by virtue of not being directly involved in those areas, may overlook. The synergy of complementing the creativity of employees with the sound vision and leadership of management is a key driving force for organisational success.”

“Organisations endeavour to recruit high calibre professionals for key management positions. The aim is to hire and utilise proven expertise in developing business strategy and future direction, which will underpin the organisation's competitive edge and market share. However, in today's world, it is extremely short-sighted to believe that the sustenance and long term flourishing of an organisation are dependent on a select few personnel in top management.” You need the participation of the entire workforce and particularly the workers themselves who know their job better and any modest improvements in their work pattern can make a significant difference.

The researcher reviewed the functioning of the suggestion scheme and concluded that the philosophy of having this scheme was a genuine benefit to the organisation and its employees. It was not used by employees as a venting point for grievances and complaints, but as a channel for them to propose positive suggestions which could improve a part of the company's activities. The reason for the success of the scheme was that it was built on essential building blocks which made it self-sustaining. The four pillars of the scheme are:

- 1) Employees are the single most important element in this scheme. They provide commitment to support for, and
-

participation in the system. They are knowledgeable about their jobs and are in the best position to improve job content and productivity. Most importantly, they are the main source of new ideas, improvements and innovations.

2) The scheme administration is very important for a number of reasons :

- It demonstrates visible commitment and support from top management.
- It provides a framework for receipt and evaluation of all suggestions.
- It provides a means to acknowledge receipt, hence ensuring the worker's idea, time and effort are not wasted.
- It provides a means to develop training opportunities.
- It enhances teamwork.

With a neutral body working to fully exploit each idea to its maximum potential, the scheme administration helps to introduce new members that enhance the effectiveness of this system.

3) Award and Recognition encapsulate all the returns to the suggestor whether financial, personal satisfaction, sense of achievement or pride. A well thought out award system that matches the organisation's culture is very important to the success of any suggestion scheme. In some organisations, the culture is to reward the suggestors with only monetary incentives. In others, a simple 'thank you' letter, or a tap on the shoulder, is more effective than any financial reward. Awards

depend on the culture in each organisation. Some cultures even prefer instantaneous awards upon submission of suggestion. The type of award scheme adopted should reflect the organisational culture.

- 4) The final pillar is the scheme evaluation without which the organisation will not be able to assess its ongoing performance. Without verification of any system, its effectiveness or failure cannot be identified or improved. The results of an objective evaluation of a suggestion scheme can play a major role in identifying its benefits and sustaining its existence. If financial and other gains can be clearly demonstrated, then even the critics and skeptics of the scheme can be convinced of its benefits and will be converted to support it.

The success of the GPIC suggestion scheme could be gauged from the fact that out of a total number of 922 suggestions received from inception to end of 1998 of the scheme, 14% were successfully implemented and 19% were recommended for implementation and are in various stages of implementation. Major international companies having well established suggestion schemes regard a 25% idea consideration rate to be a very healthy sign of a mature and effective suggestion scheme. GPIC's 33% compares favourably. A further 6% were under review for technical evaluation and/or cost benefit analysis. Considering the fact that 17% of the suggestions were repetitive, the acceptance ratio was relatively high. It should be noted that only 44% of the suggestions have been deferred due to their irrelevance to GPIC or lack of technical/financial feasibility.

The suggestions emanated from 276 employees out of a total number of 476 employees in GPIC. This is indicative of the fact that almost half the employees identified themselves with the corporate culture or what it represented. According to statistics established by Professor Duncan Gallie¹⁹² and his associates in *Restructuring the Employment Relationship*, only 8% of employees in the UK believe their beliefs and those of their organisation are very similar, as compared to a significantly higher rate at GPIC (Table 22). Only 14% are very proud of their organisation as compared to 89% at GPIC and only 30% feel a strong loyalty to it as compared to 89% at GPIC. In this context the high percentage of contributions in GPIC reflects pride of the employees in their organisation and their loyalty to it.

The researcher analysed the nature of suggestions received and found a rough breakdown into the following areas:

- | | | | |
|-----------------------------------|-----|--------------------|----|
| (a)Health, safety and environment | 70% | (c) Cost reduction | 9% |
| (b)Process improvement | 15% | (d) Housekeeping | 6% |

Although many suggestions were not of great import in monetary value, they could be regarded according to Tom Peter says "One percent improvement in one thousand things is better than one thousand percent improvement in one thing." Besides value, the suggestion scheme is demonstrable evidence of employee creativity at work.

Upon review of the content of the suggestions the researcher concluded that they reflected the employees' desire to satisfy their personal pride in contributing to the improvement of the organisation and in doing so

¹⁹² Prof. Duncan Gallie: *Restructuring the Employment Relationship*; Publisher: Oxford University Press: 1998)

they receive appreciation and recognition from the management. This caused them to further improve their performance and thereby create a chain reaction of high motivation and a good working atmosphere.

By mid 1990, the management of GPIC had succeeded in establishing an environment that was free from fear and rigidity and had developed a culture that allowed employees to be recognised beyond awards with little meaning, to a truly genuine and institutionalised process of recognition for contributions beyond completion of tasks as well as for service to others. By this time, the company had also succeeded to share the fruits of its success with its shareholders. The good performance of the company resulted in good profits which led to the payment of dividend to its shareholders. By 1995, GPIC had paid US\$30,000,000 as dividend to its three shareholders. A handsome reward for their confidence especially since the company also succeeded to repay all of the US\$ 300 million loan that existed in 1987, plus interest payment on that loan, a significant financial achievement for GPIC.

The management recognised that the company had to grow and expand in order to take advantage of the positive culture that it had so patiently been created over the previous six years. An expansion would have further reinforced to its employees that the company was genuine in its endeavour to provide growth opportunities to them.

After significant strategic moves which will not be discussed in this study, the GPIC management succeeded in securing the shareholders' approval to build an internationally sized Urea Plant, a dedicated marine terminal for export of the produced urea as well as all associated facilities such as storage and handling units and support

utilities. The approved Budget for this project was US\$180 million. The plant is designed to produce over 560,000 tonnes of high quality granular urea annually which is used as the most common man made fertiliser worldwide.

This project was successfully completed, within budget and in a record time of less than two years. The management created a project team from its own indigenous workforce supported by experienced specialists in the field of project management. The implementation of the urea project provided to management the opportunity to give hardworking and loyal employees promotion and job enrichment opportunities.

The project also provided further employment opportunities and some 108 new positions were created. Expatriate employees who had completed their assignment with the company as a result of the company's Bahrainisation programme were moved to work in the new plant. This action further provided incentives to both the local and the expatriate workforce and the management stood by its promise that no employee would lose his or her job if a teamwork culture could be created to transform the company from its very weak position in 1987. This situation was a win-win case for the company and the employees alike.

By the recent completion of the urea project, a project which was self financed by the company without injection of any funds from its shareholders, the company had succeeded in paying a total of US \$ 120 million in cash dividend to the shareholders.

A small incident which occurred in November 1997 as the Urea Project neared completion may be used here to illustrate the changed attitude of employees and the existence of a new culture in GPIC.

A young recently graduated lady engineer who had been recruited a few months before, showed up at the Urea Project office at 4 p.m. after working hours and after walking about a kilometer from the Training Centre on a cold windy afternoon. Upon questions as to the reason for her presence there her answer was simple. *“I want to help and be part of this new development in my company, please give me something to do”.*

It is obvious a turnaround had been accomplished. A new and vibrant culture had been truly established by successfully utilising the interacting forces of Motivation, Creativity and a strong and positive Culture to achieve success. This result will be further tested from the perspective of the employees' through the following surveys.

Chapter Seven

Attitude and Culture Surveys

To examine GPIC's human resource development and overall growth, the researcher focused on a literature review (Chapter Five) with regard to Creativity, Motivation and Culture and various studies and theories related to the management tools. This chapter reviews the application of these ideas into practical situations to determine the link between employee attitude (job satisfaction) and the overall business performance of the organisation.

Focus is placed on the people within GPIC and in particular on how the company succeeded in developing a culture in which a well trained workforce used their creativity and were motivated to enhance the company's business performance. Accordingly, two surveys namely:

- A. Attitude (Employee Job Satisfaction) Survey**
- B. Organisational Culture Survey**

were undertaken with the objective of determining the employees' perception and obtaining feedback from the employees in GPIC with regard to the management style, with reference to the three elements, creativity, motivation and organisational culture, that form the core of this study. These surveys thus form an integral part of the study.

The researcher found that in the past creativity, motivation and organisational culture have been studied individually to assess their impact on the performance of an organisation. However, no study has been undertaken to assess the combined effect of these management

tools on the business performance of an organisation, particularly in the petrochemical field.

Researchers and management scholars advocate that proper human resource management can enhance the individual employee's job satisfaction and consequently organisational performance. For many years there has been theoretical interest in human resource management and its ability to positively influence an organisation's performance.

The two surveys will be dealt with separately as follows:

A. ATTITUDE (EMPLOYEE JOB SATISFACTION) SURVEY

This survey was undertaken in GPIC to assess the impact of the human resource management strategies in GPIC on the level of morale and job satisfaction amongst employees. The aim was to explore empirically the consequences of attitude, morale and job satisfaction of GPIC employees in the context of creativity, motivation and organisational culture.

The method adopted for the survey had a quantitative as well as a qualitative approach. The quantitative approach relied on having:

- (i) A research design i.e. the framework and the components within the framework which encompass the scope of the study and focus on the three main elements, namely, creativity, motivation and organisational culture.

- (ii) Standardised implementation i.e. developing a standard list of questions that comprehensively cover the research design, modelling each question that is self-explanatory in its narrative and at the same time permitting evaluation/ranking on a predetermined scale, to enable collating and analysis of data.
- (iii) A set of research procedures applied in a consistent manner i.e. selection of a representative sample, standard interview format, statistical slotting on the set scale and allotting of ranks.

The data collected was converted to a common format for computation of indices to meet the criteria. The data was also aggregated within groups, elements and components where necessary, to provide overall results of the entire survey as well as results within each group and subgroup.

The results obtained from the data collected have been presented as a set of generalisations about the impact of various aspects of the GPIC's organisation culture. The qualitative approach was used to analyse these results and to derive at, or to test, the theories. Finally, based on the analysed results conclusions have been drawn by the researcher.

Quantitative Approach

The data gathered from both the survey results was subjected not only to qualitative analysis of the factors, but was also subjected to quantitative analysis. This quantitative analysis was done using a multi-variate statistical approach to extract optimal number of factors from each of the two surveys. This data reduction technique was deployed to isolate and explore a few factors that cumulatively account for the major portion (more than 67%) of the variation.

After extracting the factors using these statistical techniques, each of the extracted factors was explored to gauge its significance and impact in relevance to that category and to the survey objective in general. This assisted in arriving at appropriate conclusions.

Qualitative Approach

Research Design

Detailed planning was carried out to ensure a research design that was effective in its presentation of behavioural data. The researcher perused various versions of questionnaire items proposed by the Survey of Organisations (SOO) and the Organisation Survey Profile (OSP) for the Institute of Social Research, Michigan, USA. The researcher focused on the set of indices listed below. These indices fell under five distinct sets of domains:

1. Organisational Climate

Organisation of Work: The degree to which an organisation's work methods link the jobs of individuals to organisational objectives.

Communication Flow: The flow of information, both vertically within the organisational hierarchy and laterally across the organisation.

Emphasis on People: The interest that the organisation displays in the welfare and development of the people who work there.

Decision-Making Practices: The degree to which an organisation's decisions involve those who will be affected are made at appropriate levels and are based on widely shared information.

Influence and Control: The influence of those at the lower levels of the organisation.

Absence of Bureaucracy: The absence of unnecessary administrative constraints in the organisation's internal functioning.

Coordination: Coordination, cooperation and problem resolution among organisational units.

2. Job Design

Job Challenge: Variety, opportunity to learn and the use of skills and abilities on the job.

Job Reward: Instrumental in determining good job performance with regard to recognition, respect and advancement.

Job Clarity: Clear and appropriate job expectations.

3. Supervisory Leadership

Supervisory Support: The supervisor's attentiveness, approachability and willingness to listen.

Supervisory Team Building: The supervisor's emphasis of team goals, exchange of ideas and working as a team.

Supervisory Emphasis of Goals: The supervisor's setting of high standards and encouragement of best effort.

Supervisory Work Facilitation: The supervisor's helpfulness in improving performance, planning and problem solving.

4. Peer Leadership

Peer Support: Peers' attentiveness, approachability and willingness to listen.

Peer Team Building: Peers' emphasis of team goals, idea exchange and working as a team.

Peer Emphasis of Goals: Peers' setting of high standards and encouragement of best effort.

Peer Work Facilitation: Peers' help in improving performance, planning and problem solving.

5. Behavioural Outcomes

Group Functioning: Group members' planning and coordination, decision making and problem solving, knowledge of jobs, trust and sharing of information.

Satisfaction: The seven facets include satisfaction with group members, the supervisor, the job itself, the organisation, pay and current and future career prospects.

Goal Integration: The compatibility of individual and organisational needs.

These five domains provided the basis for the researcher to draw up a probable list of questions. At the time of drafting each question it was ensured that the content was both descriptive and evaluative. After determining the relevance and importance of these questions to GPIC's situation, the researcher short listed questions covering the essence of the above listed aspects.

Members of the executive management team were involved in the selection of the final 41 questions as listed in Table 14. This team was also asked to prioritise these 41 job aspects in terms of importance as perceived by the GPIC management. The list contained some aspects which were peculiar to GPIC, e.g. perquisites to staff (such as the Staff Saving Scheme, Housing Loan Assistance Scheme), employer-employee relations (Joint Labour Committee) and incentive schemes (Early Bird). These schemes have already been elaborated upon in Chapter Six of the study.

Table 14
Aspects of a job ranked in terms of importance as perceived by GPIC management

Serial No.	Aspects of the Job	Management's ranking
1	Working for a company that is concerned with safety, health & the environment	1
2	Having a secure job	2
3	The opportunities for training & self development	3
4	Good working conditions, your immediate work environment	4
5	Good team work	5
6	Having high quality equipment & technology	6
7	Getting job satisfaction	7
8	An employer who has concern for employee welfare	8
9	Having high productivity	9
10	Having satisfied customers	10
11	Having high quality products	11
12	Feeling highly motivated	12
13	Having good promotion & growth opportunities	13
14	Having good vacation & leave arrangements	14
15	Having good industrial relations	15
16	Having a Joint Labour Committee (JLC)	16
17	Being consulted about changes	17
18	Having effective communication systems	18
19	Having good communication of information from your supervisor	19
20	Being kept informed by management about things important to you & your job	20
21	Having fair pay	21
22	Having a good physical environment, ergonomic working conditions	22
23	Having effective leadership in the firm	23
24	Having stimulating and challenging work	24
25	Having the opportunity to be creative	25
26	Working for a company that does valuable community work	26
27	Working for a company that encourages you to do good community work	27
28	Having a good saving scheme	28
29	Having influence on what happens in the company you work for	29
30	Having good relations with your immediate boss and subordinates	30
31	Having good relations with your peers, the people you work with	31
32	Working for a company which is respected & well regarded by the general public	32
33	Having good working relationships between employees & management	33
34	Having variety in the job	34
35	Having good communication & coordination with other departments	35
36	Having good sports & social activities	36
37	Having recognition & reward schemes	37
38	Having an objective performance appraisal scheme	38
39	Having a housing loan scheme	39
40	Having good canteen services	40
41	Having effective disciplinary procedures	41

In order to ensure that the subject matter of the study was kept in focus, these 41 (job aspects) variables of the questionnaire were listed under three main elements, which are the core of this thesis. Each element was further subdivided into two categories, and the variables classified as under:

- 1. Creativity** Includes 12 variables, subdivided into
 - “Working Conditions”, *10 variables*
 - “Quality”, *2 variables*
- 2. Motivation** Includes 16 variables, subdivided into
 - “Reward Systems”
 - “Personal Objectives”
- 3. Culture** Includes 13 variables, subdivided into
 - “Management Climate”, *9 variables*
 - “Clear Communications”, *4 variables*

The classified listing of job aspects is set out in Table 15.

Table 15

CLASSIFIED LIST OF JOB ASPECTS

Cross
Reference to
Items in
Table 14

I CREATIVITY**I. a. Working Conditions**

	having a secure job	2
	good immediate working environment	4
	good team work	5
	having high quality equipment and technology	6
	good physical environment and ergonomic working conditions	22
	stimulating and challenging work	24
	good relations with boss & subordinates	30
	good relations with peers	31
	good relations between employees and management	33
	having effective disciplinary procedures	41
I. b. Quality		
	high productivity	9
	high quality products	11

II MOTIVATION		
II.a. Reward System		
	good vacation and leave arrangements	14
	having fair pay	21
	good saving scheme	28
	good sports & social activities	36
	recognition and reward scheme	37
	objective performance appraisal scheme	38
	housing scheme	39
	good canteen services	40
II. b. Personal Objectives		
	opportunities for training and self development	3
	getting job satisfaction	7
	feeling highly motivated	12
	good promotion and growth opportunities	13
	being consulted about changes	17
	opportunity to be creative	25
	influence on what happens in the company you work for	29
	having variety in the job	34

JOB ASPECTS

III. CULTURE

III. a. Management Climate

	working for a company that cares about safety, health and environment	1
	having an employer who is concerned with employee welfare	8
	having satisfied customers	10
	having good industrial relations	15
	having a Joint Labour Committee (JLC)	16
	having effective leadership in the firm	23
	working for a company that does valuable community work	26
	working for a company that encourages you to do community work	27
	working for a company that is well respected and regarded in the community	32
III. b. Clear Communication		
	having effective communication systems	18
	having good communications with supervisor	19
	being kept informed by management about things important to the job	20
	having good communication and coordination with other departments	35

Selection of Samples for the Survey

As it would be impractical (both time and cost-wise) to obtain responses from each and every employee of GPIC, the accepted survey technique of random sampling was used to select 112 names from GPIC's listing of 434 employees (excluding 75 trainees) representing 25% of the workforce. (Substitutes were also selected to include in the survey in the event of initially chosen persons being unable to be interviewed).

Extreme care was exercised to ensure that the sample so selected was thoroughly representative, as is indicated by various characteristics of the study sample in relation to the total GPIC staff strength.

It was essential that the sample covered the full strata of the workforce, at all levels.

Table 16
Study Sample according to Level
of Employee in the GPIC organisational hierarchy

Level	Respondents (%)	<i>Total Population</i> (%)
Manager	10 (9%)	12 (3%)
Superintendent	11 (10%)	25 (6%)
Supervisor	23 (20%)	78 (18%)
Officer, Operator & Technician	68 (61%)	319 (73%)
Total	112 (100%)	434 (100%)

The sample needed to cover every aspect and area of the work place.

Table 17
Study Sample according to Department

Department	Respondents (%)	Total Population (%)
Administration	15 (13%)	57 (13%)
Data Processing	3 (3%)	11 (3%)
Finance	4 (4%)	15 (4%)
Fire, Safety & Security	7 (6%)	27 (6%)
Maintenance	17 (15%)	75 (17%)
Marketing	2 (2%)	3 (1%)
Operations	36 (32%)	170 (38%)
Technical Services	12 (11%)	51 (12%)
Training	15 (13%)	22* (5%)
Public Relations	1 (1%)	3 (1%)
Total	112 (100%)	434 (100%)

The sample selected needed to be representative of the gender mix that exists in GPIC.

Table 18
Study Sample according to Gender

Gender	Respondents (%)	Total Population (%)
Male	107 (96%)	404 (93%)
Female	5 (4%)	30 (7%)
Total	112 (100%)	434 (100%)

The sample had to be representative of the culture and regional background of the workforce.

Table 19
Study Sample according to Nationality

Nationality	Respondents (%)	Total Population (%)
Bahraini	76 (68%)	308 *(71%)
Other Arab	1 (1%)	6 (1%)
European	3 (3%)	15 (3%)
Indian	18 (16%)	80 (18%)
Other	14 (12%)	25 (7%)
Total	112 (100%)	434 (100%)

The sample needed to ensure that relevant length of service of the workforce was properly represented.

Table 20
Study Sample according to Length of Service

Length of Service	Respondents (%)	Total Population (%)
Less than 1 year	7 (6%)	47 (11%)
1-5 years	26 (23%)	100 (23%)
6-10 years	35 (32%)	101 (23%)
11-17 years	44 (39%)	186 (43%)
Total	112 (100%)	434 (100%)

The sample had to represent the age distribution across the workforce.

Table 21
Study Sample according to Age

Age	Respondents (%)	Total Population (%)
20-29	22 (20%)	94 (21%)
30-39	42 (38%)	181 (41%)
40-49	33 (29%)	118 (27%)
50-59	15 (13%)	51 (11%)
Total	112(100%)	434(100%)

After the research design was complete in all respects, (as reflected in the comprehensive questionnaire), the researcher undertook the actual survey by submitting the questionnaire to the sample of 112 staff members selected.

Face-to-face interviews with each of the 112 employees were held. Each interview lasted approximately 30 minutes. The structured interviews were carried out in private settings where confidentiality was assured and the employees being interviewed were encouraged to give open and frank replies. The data thus obtained from the survey was then classified in tabular form by the interviewer.

Aspects of work important to a job

Each employee interviewed was asked to rate each of these 41 aspects included in the questionnaire in terms of importance as perceived by an employee towards any job/employment in general. The ranking was done on a five point scale as follows:

* Score	Indicator
1	Absolutely top priority
2	Very important
3	Fairly important
4	Not very important
5	Not at all important

* A lower average score indicates higher importance.

Consequently, the results would indicate what individual employees want and the relative importance each employee places on specific issues of any job/employment in general. The mean scores so derived, were ranked (see Table 22) to determine the priorities of the 41 aspects of a job in general in order of importance as perceived by the individual employee.

Table 22

Aspects of Jobs ranked in terms of importance generally as perceived by GPIC employees, as compared to GPIC Management

Serial No.	Aspects of the Job	Employees'		Management's
		Mean Score	Ranking	Ranking
1	Working for a company that is concerned for safety, health & the environment	1.42	1	1
2	Having a secure job	1.46	2	2
3	Having good relations with your immediate boss and subordinates	1.56	3	30
4	Having high quality products	1.58	4	11
5	Getting job satisfaction	1.59	5	7
6	Having effective leadership in the firm	1.59	6	23
7	Feeling highly motivated	1.61	7	12
8	Having good relations with your peers, the people you work with	1.62	8	31
9	Having good working relationships between employees & management	1.62	9	33
10	Having fair pay	1.63	10	21
11	Having high quality equipment & technology	1.67	11	6
12	Good team work	1.7	12	5
13	Having satisfied customers	1.7	13	10
14	The opportunities for training & self development	1.71	14	3
15	Having high productivity	1.71	15	9
16	Having good communication of information from your supervisor	1.71	16	19
17	An employer who has concern for employee welfare	1.72	17	8
18	Good working conditions, your immediate work environment	1.73	18	4
19	Being kept informed by management about things important to you & your job	1.73	19	20
20	Having good promotion & growth opportunities	1.75	20	13
21	Working for a company which is respected & well regarded by the general public	1.78	21	32
22	Having stimulating and challenging work	1.82	22	24
23	Having a good physical environment, ergonomic working conditions	1.88	23	22
24	Having an objective performance appraisal scheme	1.91	24	38
25	Having the opportunity to be creative	1.92	25	25
26	Having effective communication systems	1.95	26	18
27	Having good communication & coordination with other departments	1.96	27	35
28	Having recognition & reward schemes	1.97	28	37
29	Having effective disciplinary procedures	1.97	29	41
30	Being consulted about changes	1.98	30	17
31	Having good industrial relations	2.05	31	15
32	Having a housing loan scheme	2.08	32	39
33	Having good vacation & leave arrangements	2.13	33	14
34	Working for a company that does valuable community work	2.13	34	26
35	Having variety in the job	2.13	35	34
36	Working for a company that encourages you to do good community work	2.2	36	27
37	Having influence on what happens in the company you work for	2.24	37	29
38	Having good canteen services	2.26	38	40
39	Having a Joint Labour Committee (JLC)	2.29	39	16
40	Having a good saving scheme	2.33	40	28
41	Having good sports & social activities	2.67	41	36
	Overall mean Score	1.86		

Table 22 also ranks the employees' perception along with the GPIC management's ranking for each of the 41 aspects of work with respect to any job in general. This was essentially a test of objectivity. The degree of convergence in the management's and employee's perceptions is noteworthy. As many as 15 aspects of work according to the GPIC management ranking, were also ranked by employees in their top 20 aspects.

The survey revealed that the overall average importance of the 41 variables was 82.3% which is relatively high. The scores for the 41 variables were classified into the three core elements of the study as follows.

Summary of Survey Results according to three core elements

Category	Importance	Average mean score
Creativity	90.8%	1.68
Motivation	75.3%	2.20
Culture	83.2%	1.84
Overall Average	82.3%	1.86

With a view to maintaining focus on the six categories within the three core elements, creativity, motivation and organisational culture, a factor analysis was conducted by classifying the scores.

Creativity

Creativity has a large impact on the growth and success of an organisation and from the summary of survey results it is evident that GPIC employees perceived it to be the most important element. It enables the organisation to be more effective, efficient and productive. In this thesis, the creativity is divided into two categories, namely

“Working Conditions” and “Quality” as shown above. Furthermore, Working Conditions was perceived to be important by an average of 91.1% of the respondents (average mean score: 1.73) whereas Quality was perceived to be important by an average of 89.5% (average mean score 1.63).

According to the Working Conditions category, “Having a secure job” was perceived to be the most important element by 96% of the respondents. This was followed by “Having good relations with immediate boss and subordinates” (95%), “Having good relations with peers – the people you work with” (95%) and “Having good working relationships between employees and management” (95%) as can be seen from Table 23.

Table 23

Ranking in terms of importance in the Working Conditions category

No.*	Aspects of the Job	Importance
2	Having a secure job	96%
30	Having good relations with your immediate boss and subordinates	95%
31	Having good relations with your peers, the people you work with	95%
33	Having good working relationships between employees & management	95%
4	Good working conditions, your immediate work environment	93%
5	Good team work	92%
6	Having high quality equipment & technology	92%
24	Having stimulating and challenging work	88%
22	Having a good physical environment, ergonomic working conditions	85%
41	Having effective disciplinary procedures	80%

* Indicates Serial No. of Job Aspect from original list - Table 14

According to the Quality category, “Having high quality products” was perceived to be the most important element by 91% of the respondents. This was followed by “Having high productivity” (88%) as shown in Table 24.

Table 24
Ranking in terms of importance in the Quality category

No.*	Aspects of the Job	Importance
11	Having high quality products	91%
9	Having high productivity	88%

* Indicates Serial No. of Job Aspect from original list - Table 14

Motivation

Motivation has a large impact on work improvement and efficiency of an organisation. GPIC employees perceived motivation as relatively low among the three elements, however the average mean score of 2.2 (75.3%) indicates the high degree of importance they attach to this element. It enables the organisation to be more creative and productive. In this thesis, the motivation is divided into two categories, namely “Reward Systems” and “Personal Objectives” as shown above. Furthermore, Reward Systems was perceived to be important by 71.6% of the respondents (average mean score 2.19) whereas Personal Objectives was perceived to be important by 78.9% of the respondents (average mean score 2.21).

According to the Rewards Systems category, “Having fair pay” was perceived to be the most important element by 94% of the respondents. This was followed by “Having an objective performance appraisal scheme” (86%) and “Having good vacation and leave arrangements” (82%) as can be seen from Table 25.

Table 25

Ranking in terms of importance in the Reward Systems category

No.*	Aspects of the Job	Importance
21	Having fair pay	94%
38	Having an objective performance appraisal scheme	86%
14	Having good vacation & leave arrangements	82%
37	Having recognition & reward schemes	77%
40	Having good canteen services	69%
39	Having a housing loans scheme	64%
28	Having a good savings scheme	59%
36	Having good sports & social activities	42%

* Indicates Serial No. of Job Aspect from original list - Table 14

According to the Personal Objectives category, “Getting job satisfaction” was perceived to be the most important element by 96% of the respondents. This was followed by “Feeling highly motivated” (95%) and “Having good promotional and growth opportunities” (91%) as can be seen from Table 26.

Table 26

Ranking in terms of importance in the Personal Objectives category

No.*	Aspects of the Job	Importance
7	Getting job satisfaction	96%
12	Feeling highly motivated	95%
13	Having good promotional & growth opportunities	91%
25	Having the opportunity to be creative	83%
17	Being consulted about changes	79%
34	Having variety in the job	72%
29	Having influence on what happens in the company you work for	67%
3	The opportunities for training & self development	48%

* Indicates Serial No. of Job Aspect from original list - Table 14

Culture

A culture that enables employees to be motivated and creative has a large impact on work improvement and efficiency of an organisation. In this thesis, the culture is divided into two categories, namely “Management Climate” and “Clear Communications” as shown above. Furthermore, Management Climate was perceived to be important by 81.3% of the respondents (average mean score 1.86) whereas Clear Communications was perceived to be important by 87.5% of the respondents (average mean score 1.18).

According to the Management category, “Having effective leadership in the firm” was perceived to be the most important element by 96% of the respondents. This was followed by “Working for a company that is concerned for safety, health and the environment” (94%) and “Having satisfied customers” (91%) as can be seen from Table 27.

Table 27

Ranking in terms of importance in the Management Climate category

No.*	Aspects of the Job	Importance
23	Having effective leadership in the firm	96%
1	Working for a company that is concerned for safety, health & the environment	94%
10	Having satisfied customers	91%
8	An employers who has concern for employee welfare	85%
32	Working for a company which is respected & well regarded by the general public	85%
15	Having good industrial relations	77%
26	Working for a company that does valuable community work	72%
27	Working for a company that encourages you to do good community work	69%
16	Having a Joint Labour Committee (JLC)	63%

* Indicates Serial No. of Job Aspect from original list - Table 14

According to the Clear Communication category, “Having good communication of information from your supervisor” and “Being kept

informed by management about things important to you and your job” perceived to be equally the most important element by 92% of the respondents. This was followed by “Having good communication and co-ordination with other departments” (86%) as shown in Table 28.

Table 28

Ranking in terms of importance in the Clear Communication category

No.*	Aspects of the Job	Importance
19	Having good communication of information from your supervisor	92%
20	Being kept informed by management about things important to you & your job	92%
35	Having good communication & co-ordination with other departments	86%
18	Having effective communication systems	80%

* Indicates Serial No. of Job Aspect from original list - Table 14

Work Satisfaction

The survey also sought to assess the degree of satisfaction of employees with regard to each of the 41 aspects of work in so far as their employment with GPIC was concerned. Here again, the degree of satisfaction for each aspect of work was graded on a five point scale as follows:

* Score	Indicator
1	Very good
2	Good
3	Average
4	Satisfactory
5	Unsatisfactory

* A lower average score indicates higher importance.

Table 29 lists the mean scores and ranks the priorities with respect to the 41 items in order of job satisfaction derived by individual employees surveyed with specific respect to their employment with GPIC.

Table 29
Items in Questionnaire ranked in terms of Job Satisfaction in GPIC
as perceived by employees

Serial No.	Aspects of the Job	Employees' job satisfaction	
		Mean Score	Ranking
1	Working for a company that is concerned for safety, health & the environment	1.14	1
2	Having a secure job	1.7	10
3	Having good relations with your immediate boss and subordinates	1.76	15
4	Having high quality products	1.27	2
5	Getting job satisfaction	1.97	23
6	Having effective leadership in the firm	1.72	13
7	Feeling highly motivated	2.05	25
8	Having good relations with your peers, the people you work with	1.8	16
9	Having good working relationships between employees & management	1.48	6
10	Having fair pay	2.13	31
11	Having high quality equipment & technology	1.42	5
12	Good team work	1.48	7
13	Having satisfied customers	1.66	9
14	The opportunities for training & self development	1.97	22
15	Having high productivity	1.98	24
16	Having good communication of information from your supervisor	1.35	3
17	An employer who has concern for employee welfare	2.55	38
18	Good working conditions, your immediate work environment	1.7	11
19	Being kept informed by management about things important to you & your job	2.2	33
20	Having good promotion & growth opportunities	2.66	40
21	Working for a company which is respected & well regarded by the general public	1.35	4
22	Having stimulating and challenging work	2.05	26
23	Having a good physical environment, ergonomic working conditions	1.7	11
24	Having an objective performance appraisal scheme	2.51	37
25	Having the opportunity to be creative	2.15	32
26	Having effective communication systems	1.8	16
27	Having good communication & coordination with other departments	1.89	20
28	Having recognition & reward schemes	2.09	29
29	Having effective disciplinary procedures	2.21	35
30	Being consulted about changes	2.55	38
31	Having good industrial relations	1.71	12
32	Having a housing loan scheme	2.59	39
33	Having good vacation & leave arrangements	2.12	30
34	Working for a company that does valuable community work	1.55	8
35	Having variety in the job	1.88	19
36	Working for a company that encourages you to do good community work	2.07	28
37	Having influence on what happens in the company you work for	2.41	36
38	Having good canteen services	2.2	34
39	Having a Joint Labour Committee (JLC)	2.76	41
40	Having a good savings scheme	1.99	25
41	Having good sports & social activities	1.89	21
Overall mean Score		1.94	

Survey results revealed that the overall average job satisfaction with respect to the 41 variables is 78.5%. This percentage is relatively high. It also shows that “Creativity” is perceived by GPIC employees to be the most satisfactory category to them followed by “Organisational Culture” and then “Motivation”.

Summary of Survey Results according to Job Satisfaction in GPIC

Category	Job Satisfaction	Average mean score
Creativity	88.3%	1.71
Motivation	68.5%	2.20
Culture	81.8%	1.83
Overall Average	78.5%	1.94

Creativity

In this section, Creativity with its two categories, namely “Working Conditions” and “Quality” are examined from a satisfaction point of view. Working Conditions was perceived to be very satisfactory by 86.3% of the respondents (average mean score 1.73) whereas Quality was perceived to be very satisfactory by 98% of the respondents (average mean score 1.63).

According to the Working Conditions category, “The quality of equipment and technology” was perceived to be the most satisfactory element by 96% of the respondents. This was followed by “The working conditions, your immediate work environment” (94%) and “The quality of your relations with your peers, the people you work with” (92%) as can be seen from Table 30.

Table 30
Ranking in terms Job Satisfaction in the Working Conditions category

No.*	Aspects of the Job	Job Satisfaction	Mean Score
6	The quality of equipment & technology	96%	1.42
4	The working conditions, your immediate work environment	94%	1.7
31	The quality of your relations with your peers, the people you work with	92%	1.8
5	Team work	89%	1.48
22	The quality of the physical environment, ergonomic working conditions	89%	1.7
2	The security of your job	86%	1.7
33	The quality of working relationships between employees & management	86%	1.48
30	The quality of your relations with your immediate boss and subordinates	83%	1.76
24	The extent to which the work is stimulating and challenging	78%	2.05
41	The effectiveness of the disciplinary procedures	70%	2.21

* Indicates Serial No. of Job Aspect from original list - Table 14

According to the Quality category, “The level of productivity” was perceived to be the most satisfactory element by 99% of the respondents. This was followed by “The quality of the products” (97%) as summarised in Table 31.

Table 31
Ranking in terms Job Satisfaction in the Quality category

No.*	Aspects of the Job	Job Satisfaction	Mean Score
9	The level of productivity	99%	1.98
11	The quality of the products	97%	1.27

* Indicates Serial No. of Job Aspect from original list - Table 14

Motivation

In this section, Motivation with its two categories, namely “Rewards System” and “Personal Objectives” are examined from a satisfaction point of view. Rewards System was perceived to be very satisfactory by

67% of the respondents (average mean score 2.19) whereas Personal Objectives was perceived to be very satisfactory by 70% (average mean score 2.21).

According to the Rewards System category, “The vacation and leave arrangements” was perceived to be the most satisfactory element by 84% of the respondents. This was followed by “The quality of the sports and social activities” (82%) and “The savings scheme” (76%) as can be seen in Table 32.

Table 32

Ranking in terms Job Satisfaction in the Rewards System category

No.*	Aspects of the Job	Job Satisfaction	Mean Score
14	The vacation & leave arrangements	84%	2.12
36	The quality of the sports & social activities	82%	1.86
28	The savings scheme	76%	1.99
21	The fairness of your pay	72%	2.13
37	The recognition & reward schemes at GPIC	71%	2.09
38	The objectivity of the performance appraisal scheme	57%	2.51
39	The quality of the housing loans scheme	51%	2.59
40	The quality of the canteen services	43%	2.2

* Indicates Serial No. of Job Aspect from original list - Table 14

According to the Personal Objectives category, “The job satisfaction you get” and “The level of motivation” were perceived to be the most satisfactory elements by 82% of the respondents. This was followed by “The opportunities for training and self development” (81%) and “The variety in the job” (71%) as shown in Table 33.

Table 33

Ranking in terms Job Satisfaction in the Personal Objectives category

No.*	Aspects of the Job	Job Satisfaction	Mean Score
7	The job satisfaction you get	82%	1.97
12	The level of motivation	82%	2.05
3	The opportunities for training & self development	81%	1.97
34	The variety in the job	71%	1.88
25	The opportunities you have to be creative	69%	2.15
29	The degree of influence you have on what happens in GPIC	62%	2.41
17	The extent to which you are consulted about changes	59%	2.55
13	The promotional & growth opportunities	54%	2.66

* Indicates Serial No. of Job Aspect from original list - Table 14

Culture

In this section, Organisational Culture with its two categories, namely “Management Climate” and “Clear Communications” are examined from a satisfaction point of view. Management Climate was perceived to be very satisfactory by 83.4% of the respondents (average mean score 1.83) whereas Clear Communications was perceived to be very satisfactory by 78% (average mean score 1.81).

According to the Management Climate category, “GPIC is concerned for safety, health and the environment” was perceived to be the most satisfactory element by 97% of the respondents. This was followed by “Customer satisfaction” (95%) and “The extent to which GPIC is respected and well regarded by the general public” (93%) as can be seen from Table 34.

Table 34
Ranking in terms Job Satisfaction in the
Management Climate category

No.*	Aspects of the Job	Job Satisfaction	Mean Score
1	GPIC is concerned with safety, health & the environment	97%	1.14
10	Customer satisfaction	95%	1.66
32	The extent to which GPIC is respected & well regarded by the general public	93%	1.35
26	The community work that GPIC does	90%	1.55
15	The quality industrial relations	87%	1.71
23	The effectiveness of the leadership in GPIC	86%	1.72
8	GPIC's concern for employees' welfare	81%	2.55
27	The extent to which GPIC encourages you to do good community work	77%	2.07
16	The Joint Labour Committee (JLC)	45%	2.76

* Indicates Serial No. of Job Aspect from original list - Table 14

According to the Clear Communications category, “The effectiveness of communications systems” was perceived to be the most satisfactory element by 86% of the respondents. This was followed by “The quality of communication and co-ordination with other departments” (82%) and “The communication of information from your supervisor” (75%) as can be seen from Table 35.

Table 35
Ranking in terms Job Satisfaction in the
Clear Communications category

No.*	Aspects of the Job	Job Satisfaction	Mean Score
18	The effectiveness of communications systems	86%	1.8
35	The quality of communication & co-ordination with other departments	82%	1.89
19	The communication of information from your supervisor	75%	1.35
20	The extent to which you are kept informed by management about things important to you & your job	69%	2.2

* Indicates Serial No. of Job Aspect from original list - Table 14

Summary

The job aspects, which were found most satisfying by GPIC employees, are not restricted to a single narrow area. There is also satisfaction with the way the company is regarded and evaluated by the public. It is noted that satisfaction is high in the region of GPIC's core business. These include health, safety and the environment, productivity, product quality, customer satisfaction, the quality of the equipment and technology and the work environment. The second highest areas indicate satisfaction with the human relations aspects of management such as leadership and management, boss-subordinate relationships and peer relationships. The third highest areas, whilst an important part of the work context, are not central to GPIC's business activities and contain activities such as housing loan schemes and Joint Labour Committee.

The data obtained in respect of two sets of assessments, namely the importance of each of 41 items to the employees' with reference to a job in general as compared to work satisfaction in their job with GPIC, were collated in Table 36 along with the perspective of GPIC management, to enable a comprehensive comparison.

Table 36
Items in Questionnaire ranked in terms of job importance and job satisfaction as perceived by employees

Serial No.	Aspects of the Job	Employees Rankin Job in General		Employee Ranking Job in GPIC		Management's Ranking
		Mean Score	Ranking	Mean Score	Ranking	
1	Working for a company that is concerned for safety, health & t environment	1.42	1	1.14	1	1
2	Having a secure job	1.46	2	1.7	10	2
3	Having good relations with your immediate boss and subordinates	1.56	3	1.76	15	30
4	Having high quality products	1.58	4	1.27	2	11
5	Getting job satisfaction	1.59	5	1.97	23	7
6	Having effective leadership in the firm	1.59	6	1.72	13	23
7	Feeling highly motivated	1.61	7	2.05	25	12
8	Having good relations with your peers, the people you work with	1.62	8	1.8	16	31
9	Having good working relationships between employees & management	1.62	9	1.48	6	33
10	Having fair pay	1.63	10	2.13	31	21
11	Having high quality equipment & technology	1.67	11	1.42	5	6
12	Good team work	1.7	12	1.48	7	5
13	Having satisfied customers	1.7	13	1.66	9	10
14	The opportunities for training & self development	1.71	14	1.97	22	3
15	Having high productivity	1.71	15	1.98	24	9
16	Having good communication of information from your supervisor	1.71	16	1.35	3	19
17	An employer who has concern for employee welfare	1.72	17	2.55	38	8
18	Good working conditions, your immediate work environment	1.73	18	1.7	11	4
19	Being kept informed by management about things important to your & your job	1.73	19	2.2	33	20
20	Having good promotion & growth opportunities	1.75	20	2.66	40	13
21	Working for a company which is respected & well regarded by the general public	1.78	21	1.35	4	32
22	Having stimulating and challenging work	1.82	22	2.05	26	24
23	Having a good physical environment, ergonomic working conditions	1.88	23	1.7	11	22
24	Having an objective performance appraisal scheme	1.91	24	2.51	37	38
25	Having the opportunity to be creative	1.92	25	2.15	32	25
26	Having effective communication systems	1.95	26	1.8	16	18
27	Having good communication & coordination with other departments	1.96	27	1.89	20	35
28	Having recognition & reward schemes	1.97	28	2.09	29	37
29	Having effective disciplinary procedures	1.97	29	2.21	35	41
30	Being consulted about changes	1.98	30	2.55	38	17
31	Having good industrial relations	2.05	31	1.71	12	15
32	Having a housing loan scheme	2.08	32	2.59	39	39
33	Having good vacation & leave arrangements	2.13	33	2.12	30	14
34	Working for a company that does valuable community work	2.13	34	1.55	8	26
35	Having variety in the job	2.13	35	1.88	19	34
36	Working for a company that encourages you to do good community work	2.2	36	2.07	28	27
37	Having influence on what happens in the company you work for	2.24	37	2.41	36	29
38	Having good canteen services	2.26	38	2.2	34	40
39	Having a Joint Labour Committee (JLC)	2.29	39	2.76	41	16
40	Having a good savings scheme	2.33	40	1.99	25	28
41	Having good sports & social activities	2.67	41	1.89	21	36

Analysis of data derived from the two sets of assessments in the Attitude Survey

a. *Importance to employees*

Table 22 reveals that all of the 41 job aspects were important for almost all employees. The highest average rating of 1.42 is between "Absolutely top priority" and "Very important".

The other interesting findings whilst considering the top ranked 15 items in the table were:

- i. Of primary importance is working for an employer who is concerned with safety, health and the environment, and who provides security of employment.
 - ii. It is of great importance to be working for a company where both product quality and productivity are high and equipment and technology are of a high quality.
 - iii. Human resource management is considered to be of great importance. Emphasis was placed on having good management and good boss-subordinate relationships; effective leadership; good team work; motivation and job satisfaction; having good relationships within the work group; having good opportunities for training and self development; and having good communications with superiors.
 - iv Having fair pay is considered to be important but not as important as some of the other job aspects.
-

- v Importance is placed on having customers who are satisfied with the product and service they receive.

In summary, the job aspects which are of prime importance to employees are not restricted to a single narrow area. Importance is placed on having a caring and concerned employer, being in a company with high standards of technology, with quality and high productivity, having good relationships with both management and peers and having opportunities for self development and a fair level of pay.

Further, if we look at the 11 least important aspects, with a rating ranging from 2.05 to 2.67 (i.e. between very important and fairly important) in general these are aspects which are perhaps more peripheral to the central core of working environment of GPIC than those which appeared in the top 15 items. These aspects fall in the following groups:

- i. Industrial relations and the Joint Labour Committee (JLC)
- ii Canteen and sports facilities.
- iii Loans and saving schemes.
- iv The remainder do not form a consistent group, i.e. the encouragement of community work, interdepartmental coordination and communication, having an influence on what happens in the company, and variety in the job.

The middle range in terms of importance (average ratings between 1.71 and 1.98 in the 'very important' category) comprises the following groups of job aspects:

- i Effective communication, consultation and information from superiors.
- ii Recognition, rewards and promotion opportunities and a good appraisal scheme.
- iii Stimulating and challenging work.
- iv Physical environment and ergonomic working conditions.
- v Working for a company that is well respected, is involved in community work and is concerned with employee welfare.
- vi Opportunities for creativity.
- vii Effective disciplinary procedures.

These middle range items are a mixture and include some motivational factors which were found in the most important group and some other factors found in the group of less important items.

b. *Job Satisfaction*

Table 29 also shows that job satisfaction with employment in GPIC is relatively high in all of the elements. The highest rating is 1.14 indicating 'very good', whilst the lowest is 2.76 indicating a score between 'good' and 'average'.

The table shows that there was the greatest degree of job satisfaction with GPIC in terms of the following:

- i. The company's concern for safety, health, the environment and welfare.
 - ii. Quality of the product, productivity and customer satisfaction.
 - iii. The way the company is regarded by the general public.
-

- iv. Job security.
- v. The quality of equipment, technology and working conditions.
- vi. Industrial relations.
- vii. The quality of working relations between employee and management, boss and subordinate and within the work group.
- viii. The quality of leadership and teamwork.

There is, therefore, a high degree of satisfaction with the company as an employer, with job security, all aspects of interpersonal and industrial relations, leadership and teamwork, the equipment and environment and the quality of the products. There is also satisfaction with the way the company is regarded and evaluated by the public. It is an important result that satisfaction is highest in those aspects that are central to GPIC's core business. These include health, safety and the environment, productivity, product quality, customer satisfaction, the quality of equipment and technology and the work environment.

The second highest areas indicate satisfaction with the human relations aspects of management. These include leadership and management, boss-subordinate relationships, peer relationships, teamwork and communications.

Satisfaction was lowest (but still between 'good' and 'average') in areas which, whilst an important part of the work context, are not central to GPIC's business activities. These include the housing loan scheme, the Joint Labour Committee, the canteen service and community work.

Awareness of Attitudes towards GPIC Reward System

When the summary results of the job satisfaction survey are reviewed with respect to the three elements of creativity, motivation and organisational culture, the element of motivation was accorded the lowest satisfaction level (68.5%) amongst the three elements. The researcher deemed it appropriate to analyse responses related to specific schemes initiated by GPIC management under the umbrella of a 'Reward System' to motivate their employees to improve performance and be creative in their work.

In general the majority of the employees were in agreement with the concept of a 'Reward System in GPIC as can be seen from Table 37.

Table 37
Perception of GPIC employees to systems that use
encouragement and reward (in comparison to punishment)
to assist people to improve their performance at GPIC

A Good idea	97 (87%)
Not important	13 (12%)
A Bad idea	-
Not indicated	2 (1%)

Individual schemes were also analysed and the results have been tabulated in Tables 38 to 58.

The Early Bird Scheme (EBS)

Table 38

Awareness of GPIC employees of the
Early Bird Scheme (EBS) at GPIC

GPIC employees heard of the Early Bird Scheme at GPIC:	Frequency (%)
Yes	102 (91%)
No	10 (9%)
Not indicated	-

The great majority of employees were aware of the Early Bird Scheme, which rewards employees who maintain a consistently good time keeping record. This scheme has ensured that employees make a conscious effort to arrive at work on time. This good attendance by the entire staff has had a positive impact on productivity.

Attitudes to the Early Bird Scheme are shown in Tables 39 and 40

Table 39
Perception of GPIC employees as to the nature
of the Early Bird Scheme (EBS) at GPIC

GPIC employees believed that the <u>recognition system</u> (EBS) at GPIC is based on:	Frequency (%)
Encouragement	109 (97%)
Punishment	1 (1%)
Not indicated	2 (2%)

Table 40
What do GPIC employees think of EBS at GPIC?

GPIC employees think that EBS is:	Frequency (%)
An excellent way of encouraging people	44 (39%)
A good way of encouraging people	57 (51%)
Not a good way to encourage/improve performance	9 (8%)
Not indicated	2 (2%)

These tables show the Early Bird Scheme is perceived as based on encouragement and the majority regard it as a good way of encouraging people.

Employee of the Month Scheme

Table 41 shows awareness of the Employee of the Month Scheme.

Table 41
Awareness of GPIC employees of the Employee
of the Month Scheme (EMS) at GPIC

GPIC employees heard of the Employee of the Month Scheme at GPIC:	Frequency (%)
Yes	111 (99%)
No	1 (1%)
Not indicated	-

Virtually all employees were aware of this scheme.

Table 42 shows employees' evaluation of the EMS

Table 42

GPIC employees believe of EMS at GPIC

An excellent way of appreciating and motivating people.	60 (53%)
A good way of appreciating and motivating people.	47 (42%)
Not a good way of appreciating and motivating people.	5 (5%)
Not indicated.	-

Attitudes to the scheme are positive and only 5% have a negative view of it.

Table 43

Perception of GPIC employees of criteria for EMS at GPIC

GPIC employees think that EMS is based on:	Frequency (%)
Being nice	8 (7%)
Hard work	50 (45%)
Brilliant idea	20 (18%)
Outstanding achievement	34 (30%)
Not indicated	-

The criteria mentioned most frequently were hard work and achievement; having good ideas was mentioned less frequently. The rather negative category of 'being nice' was mentioned infrequently as shown in Table 43.

On-the-Spot 'Thank You' Letters

Table 44
GPIC employees' awareness of awarding on-the-spot
'Thank You' letters or Certificates of Appreciation at GPIC

Awareness	Frequency (%)
Yes	103 (92%)
No	9 (8%)
Not indicated	-

The great majority of employees are aware of the on-the-spot scheme as summarised in Table 44.

Table 45
GPIC employees' opinion of 'On-the-Spot Recognition' at GPIC

GPIC employees think that 'on-the-spot recognition' is:	Frequency (%)
An excellent way of demonstrating appreciation to people	70 (62%)
A good way of demonstrating appreciation to people	36 (32%)
Not a good way of demonstrating appreciation to people	2 (2%)
Not indicated.	4 (4%)

Table 45 shows that ninety four percent of employees considered it as a good way of showing appreciation.

Only 2% of employees expressed that this award system was not a good way of demonstrating appreciation to people.

Table 46 shows that forty six percent of employees reported that they had received on-the-spot letters or certificate. This suggests that the scheme has had a high degree of penetration.

Table 46
Measures of utilisation of On-the-Spot Recognition

GPIC employees received on-the-spot recognition certificates or letters:	Frequency (%)
Yes	51 (46%)
No	61 (54%)
Not indicated	-

Six questions were asked to determine knowledge and evaluation of the Suggestion Scheme. The responses to these questions are shown in Tables 47 to 52.

Table 47
GPIC employees' awareness of the Suggestion Scheme (SS) at GPIC

GPIC employees heard of the Suggestion Scheme at GPIC	Frequency (%)
Yes	111 (99%)
No	1 (1%)
Not indicated	-

Table 48
GPIC employees' knowledge of the chairman of the Suggestion Scheme at GPIC

GPIC employees know who the chairman of the Suggestion Scheme at GPIC is:	Frequency (%)
Yes	74 (66%)
No	38 (34%)
Not indicated	-

Table 49
Awareness of GPIC employees of the name of the Chairman of the Suggestion Scheme at GPIC

GPIC employees knew the name of the chairman of the Suggestion Scheme at GPIC	Frequency (%)
Yes	69 (62%)
No	43 (38%)
Not indicated	-

Table 50
GPIC employees' evaluation of the Suggestion Scheme
at GPIC

GPIC employees think that the Suggestion Scheme is:	Frequency (%)
An excellent way to obtain people's ideas	77 (69%)
A good way to obtain people's ideas	34 (30%)
Not a good way to obtain people's ideas	-
Not indicated	1 (1%)

Table 51
GPIC employees' participation in the Suggestion Scheme
at GPIC

GPIC employees who participated in the Suggestion Scheme :	Frequency (%)
Yes	59 (53%)
No	53 (46%)
Not indicated	-
Not indicated	1 (1%)

Table 52
Implementation of GPIC employees' ideas through the
Suggestion Scheme

GPIC employees whose ideas were implemented through the Suggestion Scheme:	Frequency (%)
Yes	40 (36%)
No	70 (61%)
Not indicated	2 (2%)

Tables 47 to 52 show the following results:

- Virtually all employees know about the scheme.
- Two thirds of employees knew the name of the chairman of the scheme.
- The scheme was evaluated very highly; all employees evaluated it as either excellent or good.

- Participation in the scheme was very high: 53% reported that they had put a suggestion forward and 36% that they had had a suggestion implemented.

In summary, all employees are aware of the Suggestion Scheme (as elaborated in Chapter Six). It is evaluated very positively and a very high proportion of employees have put suggestions forward and have had them implemented.

The Quality System

Tables 53 to 55 show the responses to the questions concerned with the quality scheme.

Table 53
Awareness of GPIC employees about the Quality System
(ISO 9002) at GPIC

GPIC employees are aware of ISO 9002:	Frequency (%)
No, know nothing about it	7 (6%)
Yes, know about it	105 (94%)
Not indicated	-

Table 54
Involvement of GPIC employees in the Quality System
(ISO 9002) at GPIC

GPIC employees were involved in ISO 9002	Frequency (%)
No, not personally	26 (23%)
Yes, a little	45 (40%)
Yes, very much	39 (35%)
Not indicated	2 (2%)

Table 55
Perception of GPIC employees of ISO 9002 at GPIC

GPIC employees feel that ISO 9002 led to:	Frequency (%)
Very big improvements	53 (46%)
Some improvements	51 (46%)
No particular improvements	4 (4%)
Not indicated	4 (4%)

These tables show that almost all employees (94%) were aware of the quality system. However, 23% reported that they had not been personally involved in it.

With respect to evaluation of the system, 46% felt that it had led to big improvements and another 46% felt that it had led to some improvements. Only 4% considered that there had been no particular improvements.

The Joint Labour Committee (JLC)

Two questions were asked concerning the JLC. The responses to the questions are shown in Tables 56 and 57.

Table 56
GPIC employees' perception of the effectiveness of the JLC at GPIC

GPIC employees feel that the JLC facilitate communication between management and employees:	Frequency (%)
Very effectively	9 (8%)
Effectively	32 (28%)
Satisfactorily	51 (46%)
Unsatisfactorily	18 (16%)
Not indicated	2 (2%)

Table 57
GPIC employees' rating of the work that the JLC
does for employees at GPIC

GPIC employees rate the work done by the JLC at GPIC for employees as:	Frequency (%)
Excellent	12 (11%)
Good	39 (34%)
Satisfactory	45 (40%)
Unsatisfactory	14 (13%)
Not indicated	2 (2%)

These tables show that 45% of employees see the JLC as performing satisfactorily as a vehicle of communication between management and employees. Thirty six percent saw it as effective or very effective, and only 16% rated it as unsatisfactory.

In terms of the work done by the JLC for employees, 40% saw it as satisfactory and 46% as good or excellent. Only 13% rated it as unsatisfactory.

Summary of Attitude Survey

After surveying the response of employees to job satisfaction under individual aspects of work, the data was collated to assess its impact on the three elements that form the CORE of the study, namely Creativity, Motivation and Organisational Culture.

The collated results have been tabulated in Table 58.

Table 58

JOB ASPECTS		MEAN SCORES		
		by Job Aspect	by Component	Average
CREATIVITY Working Conditions	having a secure job	1.70		
	good immediate working environment	1.70		
	good team work	1.48		
	having high quality equipment and technology	1.42		
	good physical environment and ergonomic working conditions	1.70		
	stimulating and challenging work	2.05		
	good relations with boss and subordinates	1.76		
	good relations with peers	1.80		
	good relations between employees and management	1.48		
	having effective disciplinary procedures	2.21	1.73	
Quality	high productivity	1.98		
	high quality products	1.27	1.63	<u>1.68</u>
MOTIVATION Rewards System	good vacation and leave arrangements	2.12		
	having fair pay	2.13		
	good saving scheme	1.99		
	good sports and social activities	1.89		
	recognition and rewards scheme	2.09		
	objective performance appraisal scheme	2.51		
	housing scheme	2.59		
	good canteen services	2.20	2.19	
Personal Objectives	opportunities for training and self development	1.97		
	getting job satisfaction	1.97		
	feeling highly motivated	2.05		
	feeling highly motivated	2.66		
	good promotion and growth opportunities	2.55		
	being consulted about changes	2.15		
	opportunity to be creative	2.41		
	influence on what happens in the company you work for	1.88	2.21	<u>2.20</u>
	having variety in the job			
CULTURE Management Climate	working for a company that cares about safety, health and environment	1.14		
	employer who is concerned with employee welfare	2.55		
	having satisfied customers	1.66		
	having good industrial relations	1.71		
	having a JLC	2.76		
	having effective leadership in the firm	1.98		
	company that does valuable community work	1.55		
	company that encourages community work by employees.	2.07		
	company that is well respected and regarded in the community	1.35	1.86	
Clear Communication	having effective communication systems	1.80		
	good communication from supervisor	1.35		
	kept informed by management about things important to your job	2.20		
	good communication and coordination with other departments	1.89		
			1.18	<u>1.84</u>

The salient conclusions that can be drawn from Table 58 are as follows:

(a) CREATIVITY

Job satisfaction rating for ten out of twelve components in this category carries a mean score below 2 and the overall mean score for all twelve components is 1.68, which indicates 'very good' to 'good'. This is indicative of the appropriate working conditions being prevalent in GPIC as well as the adequate emphasis placed on quality and productivity, both of which are conducive to a positive organisation culture.

(b) MOTIVATION

The overall mean score for the 16 components in this category stands at 2.20, which indicates a ranking between 'good' and 'average'.

Satisfaction was found to be relatively lower in areas which management considered important, but not central to GPIC's business activities. This, more than anything else, underlines Maslow's Theory of Hierarchy of Needs. It also underlines the fact that it is not enough only to have the best salary or emolument structure to motivate employees; a positive work environment and organisation culture can gear employees to be creative, innovative and lead to an organisation's success.

(c) CULTURE

The overall mean average score of 1.86 for the perception of the management and 1.18 for the communication style, indicate that

the employees rank both these aspects between 'very good' and 'good'.

This is indicative of employee satisfaction with GPIC as an employer in all aspects, ranging from leadership, teamwork, industrial relationship to an effective communication system between the employee and immediate supervisors, as well as amongst management and between interfacing departments.

It is a positive culture such as this that nurtures an environment that breeds creativity, leads to innovation in seeking solutions and ultimately determines the most important factor in the success of the organisation.

B. ORGANISATIONAL CULTURE SURVEY

The Attitude Survey conducted by the researcher was intended to assess the employee morale, attitude and job satisfaction within GPIC. The researcher felt that this concept could be further developed by undertaking an additional survey to gauge the extent of and impact on the organisation culture.

Initially, the researcher's objective was to assess the level of employee job satisfaction as a means of creating the appropriate climate and work environment which were conducive to creativity and motivation. Subsequently, the researcher decided to expand the scope of the survey to include assessment of the impact of measures taken by management to improve job satisfaction with a view to changing the organisational culture for the better.

For the purpose of the survey, organisational culture was defined by the researcher as a set of behavioural variables, such as values, beliefs and principles that serve as a foundation for an organisation's management system. These management principles and practices endure because they have meaning for the employees of an organisation.

The objective was to gauge how employees perceived key factors of organisational culture change over a period of time. Initially, the researcher attempted to determine the change in culture over the two distinct phases - pre-commissioning stage (i.e. period prior to 1987) and the period 1988-1997. The researcher then decided to add a third phase to determine the employees' perception of their desired change in the organisational culture covering the same factors.

This section reviews the analysis arising from the results of the second survey relating to the corporate culture prevailing during the two distinct phases of GPIC's development. It aims to elaborate on some of the ideas concerning creativity, motivation and organisational culture, and their impact within the general framework of the overall management of the organisation. It also explores how these concepts are related to the productivity and success of the company. Understanding these factors will contribute to the management strategy to enhance these areas of corporate behaviour and the company performance in the future.

In order to keep the two distinct phases in perspective it is necessary that the unique background of GPIC should be considered, particularly the fact that GPIC faced difficult situations right from its inception. There were a number of reasons why GPIC required a special human

resource management approach in order to improve its position. (These were elaborated in Chapter Three in greater detail.) Essentially, these reasons included:

- market prices of the GPIC products were very low at the time of commissioning of the complex and remained low for the next few years.
- GPIC had financial difficulties meeting its loan repayment commitments due to high capital borrowing and financing charges.
- there was a shortage of local manpower with the relevant expertise and technical experience necessitating the employment of expatriate staff through a contractor.
- manpower costs were high because they were based on contract services instead of standard employment arrangements.
- the staff had divided loyalties (towards the contractor and towards GPIC) and accordingly not all decisions were necessarily taken in the best interests of GPIC.

This survey analyses the culture that prevailed prior to 1987, as against the culture that was created during the period 1987-1997 in order to face the above challenges. It will become clear that great emphasis was placed on a number of key organisational aspects, such as creativity, motivation and organisational culture.

According to Michael Armstrong in his book 'A Handbook of Personnel Management Practice', organisational culture can be described as a set of values which influence or are influenced by the organisational climate. The values, in turn, are referred to as beliefs in what is good for the organisation and what sort of behaviour is desirable. These values need not be articulated and implicit values can be deeply imbedded in the culture of an organisation. A set of values can be translated into reality through norms (unwritten informal rules of behaviour) and artefacts that are visible and tangible aspects of an organisation which people hear, see or feel. Armstrong enumerated several attributes that comprise the set of values:

1. creativity and innovation
2. enterprise
3. productivity
4. excellence
5. teamwork
6. care and consideration for people
7. equity in treatment of employees
8. equal opportunity
9. quality
10. social responsibility
11. care for customers
12. competitiveness and growth
13. managing diversity
14. priorities between people and organisational needs

The above list of values served the researcher to draw up a list of eight attributes which in the researcher's judgement, could best reflect facets of GPIC's culture:

1. creativity and innovation
2. enterprise
3. performance
4. work values
5. care and consideration for employees
6. teamwork
7. excellence
8. loyalty

Organisational Culture Survey

As was done for the Attitude Survey, the researcher set about developing the research design by identifying the most important attributes that were relevant to an organisational culture in general and GPIC in particular. Key factors/elements that affected the staff behaviour and impacted upon the organisational culture were grouped under the eight attributes. Under each of the eight attributes responses were sought to five questions:

1. Creativity and Innovation
 - a. Does GPIC place more emphasis on 'creativity and innovation' than on 'rules and regulations'?
 - b. Are the tasks requested of the employees based on power and authority resulting from empowerment?
 - c. For an employee to succeed, does GPIC require 'initiative' rather than commitment to rules and formal procedures?
 - d. Does GPIC have rules and regulations in place to govern most situations?
 - e. Does GPIC reward creative ability to improve performance?
-

2. Enterprise

- a. Does success in achieving the task depend more on preplanning than responding to events when they occur?
- b. Does the organisational atmosphere emphasise preplanning more than accepting the present situation?
- c. Are the staff more concerned about planning for the future than about resolving present issues?
- d. Are tasks at GPIC accurately defined, thus permitting only a few events that are unexpected ?
- e. Does GPIC adequately focus on achieving long-term objectives?

3. Performance

- a. Do managers in GPIC provide detailed information as to how to achieve objectives, more than permitting employees to determine how to achieve objectives?
- b. Does the organisational culture focus on quality rather than quantity of work?
- c. Does success in GPIC require distinguished performance more than building good relations with the power figures?
- d. Does GPIC continuously encourage its staff to persist in raising their levels of performance.
- e. Does GPIC staff show more enthusiasm and excellence in work performance?

4. Work Values

- a. Do all employees in GPIC follow the same set of work values?
 - b. Is it expected from employees to discuss issues with their bosses if their views differ?
-

- c. Do GPIC staff believe time spent to reach collective decisions is important time?
- d. Does GPIC encourage its staff working on collective projects?
- e. Are staff concerned about GPIC's success and achievements?

5. Care and Consideration for Employees

- a. Do managers try to enhance social relations with their subordinates?
- b. Do staff in GPIC show care and concern for each other?
- c. Are staff tasks in GPIC determined according to the synchronisation between work requirements and staff capabilities?
- d. Is GPIC management proud of the individual achievements of their employees?
- e. Are tasks determined so that staff know what is expected from them?

6. Team Work

- a. Are relations between task forces in GPIC characterised by cooperation for achieving common objectives?
 - b. Are relations between task forces in GPIC characterised by initiation?
 - c. Does the organisational culture emphasise the staff forming good relations with other team members for success?
 - d. Does GPIC encourage staff to work as a team?
 - e. Does the design of a compensation scheme in GPIC contribute to collective achievements?
-

7. Excellence

- a. Are relations between task forces in GPIC characterised by cooperation and working for common objectives?
- b. Do GPIC staff feel proud working for their company?
- c. Do most staff cooperate with their supervisors in setting challenging objectives?
- d. Are opportunities available for GPIC staff to develop capabilities?
- e. Are distinguished achievements always rewarded in GPIC?

8. Loyalty

- a. Do GPIC employees view positive appraisal from outsiders towards GPIC very important?
- b. Do the long serving staff feel strong loyalty towards GPIC?
- c. Does GPIC show loyalty towards its employees?
- d. Does collective work in GPIC have greater value than individual work?
- e. Does management in GPIC encourage loyalty to the company?

Every person interviewed was asked to respond to each of the 40 questions and their responses were graded on a five point scale as follows:-

<u>Score</u>	<u>Indicators</u>
1	Strongly Agree
2	Agree
3	Not Sure
4	Disagree
5	Strongly Disagree

The responses thus derived were then represented on a percentage basis to enable uniform comparison. In order to evaluate the satisfaction rate, a decision rule was made whereby the responses to each of the questions falling in the categories of 'strongly agree' and 'agree' were combined together.

Further, responses to each of the 40 questions were appropriately grouped under the eight major attributes according to the satisfaction rate. The satisfaction rate for each attribute was derived by calculating the average satisfaction for each of its components.

Lastly, an overall satisfaction rate was also compiled by taking the average satisfaction for all 40 components put together.

It should be noted that as this survey required employees to respond to questions dealing with situations that existed prior to 1987 and the period 1987-1997, out of the total sample of 112 included in the earlier survey, only those 44 staff members whose tenure in GPIC extended over 10 years or more were selected for the second survey. This was necessary to lend more objectivity to the perspective and better credibility to the data based upon which the conclusions were drawn.

Apart from the above aspect of selection of the survey sample, the methodology adopted for conducting this survey was identical to that adopted for the earlier survey.

The Culture Survey Result

The results of the Culture Survey established a clear pattern and strategy of management actions and functions that stimulate

employees and encourage them to act responsibly and effectively. The knowledge gained from this survey is significant in that it reflects a growing commitment by GPIC employees to work harder, more innovatively and in a manner that minimises the perils and threats of negative issues such as complacency and lack of motivation, factors that can have a devastating effect on any organisation's culture of success.

GPIC seems to have taken up this essential challenge. Substantial improvements can be seen from pre-1987 to the existing position. The commitment that has been exercised carefully during the study period years should continue with the essential assistance of a satisfied but highly motivated work force under the direction of a dynamic and effective management structure.

The following in-depth review of the results of this survey illustrates clearly the management strategy and emphasises the cultural development that made the GPIC organisation successful.

1. *Creativity and Innovation*

An organisational culture which encourages employees of all levels to be creative and innovative does a lot to contribute to the survival and success of any organisation. That organisation becomes positive in its own growth and subsequent success.

Figure 52: GPIC Employees Satisfaction Rate with "Creativity and Innovation"

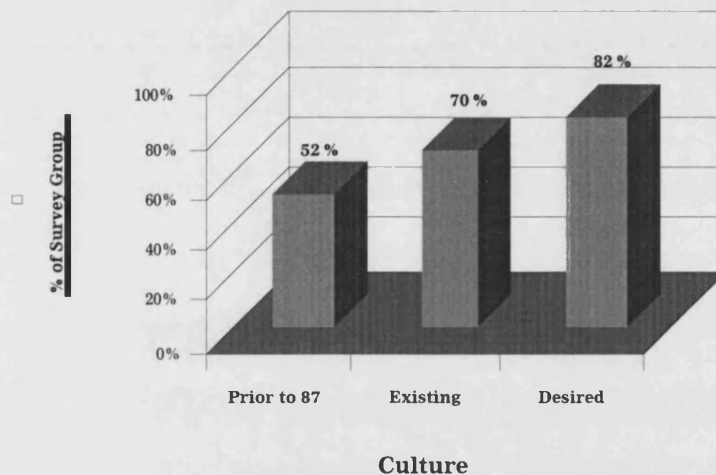


Figure 52 above shows that the satisfaction rate with this attribute - Creativity and Innovation for the existing culture is 70%. This is much higher than the satisfaction rate for the component prior to 1987 (52%).

Hence, one can clearly see that GPIC employees feel the existing culture encourages them to be more creative and innovative than the culture existed prior to 1987. This relatively large improvement has continued in parallel with the success and growth of the organisation during the past decade.

This figure also shows that the satisfaction rate for the desired culture is 82%, which is higher than the satisfaction rate for the existing culture, which leads to the conclusion that GPIC employees feel there is still room for improvement in the areas of the organisational culture and specifically Creativity and Innovation.

How far this expected improvement could lead to greater success and growth of GPIC will depend on whether GPIC can address the situation, by striking an optimum balance between giving a free rein to creativity and empowerment as against a desirable level of adherence to rules and regulations and procedures.

What is clear is that the company has achieved a tremendous amount of success and growth. During this period of time, GPIC employees have felt that the culture in their organisation has enabled them to be more creative and innovative and has encouraged them to question how they perform their activities and what methods they adopt to improve what is done. This is indicative that there is a fundamental shift towards creativity that GPIC staff strive to incorporate as part of their organisation culture.

1.1 *Commitment to 'Creativity and Innovation' or 'Rules and Regulations'*

The deduction drawn from Table 59 is that only 46% of employees surveyed felt that the company emphasised commitment to creativity and innovation, more than rules and regulations prior to 1987. On the other hand 69% felt that GPIC emphasised commitment to creativity and innovation more than rules and regulations for the existing culture. Regarding the desired culture, 82% of the respondents felt that GPIC should emphasise commitment to creativity and innovation more than rules and regulations.

Table 59
GPIC emphasizes commitment to creativity and
innovation more than rules and regulations

Culture	Percentage Agreed
Prior to 1987	46%
Existing	69%
Desired	82%

Based on the above table, it can be seen that :

- (1) Most employees believe that in GPIC there is an existing commitment to a creative and innovative management style rather than to rules and regulations. The existing culture has a much greater commitment than the situation prior to 1987.
- (2) Many employees also believe an even greater commitment to creativity and innovation is required in the future. This is both a positive and challenging result.

1.2 *Power and Authority arising from Empowerment*

It can be seen from Table 60 that 45% of the respondents felt that the tasks requested of the employees were based on power and authority arising from empowerment for the culture at GPIC prior to 1987. In the existing culture of GPIC, 61% of the respondents felt that the tasks requested of employees are based on power and authority. Regarding the desired culture, 70% of the respondents felt that the tasks requested of the employees should be based on power and authority.

Table 60
The tasks requested of the employees are based on
power and authority arising from empowerment

Culture	Percentage Agreed
Prior to 1987	45%
Existing	61%
Desired	70%

Based on the above results, it can be seen that this concept is much better established in the existing culture situation than the culture prior to 1987. GPIC employees also acknowledge that they have further expectations regarding this issue. A swing from 45% to 61% is commendable. The desired rate of 70% is not that far away. In conclusion, this is a component that should easily reach the desired satisfaction rate if GPIC continues the existing positive momentum.

1.3 *Success Requirement: Initiative and Providing New Ideas against Commitment to Rules and Formal Procedures*

The results in Table 61 suggest that 50% of the respondents felt that success at GPIC required initiative and the provision of new ideas rather than a commitment to rules and formal procedures for the culture at GPIC prior to 1987. In the existing culture, 63% felt that this statement was true. To achieve the desired success level in GPIC 75% felt that dependence on initiative and providing new ideas rather than commitment to rules and formal procedures is required.

Table 61
Success at GPIC requires initiative and providing new ideas rather
than commitment to rules and formal procedures

Culture	Percentage Agreed
Prior to 1987	50%
Existing	63%
Desired	75%

Based on Table 61, it can be seen that the majority of GPIC personnel (63%), believe that success at GPIC requires initiative and providing new ideas rather than commitment to rules and formal procedures. In general, this is a very healthy result. Using initiative and encouraging people to use new ideas seems to be a major attribute of GPIC's existing organisational management style. In addition, a much better culture exists now than the culture prior to 1987. Employees have also made it very clear that they desire some enhancement in this area.

Distinguished performance and its significance in achieving success as an individual, are rated highly. At GPIC, this characteristic appears to be recognised by management and there is not a great difference in percentages between existing and desired levels and there should be further encouragement by management to facilitate greater employee success.

This is an excellent indication of a management style that is meeting the challenges and is continually improving.

1.4 *Rules and Regulations that govern almost all Situations*

As reported in Table 62, 64% of respondents felt that there were rules and regulations that governed almost all situations in the culture at GPIC prior to 1987. On the other hand 82% of the respondents felt there are rules and regulations that govern almost all situations for the existing culture at GPIC. Regarding the desired culture, 88% of the respondents felt that there are rules and regulations that govern almost all situations.

Table 62
There are rules and regulations that govern
almost all situations

Culture	Percentage Agreed
Prior to 1987	64%
Existing	82%
Desired	88%

Based on the above, it can be seen clearly that the concept of having rules and regulations that govern almost all situations at work, is much better in the existing culture than the culture prior to 1987. GPIC employees and management use self-regulation extensively to assist them in setting high standards. The Quality Systems integrated into the management approach has incorporated substantial focus on Quality, Safety, Health and Environment standards in the complex. These standards (rules and regulations) are well understood by the employees who seem to appreciate the push towards their enhancement in all areas. As most have received extensive awareness training on these standards, many indicated that they wish to continue the good progress achieved thus far. This is why the desired satisfaction percentage will always be the perceived goal.

1.5 *Creative Ability to Improve Performance*

As can be seen from Table 63, 56% of respondents felt that GPIC considered the creative ability to improve performance was rewarded during the culture at GPIC prior to 1987. Currently, 76% of the respondents felt that GPIC considered the creative ability to improve performance was rewarded in the existing culture at GPIC. Regarding the desired culture, 96% of the respondents agreed with the statement.

Table 63
GPIC consider the creative ability to improve
performance is rewarded

Culture	Percentage Agreed
Prior to 1987	56%
Existing	76%
Desired	96%

Based on the above, it can be seen that GPIC appears to have managed well, considering that the creative ability to improve performance is rewarded and the situation is much better now than in the culture prior to 1987. A high percentage (96%) also recognises the ongoing commitment required for this component to receive the priority it deserves.

2.0 *Enterprise*

A culture with strong enterprise characteristics encourages employees at all levels to be proactive and forward looking. It encourages people to plan ahead rather than reacting to events as they occur. Planning to avoid crises whenever possible and to focus on long term objectives is very important. A culture with enterprising characteristics will survive, develop and be successful.

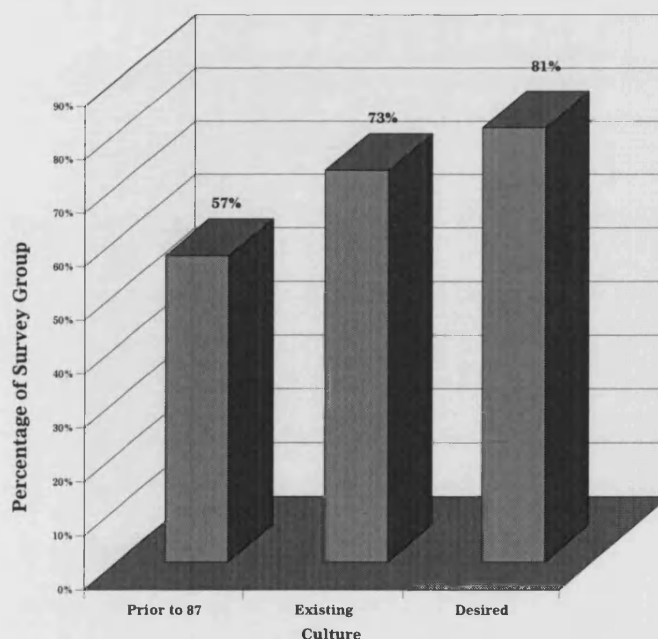
The 'Enterprise' attribute of organisational culture is represented by five factors in this survey as shown in sections 2.1 to 2.5.

Figure 53 shows that the satisfaction rate with the 'Enterprise' attribute for the existing culture is 73% which is much higher than the satisfaction rate prior to 1987 (57%). This figure also shows that the desired satisfaction rate is 81%, which is higher than the satisfaction rate for the existing culture.

These results indicate that GPIC employees feel that the existing culture enables them to be plan-oriented rather than accepting situations as they have occurred, during the culture prior to 1987. This relatively large improvement, has in turn mirrored the success and growth of GPIC over the past decade.

GPIC employees feel that there is still room for improvement of the 'Enterprise' attribute of organisational culture. How much the desired improvement could lead to greater success and growth will depend on whether they can achieve the optimum standard. What is quite clear is that the company has achieved success and growth over the past decade. Coincidentally GPIC employees feel that the culture in GPIC has enabled them to do greater and more meaningful planning ahead and to be more consciously prepared for unexpected events.

Figure 53: GPIC Employment Satisfaction Rate 'Enterprise'



2.1 *Success in Achieving Work Targets at GPIC*

Table 64 shows that 57% of the respondents felt that success in achieving work targets at GPIC depended on preplanning more than responding to events when they happened in the culture at GPIC prior to 1987. In the existing culture of GPIC, 91% of the respondents felt that success in achieving targeted work depended on preplanning more than responding to events when they occur. Regarding the desired culture, 93% of the respondents agreed with the statement.

Table 64
Success in achieving the work depends on preplanning
more than responding to events when they happen

Culture	Percentage Agreed
Prior to 1987	57%
Existing	91%
Desired	93%

Success in achieving work targets at GPIC depends on preplanning more than responding to events when they happen, is much better perceived in the existing culture rather than the culture prior to 1987. The existing and desired satisfaction rates very close to each other reflecting that in this particular component, GPIC are very successful. The improvement from the past situation (more than 30%) is evidence of the progress made. The difference (2%) between existing and desired levels is very good indeed.

2.2 *The Organisational Atmosphere Emphasis on Preplanning*

It can be seen from Table 65 that 53% of the respondents felt that the organisational atmosphere emphasises preplanning more than accepting the present situation in the culture at GPIC prior to 1987. Of the respondents 83% felt that the organisational atmosphere

emphasises preplanning more than accepting the present situation in the existing culture at GPIC. The respondents indicated by 93% that the organisational atmosphere should emphasise pre-planning rather than acceptance of the present situation in the ideal case.

Table 65
The organisation atmosphere emphasises preplanning
more than accepting the present situation

Culture	Percentage Agreed
Prior to 1987	53%
Existing	83%
Desired	93%

This table shows that the organisational atmosphere emphasises preplanning more than accepting the present situation far more in the existing culture than the culture prior to 1987; 30% more. GPIC employees did not expect a major increase to reach the ideal state, as the desired 93% reflects. It is clear that a continuing focus geared towards preplanning of activities (incidentally paramount to GPICs' quality-management approach) must be continued.

2.3 *Concern About Planning for the Future*

It can be seen from Table 66 that 70% of respondents felt that staff at GPIC were concerned with planning for the future rather than solving present crises in the culture at GPIC prior to 1987. Of the respondents 74% felt that this was the case in the existing culture at GPIC. Desired culture (89% of the respondents) felt that many personnel in GPIC are concerned with planning for the future rather than solving the present crisis.

Table 66
Many personnel in GPIC are concerned with planning
for the future rather than solving present crises

Culture	Percentage Agreed
Prior to 1987	70%
Existing	74%
Desired	89%

Based on the above data, percentages have improved gradually by 4% to the existing rate. The desired rate still dictates that the Company needs to continually work towards planning strategies in the future. It is clear that the employees have a strong desire to be involved in the future planning process. Therefore, whilst it is the responsibility of the Senior Management to oversee future planning, involvement of the employees in the process will help to improve the employee morale.

2.4 *Tasks being Accurately Defined*

It can be seen from Table 67 that 64% of the respondents felt that most tasks at GPIC are accurately defined thus permitting only a few events which are unexpected for the culture at GPIC prior to 1987. Of the respondents 82% felt that this was the case in the existing culture at GPIC. Regarding the desired culture, 94% of the respondents felt that most tasks in GPIC are accurately defined, which are unexpected.

Table 67
Most tasks in GPIC are accurately defined thus
permitting only a few events which are unexpected

Culture	Percentage Agreed
Prior to 1987	64%
Existing	82%
Desired	94%

Based on the above data this situation is indicative of GPIC's way of doing things and is much better in the existing culture than the culture prior to 1987 by almost 20%. Of the survey group 94% indicated that this component deserves an even greater emphasis. The target change, 82% to 94%, is not a great difference. To have improved by almost 20% initially, indicates that the organisation is already on the correct track, so with a continued rigorous approach to this issue, GPIC should continue to meet all expectations.

2.5 *Focus on Achieving Long-term Objectives*

It can be seen from Table 68 that 40% of respondents felt that GPIC focused on achieving long-term objectives for the culture at GPIC prior to 1987. Of the respondents 34% felt that *GPIC* focused on achieving long-term objectives for the existing culture. Regarding the desired culture, 35% of the respondents felt that GPIC focuses on achieving long-term objectives.

Table 68

GPIC focuses on achieving long-term objectives

Culture	Percentage Agreed
Prior to 1987	40%
Existing	34%
Desired	35%

The explanation for low percentages for employees awareness of the company's long term objectives is because they were not involved in the development of the objectives as Senior Management considers this to be their responsibility to develop and implement such strategic long term objectives.

The employees in accordance with the theory of needs are more interested in needs that have direct impact on issues such as salaries, safety, training and development. This could explain the lower importance given to focus achieving long term objectives.

3.0 *Performance*

A culture, which is based on performance, encourages employees of all levels to improve their efficiency and effectiveness. It will encourage them to have objectives for the tasks they perform. It also encourages them to achieve their objectives in the most efficient way. A culture which is performance oriented, contributes greatly to the survival and success of any organisation.

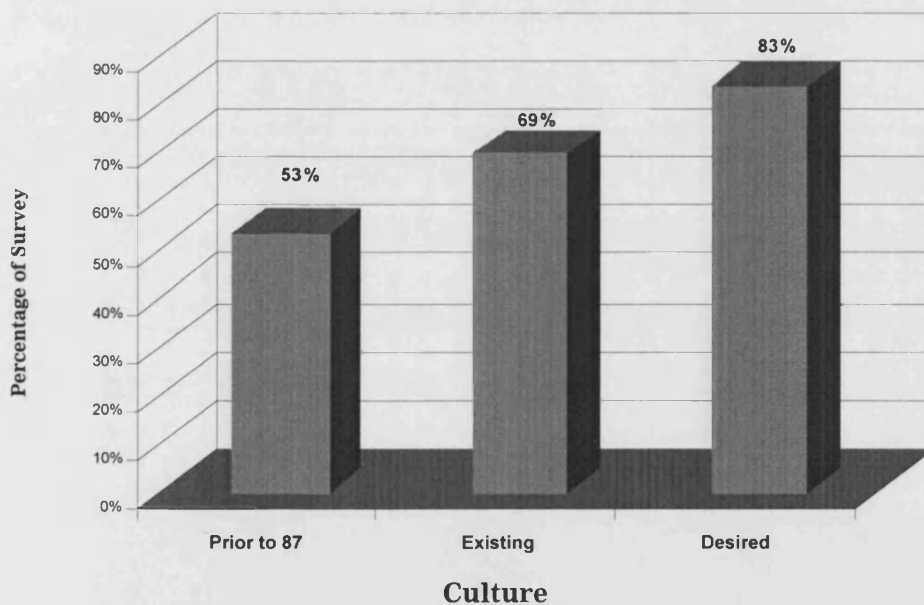
This attribute of organisational culture, Performance, is represented by five factors in this survey as shown in the following sections 3.1 to 3.5.

Figure 54, shows that the satisfaction rate with Performance for the existing GPIC culture is 69% which is much higher than the satisfaction rate for the culture prior to 1987 (53%). This figure also shows that the satisfaction rate for the desired culture 83%, is much higher again than the satisfaction rate for the existing culture.

These figures suggest that GPIC employees feel that the existing culture enables them to be performance oriented more than in the culture prior to 1987. This relatively large improvement seems to have contributed to the success and growth of GPIC over the past decade.

GPIC employees indicate by their survey results, that there is still room for improvement within this attribute of the organisational culture Performance. The company has achieved success and growth over the past decade. Also, during this period GPIC employees indicated that the culture at GPIC has enabled them to be more objective oriented.

Figure 54: GPIC Employees Satisfaction Rate with Performance



3.1 *The Successful Managers at GPIC*

It can be seen from Table 69 that 47% of the respondents felt that successful Managers provided detailed information on how to achieve objectives rather than permitting employees to determine how to achieve objectives in the culture at GPIC prior to 1987. On the other hand, the existing culture registers 65% for this question. This is an increase on the prior percentage rate by almost 20%. For the desired culture, 93% of the respondents felt that the successful managers in GPIC should provide detailed information on how to achieve objectives rather than permitting employees to determine the course of action.

Table 69

The successful Managers in GPIC provide detailed information on how to achieve objectives rather than permitting employees to determine how to achieve objectives

Culture	Percentage Agreed
Prior to 1987	47%
Existing	65%
Desired	93%

Based on the above, it can be seen that the successful managers in GPIC provide detailed information on how to achieve objectives rather than permitting employees to determine how to achieve objectives is much more prevalent in the existing culture than the culture prior to 1987.

There is some difference however, between the existing percentage of 65% and the desired rate of 93% (almost 30%). There may be good reason for this difference:

- Firstly it has been a GPIC Management objective to develop a good structure for work activities over the past 10 – 12 years of operation. The GPIC method allows key personnel the opportunity to

determine how they achieve the company's objectives. This is a continuous process, which promotes ownership, initiative and creativity.

- Secondly, it must be realised that running a very large petrochemical complex has inherent safety hazards and associated risk. Therefore, the employees have very clear, detailed and strict procedures, guidelines, standing orders etc. for their people to develop and use. That is the nature of this industry, allowing employees in many disciplines to totally determine how they could, or, would do the job within the constraints set by the company.

Having said this, GPIC does place the responsibilities of regular review and continuous improvement of all procedures and operating guidelines, standing instructions etc., in the hands of those employees who do the work. This explains the results of this part of the survey. As GPIC employees continue to become more reliant on their own line management skills, their dependency on detailed information systems should diminish and their perspective of the question asked in this survey, may possibly change.

3.2 *The Organisational Culture focus on Quality rather than Quantity of Work*

It can be seen from Table 70 that 27% of the respondents felt that the organisational culture focused more on quality of work than quantity of work in the culture at GPIC prior to 1987. Of the respondents 36% felt this to be the case relating to the existing culture at GPIC and 38% felt that the desired organisational culture should focus more on quality of work than quantity of work as desired perspective.

Table 70
The organisational culture focuses more on quality
of work than quantity of work.

Culture	Percentage Agreed
Prior to 1987	27%
Existing	36%
Desired	38%

Based on the above data, it can be seen that this concept is now more widely believed in the existing culture rather than the culture prior to 1987.

This is an improvement on GPIC's initial position and indicates a very close approach to where GPIC employees believe they should be, concerning this issue (36% compared to 38%).

Since the culture and procedure at work only allows work to be carried out in a reliable and tested method which ensures consistency of product, or work output aimed at high quality, then it is not surprising that in the above context, less emphasis has been put on the quantity of work output.

3.3 *Success Requirement: Distinguished Performance vs. Relation with Power Figures*

It can be seen from Table 71 that 60% of respondents felt that Success in GPIC requires distinguished performance rather than building good relations with the power figures in the culture at GPIC prior to 1987. Of the respondents, 73% felt this concept to be more actively in place for the existing culture at GPIC and 91% of respondents felt this factor to be very important to the success at GPIC in the long term.

Table 71

Success in GPIC requires distinguished performance more than building good relations with the power figures.

Culture	Percentage Agreed
Prior to 1987	60%
Existing	73%
Desired	91%

Based on the above data, it can be seen that the perception of this concept has increased considerably from where GPIC used to be prior to 1987. Employees would like to see an even bigger recognition of distinguished performance by individuals. This is good, as it suggests that a large number of employees are doing their very best to better themselves, perform well and act in a manner that will attract recognition and attention. GPIC should continue to enhance and support this important concept and management strategy.

3.4 *Encouraging Staff in raising their Level of Performance*

It can be seen from Table 72 that 67% of the respondents felt that GPIC encourages its staff to continuously improve their levels of performance in the culture at GPIC prior to 1987. That figure has increased to 87% for the existing culture at GPIC and 98% of the respondents desired that GPIC continues along this route.

Table 72

GPIC encourages its staff to continuously persist in raising their levels of performance

Culture	Percentage Agreed
Prior to 1987	67%
Existing	87%
Desired	98%

Based on the data above, it can be seen that GPIC encourages its staff to continuously improve their levels of performance. This percentage has

increased dramatically by 20% to the present. The company is not far from the perceived desired level, so this concept seems to be well under control, but needs continuous attention as GPIC progresses.

3.5 *Showing Great Enthusiasm and Excellence in Work Performance*

It can be seen from Table 73 that 63% of respondents felt that GPIC staff showed great enthusiasm and excellence in work performance for the culture prior to 1987. That figure increases to 86% for the present and 97% desired that GPIC staff show great enthusiasm and desire for work and excellence in performance as their ultimate goal.

Table 73
GPIC staff shows great enthusiasm and
excellence in work performance

Culture	Percentage Agreed
Prior to 1987	63%
Existing	86%
Desired	97%

Based on the above data, it can be seen that this concept has been greatly improved in the existing culture compared to the culture prior to 1987.

The percentage of those in agreement has increased by 23%, which serves to reflect the commitment and progress made to date in developing a caring and sharing working relationship with employees. This simply cannot be achieved without a planned enhancement strategy that is both continuous and effective. Although the desired percentage perception is 11% greater (97%), GPIC are confident that with the success they have achieved to date, meeting the desired perception rate, will be a formality for the company in the future.

4.0 *Work Values*

A culture, which is based on work values, encourages employees of all levels to improve their efficiency and effectiveness. A strong culture encourages them to follow the same set of work values, to have more loyalty to their company and work in a collective and united basis. A culture which is work values oriented contributes greatly to the survival and success of any organisation.

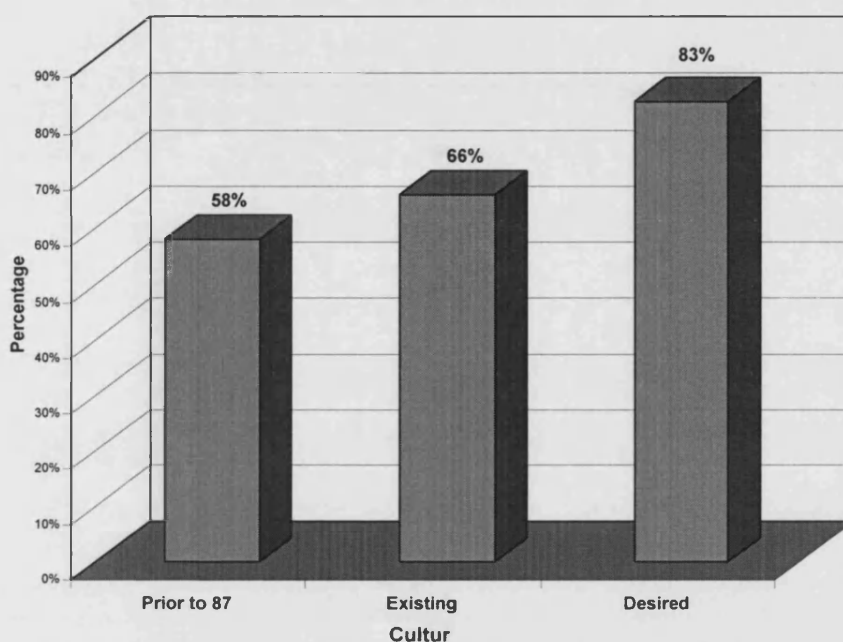
This attribute of organisational culture ‘work values’ is represented by five factors in this survey as shown in sections 4.1 to 4.5.

Figure 55 shows that the satisfaction rate for this attribute ‘work values’ for the existing culture is 66% which is higher than the satisfaction rate for the culture prior to 1987 (58%). This figure also shows that the satisfaction rate for the desired culture is 83%, which is considerably higher than the satisfaction rate for the existing culture.

This data suggests that GPIC employees feel that the existing culture enables them to be more value-oriented than in the culture prior to 1987. This large improvement, seem to have contributed to the success and growth of GPIC over the past decade.

GPIC employees also feel that there is still some room for improvement in work values of the organisational culture. With a difference between existing and desired percentages of almost 20%, this issue is clearly one that GPIC needs to take seriously and develop further if they wish to continue managing a successful organisation with a very healthy organisational culture.

Figure 55: GPIC Employees Satisfaction Rate with "Work Values"



4.1 *Following the Same Set of Work Values*

It can be seen from Table 74 that 50% of respondents felt that employees in GPIC all followed the same set of work values for the culture at GPIC prior to 1987. This has increased to 57% for the existing culture at GPIC, while 91% of the respondents desired that employees in GPIC should all follow the same set of work values.

Table 74
Employees in GPIC all follow the same set of work values.

Culture	Percentage Agreed
Prior to 1987	50%
Existing	57%
Desired	91%

Based on the above data, it can be concluded that the belief that employees in GPIC all follow the same set of work values is better in

the existing culture than the culture prior to 1987, this is borne out by a 7% difference. However the desired percentage is 91%, therefore this is an area of great potential improvement and GPIC should carefully consider all aspects of this component and plan for enhancement within their management systems .

4.2 *Employees discussing with their bosses if their views differ*

It can be seen from Table 75 that 30% of respondents felt that it was expected from employees to discuss with their bosses if their views differed in the culture at GPIC prior to 1987, 50% felt this behaviour is expected in the existing culture at GPIC, while 68% of respondents also agreed that this concept is desirable, which is higher than at present.

Table 75
It is expected from employees to discuss with their bosses
if their views differ

Culture	Percentage Agreed
Prior to 1987	30%
Existing	50%
Desired	68%

Based on the above data, it can be seen that this concept is considerably more acceptable (by 20%) in the existing culture than the culture prior to 1987. This change is very encouraging. There is no loss in the respect that a GPIC Manager, Supervisor or Superintendent gets from employees, however this concept really means that employees need to be encouraged to look for ways and means to improve what they and their departments do. They should not be apprehensive to raise issues with their superiors if they have relevant and meaningful reason for objecting. This promotes an active ownership style of management that has been proven to be effective. If opportunities for discussion facilitating a frank and open working relationship are in

place and actively supported, this regular liaison should mean that all workers and their managers operate as a team working towards the same objectives. This must be good for any organisation.

4.3 *The Importance of Time Spent to Reach Collective Decisions*

It can be seen from Table 76 that 80% of respondents felt that GPIC staff believed time spent to reach collective decisions was important time in the culture at GPIC prior to 1987; 89% now felt this concept to be true and actively followed, while 90% of respondents indicated that GPIC staff should spend time to reach collective decisions in an ideal situation.

Table 76
GPIC staff believe time spent to reach collective
decisions is important time

Culture	Percentage Agreed
Prior to 1987	80%
Existing	89%
Desired	90%

Based on the above data, the concept that GPIC staff believe time spent to reach collective decisions is important time has been increased to almost the desired rate. This is a very good example of improvement in workers' perception and understanding and a compliment for the style in which the GPIC organisation has been managed over the years.

4.4 *Encouraging Staff Working on Collective Projects*

It can be seen from Table 77 that 60% of respondents felt that GPIC encouraged staff working on collective projects in the culture at GPIC prior to 1987. Of the respondents 59% felt that the present culture supports this, while 75% of the respondents indicated that this is the ideal situation.

Table 77

GPIC encourages staff working on collective projects

Culture	Percentage Agreed
Prior to 1987	60%
Existing	59%
Desired	75%

Based on the above data, it can be seen that the concept of GPIC encouraging staff working on collective projects has remained nearly constant from before 1987 to the present.

GPIC management system has some scope to improve the encouragement of staff working on collective projects to attain the desired level of 75%.

4.5 *Concern about GPIC's Success and Achievements*

It can be seen from Table 78 that 70% of the respondents felt that staff were concerned about GPIC's success and achievements in the culture at GPIC prior to 1987; 75% of respondents felt that this concept had improved in the present situation. Regarding the desired culture, 89% of the respondents felt that staff should be concerned about GPIC's success and achievements.

Table 78

Staff are concerned about GPIC's success and achievements

Culture	Percentage Agreed
Prior to 1987	70%
Existing	75%
Desired	89%

Based on the above data, it can be seen that GPIC employees are concerned about GPIC's success and achievements. This concept is

relatively stronger in the existing culture than the culture prior to 1987. A level of 75% in the present situation is good. However, the employees' perspective of 89% in the ideal case is indicative of a shift to excellence in quality management and highlights this particular important area for future development.

5.0 *Care and Consideration for People*

A culture, which is characterised by care and consideration for employees, encourages employees of all levels to improve their efficiency and effectiveness. It will encourage them to increase social relations with each other and be concerned for the well being of others. Increased creativity and strengthened synergy between work values and capabilities is expected and mutual support and pride in each other is engendered. It also enables staff to know what is expected from them when assigned tasks. A culture which is characterised by care and consideration for people contributes substantially to the survival and success of any organisation. This attribute of organisational culture, care and consideration, is represented by another five factors in this survey as shown in sections 5.1 to 5.5.

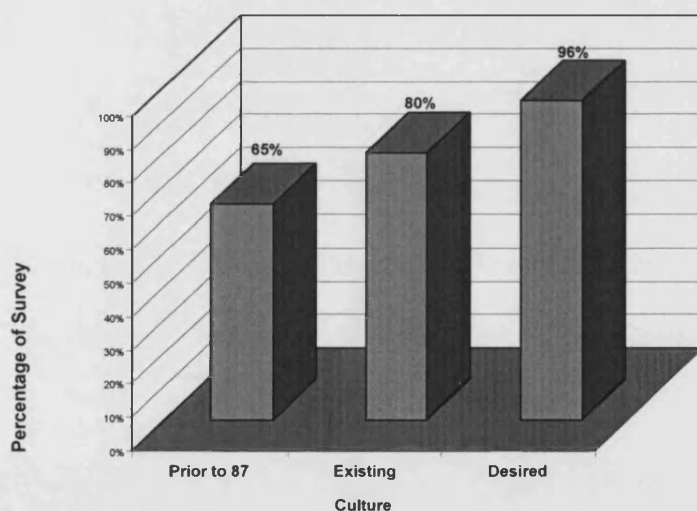
Figure 56 shows that the overall satisfaction rate of the attribute care and consideration for people for the existing culture is 80%. This is higher than the satisfaction rate for the culture prior to 1987 (65%). This figure also shows that the satisfaction rate for the desired culture is 96%, which is much higher than the satisfaction rate for the existing culture.

GPIC employees feel that the existing culture is characterised by care and consideration for people more than the culture prior to 1987. This

relatively large improvement has contributed to the success and growth of GPIC over the past decade.

An increase of 15% seems to reflect a close team-building approach to work activities and a real awareness of the benefit of working together to achieve goals. GPIC employees indicate that there is still room for improvement in this component of the organisational culture. This is a good result accentuated by the desire of GPIC personnel to score higher in an ideal situation (96%). This is positive evidence of one of GPIC's main cultural strengths – Teamwork.

Figure 56: GPIC Employees Satisfaction Rate with "Care and Consideration for People"



5.1 *Increasing Social Relations with Subordinates*

It can be seen from Table 79 that 53% of respondents felt Managers tried to increase social relations with their subordinates in the culture at GPIC prior to 1987. Of the respondents 59% felt Managers try to increase social relations with their subordinates in the existing culture at GPIC, while 94% of the respondents desired that Managers try to increase social relations with their subordinates in an ideal situation.

Table 79
Managers try to increase social relations
with their subordinates

Culture	Percentage Agreed
Prior to 1987	53%
Existing	59%
Desired	94%

Based on the above data, it can be seen that the concept of managers trying to increase social relations with their subordinates is much better in the existing culture than the culture prior to 1987. The organisation seems to be in a healthy situation with this component already. GPIC supports and sponsors many social (non-work related) activities away from the complex. Like many other successful organisations, they appreciate that company support of social activities, such as sports teams and community organisations, achieves two major outcomes that complement the successful culture at GPIC.

Firstly: Support of social events for employees (largely sports) demonstrates management interest, enhancement of teamwork and a holistic approach to helping employees.

Secondly: Support of sports events and community organisations is a good way of associating the organisation with that of its people.

It is probably also one of the best means of sponsorship and getting your company or product endorsed without having to actively advertise. This is certainly not the primary reason for supporting this cause but is beneficial to all concerned.

5.3 *Determination of Tasks according to Synchronisation between Requirements and Capabilities*

It can be seen from Table 81 that 70% of respondents felt that the GPIC staff tasks were determined according to the synchronisation between work requirements and staff capabilities in the culture at GPIC prior to 1987; 88% of the respondents felt that the situation had improved for the existing culture at GPIC. Regarding the desired culture, 96% of the respondents felt that the GPIC staff tasks should be determined according to the synchronisation between work requirements and staff capabilities.

Table 81
The GPIC staff tasks are determined according
to the synchronisation between work requirements
and staff capabilities

Culture	Percentage Agreed
Prior to 1987	70%
Existing	88%
Desired	96%

Based on the above data, it can be seen that this situation is substantially better in the existing culture than the culture prior to 1987. There has been a great increase of close to 20%.

There is a need to further investigate how GPIC could increase / improve the situation even more, as 96% of the employees thought that this component was desirable in an organisation's culture.

5.4 *Management being Proud of Individual Employees Achievements*

It can be seen from Table 82 that 67% of respondents felt that the GPIC Management were proud of the individual achievements of their employees in the culture at GPIC prior to 1987. This had increased to 85% of respondents for the existing culture at GPIC. Regarding the desired culture, 96% of the respondents felt that GPIC Management should be proud of the individual achievements of their employees.

Table 82
GPIC Management is proud of the individual achievements of their employees

Culture	Percentage Agreed
Prior to 1987	67%
Existing	85%
Desired	96%

Based on the above data, it can be seen that this aspect is better in the existing culture than the culture prior to 1987 by a substantial 20%.

Another predictable, but again, very impressive increase in percentage, combining with all other component increased percentages, to reflect genuine improvement and successful organisational culture growth. The desired 96% expectation is a great way of show-casing that people are proud of their achievements and appreciate recognition for good hard work.

5.5 *Staff knowing what is expected through clear determination of job tasks*

It can be seen from Table 83 that 73% of respondents felt that job tasks were determined so the staff knew what was expected from them in the culture at GPIC prior to 1987; 87% of the respondents felt that this aspect has improved substantially in the existing culture at GPIC. Regarding the desired culture, 97% of the respondents felt that job

tasks should be determined so the staff know what is expected from them.

Table 83
Job tasks are determined so the staff know what is
expected from them

Culture	Percentage Agreed
Prior to 1987	73%
Existing	87%
Desired	97%

Based on the above data, it can be seen that this aspect has improved in the existing culture compared to the culture prior to 1987. A leap in percentage of almost 15% indicates great improvement, as does the commitment reflected in the 97% desired expectation.

6.0 *Teamwork*

A culture, which is based on teamwork, encourages employees of all levels to improve their efficiency and effectiveness. It encourages employees to increase the levels of co-operation with one another for the purpose of achieving common work objectives, having more initiative and desire to co-operate and form good working relationships with other team members. It also encourages serving collective interests. A culture which is based on teamwork contributes immensely to the survival and success of any organisation.

In the attribute of organisational culture, teamwork is represented by another five factors in this survey as shown in sections 6.1 to 6.5.

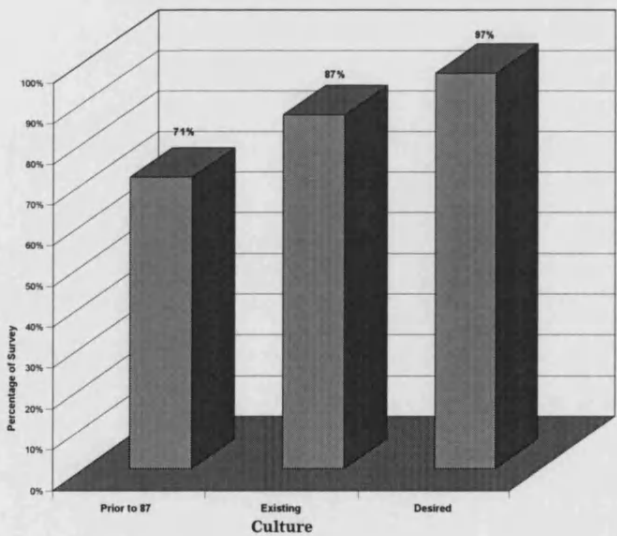
Figure 57 shows that the satisfaction rate with this attribute, 'teamwork', for the existing culture is a substantial 87% which is higher than the satisfaction rate for the culture prior to 1987 (71%). This figure also shows that the satisfaction rate for the desired culture

is 97%, which is again higher than the satisfaction rate for the existing culture.

In general terms, GPIC employees indicate that the existing culture is more strongly characterised by teamwork than the culture prior to 1987. This relatively large improvement, correlates with the success and growth of GPIC over the past decade.

As already mentioned, teamwork of an organisation should never be underestimated. Teamwork is the cornerstone to any government, country or international organisation’s success. Without it there can be no meaningful culture in an organisation. The existing GPIC ‘teamwork’ culture is perceived by almost 90% of the employees. This is a good achievement that the organisation should do their best to maintain, and if practical, improve upon even more.

Figure 57: GPIC Employee Satisfaction Rate with “Team Work”



6.1 *Characteristics of Relations between Task Forces in Terms of Co-operation*

It can be seen from Table 84 that 76% of respondents felt that relations between task forces in GPIC were characterised by co-operation for achieving common objectives in the culture at GPIC prior to 1987; 83% of the respondents felt this was the case for the existing culture at GPIC. Regarding the desired culture, 96% of the respondents felt that relations between task forces in GPIC should be characterised by co-operation for achieving common objectives.

Table 84
Relations between task forces in GPIC are characterised
by co-operation for achieving common objectives

Culture	Percentage Agreed
Prior to 1987	76%
Existing	83%
Desired	96%

Based on the above data, we can see that this concept, is stronger in the existing culture than the culture prior to 1987 by 7%. This is a good increase. The desired rate is much higher and GPIC should further investigate how this can be improved.

6.2 *Characteristics of Relations between Task Forces in Terms of Initiative*

It can be seen from Table 85 that 74% of respondents felt that relations between task forces in GPIC were characterised by initiative and a great desire for co-operation in the culture at GPIC prior to 1987; 87% of the respondents felt this was the case for the existing culture. Regarding the desired culture, 99% of the respondents felt that relations between task forces in GPIC should be characterised by initiative and a great desire for co-operation.

Table 85
Relations between task forces in GPIC are characterised by
initiative and great desire for cooperation

Culture	Percentage Agreed
Prior to 1987	74%
Existing	87%
Desired	99%

Based on the above data, it can be seen that this concept has improved in the existing culture compared to the culture prior to 1987 by a good increase of approximately 13%.

There was almost unanimous agreement that this cultural component was desirable in an organisation.

6.3 *Encouraging Good Relations amongst Team Members*

It can be seen from Table 86 that 60% of respondents felt that the organisation culture encouraged good relations amongst team members in the culture at GPIC prior to 1987; 93% of the respondents felt this was the case for the existing culture at GPIC. Regarding the desired culture, 99% of the respondents felt that the organisational culture should encourage good relations amongst team members.

Table 86
The organisational culture emphasises the
forming of good relations by staff with other team members
for success according to culture

Culture	Percentage Agreed
Prior to 1987	60%
Existing	93%
Desired	99%

Based on the above data, it can be seen that this concept has improved in the existing culture compared to the culture prior to 1987.

This is a healthy indicator that GPIC have increased this component awareness by over 30%, which is a significant change. The high level of 93% in the existing culture is significant. The desired rate is only slightly higher at 99%. It is encouraging to see that this area has received a significant boost since 1987 and that GPIC's existing and desired percentages are close to each other. Forming good workable relationships with other organisational team members is a crucial step in a successful culture.

6.4 *Encouraging Staff to Work as a Team*

It can be seen from Table 87 that 80% of the respondents felt that GPIC usually encouraged staff to work as a team in the culture at GPIC prior to 1987. A significant 91% of the respondents felt that this indeed was the case for the existing culture at GPIC. Regarding the desired culture, 98% of the respondents felt that GPIC should encourage staff to work as a team.

Table 87

GPIC usually encourage staff to work as a team

Culture	Percentage Agreed
Prior to 1987	80%
Existing	91%
Desired	98%

Based on the above data, it can be seen that this concept is significantly better in the existing culture than the culture prior to 1987.

An increase of 11% agrees with the general comments made about team work and the beneficial impacts on an organisation's culture. The increase has been significant and the existing and desired percentage

rates are very close indeed. This is indeed a healthy condition for GPIC.

6.5 *Design of Compensation System*

It can be seen from Table 88 that 67% of respondents felt that the design of a compensation system at GPIC contributed to collective achievements in the culture at GPIC prior to 1987; 80% of respondents felt that this was the case for the existing culture at GPIC. Regarding the desired culture, 93% of the respondents felt that the design of a compensation system at GPIC should contribute to collective achievements.

Table 88
The design of a compensation system in GPIC contributes to collective achievements

Culture	Percentage Agreed
Prior to 1987	67%
Existing	80%
Desired	93%

Based on the above data, it can be seen that this concept has increased in the existing culture compared to the culture prior to 1987 by 13%. This is also a healthy increase for GPIC.

A further 13% of employees considered this component to be desirable but not yet achieved.

7.0 *Excellence*

A culture, which is based on excellence, encourages employees of all levels to improve their efficiency and effectiveness. It will encourage them to increase their co-operation with others to achieve common work objectives. It also encourages them to be proud of representing

their company and to co-operate with their immediate superiors to set work objectives representing challenges in terms of excellence. This allows them to benefit from the opportunities to develop their capabilities to reach work standards and to focus on the long term objectives of a culture which is based on excellence, contributes to the survival and success of the organisation.

This attribute of organisational culture, “excellence” is represented by another five factors in this survey as shown in sections 7.1 to 7.5.

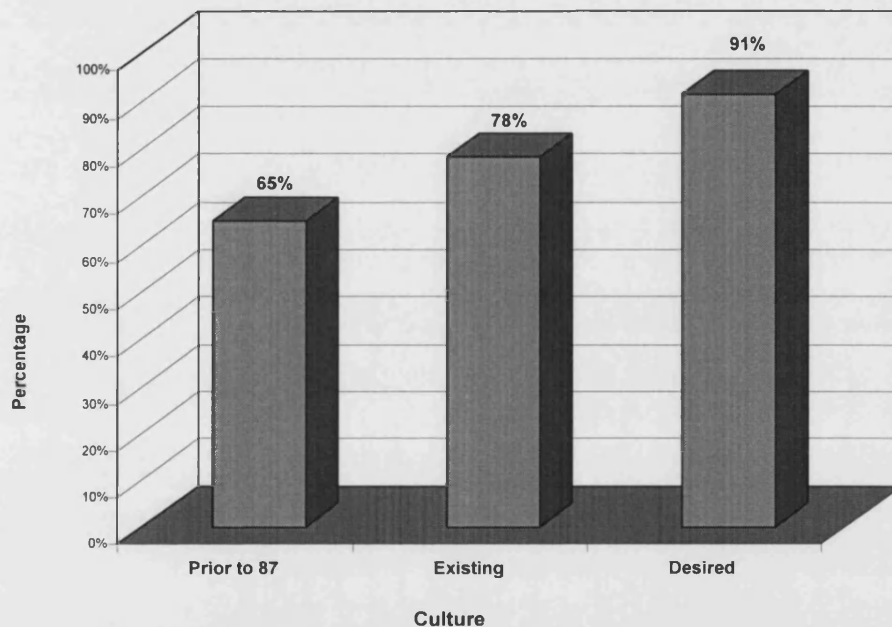
Figure 58 shows that the satisfaction rate with this attribute ‘excellence’ for the existing culture is 78% which is higher than the satisfaction rate for the culture prior to 1987 (65%). This figure also shows that the satisfaction rate for the desired culture 91%, is again higher than the satisfaction rate for the existing culture.

The information suggests that GPIC employees feel that the existing culture is better characterised by excellence than the culture prior to 1987. This again, reflects the success and growth of GPIC over the past decade.

In this era of quality management standards, the existing improvement of 13% is significant progress and GPIC should feel proud of this achievement.

GPIC employees indicate that there is still room for improvement of the excellence component of the organisational culture. However, almost 80% believed that Excellence abounds in the existing GPIC systems. This is significant and many employees seem to endorse that it should remain a high priority at GPIC.

Figure 58: GPIC Employee Satisfaction Rate
with Excellence



7.1 *Characteristics of Relations between Task Forces in Terms of Co-operation and Working towards Achieving Common Objectives*

It can be seen from the following Table 89 that 63% of respondents felt that relations between task forces in GPIC were characterised by co-operation and working towards achieving common objectives in the culture at GPIC prior to 1987; 85% of respondents felt that this was the case for the existing culture at GPIC. Regarding the desired culture, 100% of the respondents felt that relations between task forces in GPIC should be characterised by co-operation and working towards achieving common objectives.

Table 89
Relations between task forces in GPIC are characterised by
co-operation and working towards achieving common objectives

Culture	Percentage Agreed
Prior to 1987	63%
Existing	85%
Desired	100%

Based on the above data, it can be seen that this concept is more strongly represented in the existing culture than the culture prior to 1987, by over 20%.

The very fact that the desired percentage is 100%, reinforces GPIC's efforts in the significance of team-building and active ownership.

7.2 *Feeling Proud Working at GPIC*

It can be seen from Table 90 that 76% of respondents felt that GPIC staff felt proud of working at GPIC in the culture at GPIC prior to 1987; 89% of respondents felt the same way for the existing culture at GPIC. Regarding the desired culture, 97% of the respondents felt that GPIC staff should feel proud working at GPIC.

Table 90
GPIC staff feel very proud working at GPIC

Culture	Percentage Agreed
Prior to 1987	76%
Existing	89%
Desired	97%

Based on the above data, it can be seen that this concept is more strongly represented in the existing culture, than the culture prior to 1987, by 13%.

This is another significant increase in an area that is very important to personnel. Also the desired percentage is not that far away from the position GPIC holds now.

7.3 *Co-operating with Superiors for Setting Challenging Objectives*

It can be seen from Table 91 that 74% of respondents felt that most GPIC staff co-operated with their superiors for setting challenging objectives in the culture at GPIC prior to 1987; 89% of the respondents indicated that this was the case for the existing culture at GPIC. Regarding the desired culture, 97% of the respondents felt that most GPIC staff should co-operate with their superiors for setting challenging objectives.

Table 91
Most GPIC staff co-operate with their superiors for setting
challenging objectives

Culture	Percentage Agreed
Prior to 1987	74%
Existing	89%
Desired	97%

Based on the above data, this concept is better established in the existing culture, than the culture prior to 1987 by 15%.

This is very good reflection of organisational team work and its benefits at GPIC.

7.4 *Availability of Opportunities to Develop Capabilities*

It can be seen from Table 92 that 67% of respondents felt that opportunities were available for GPIC staff to develop their capabilities in the culture at GPIC prior to 1987; 86% of the respondents felt this is the case for the existing culture at GPIC. Regarding the desired culture, 99% of the respondents felt that opportunities should be available for GPIC staff to develop their capabilities.

Table 92
Opportunities are available for GPIC staff to
develop capabilities

Culture	Percentage Agreed
Prior to 1987	67%
Existing	86%
Desired	99%

Based on the above data, this concept is better established in the existing culture than the culture prior to 1987 by 19%.

The amount of support and commitment GPIC places on its training and development of young Bahraini professionals to help them develop and aspire to key positions in the company is recognised by the employees and reflected by this considerable percentage increased from 67 to 86 %. Even the desired rate reflects a general overall awareness amongst GPIC employees that development opportunities are fundamental to the organisation's success.

7.5 *Rewards Depending on Distinguished Achievements*

It can be seen from Table 93 that 44% of respondents felt that distinguished achievements were rewarded in GPIC in the culture at GPIC prior to 1987; 42% of the respondents felt that this was the case for the existing culture at GPIC. Regarding the desired culture, 64% of the respondents felt that distinguished achievements should be rewarded in GPIC.

Table 93 Distinguished achievements are always rewarded in GPIC	
Culture	Percentage Agreed
Prior to 1987	44%
Existing	42%
Desired	64%

Based on the above data, it is indicated that this concept was more strongly adhered to in the culture prior to 1987 than in the existing culture.

This decrease in percentage suggests that the perception by employees is that this is not the only factor crucial to progressing in the GPIC organisation.

There are definitely very good rewards available to employees for distinguished achievements. However, this is by no means the only method the organisation has in place to allow its employees to progress successfully. This hypothesis attempts to explain why the desired rate was not unanimously supported by the survey group interviewed.

8.0 *Loyalty*

A culture, which is based on loyalty, encourages employees of all levels to improve their efficiency and effectiveness. It encourages them to remain loyal to the company and to enhance this loyalty as their length of service increases. A culture which is based on loyalty contributes substantially to the survival and success of any organisation.

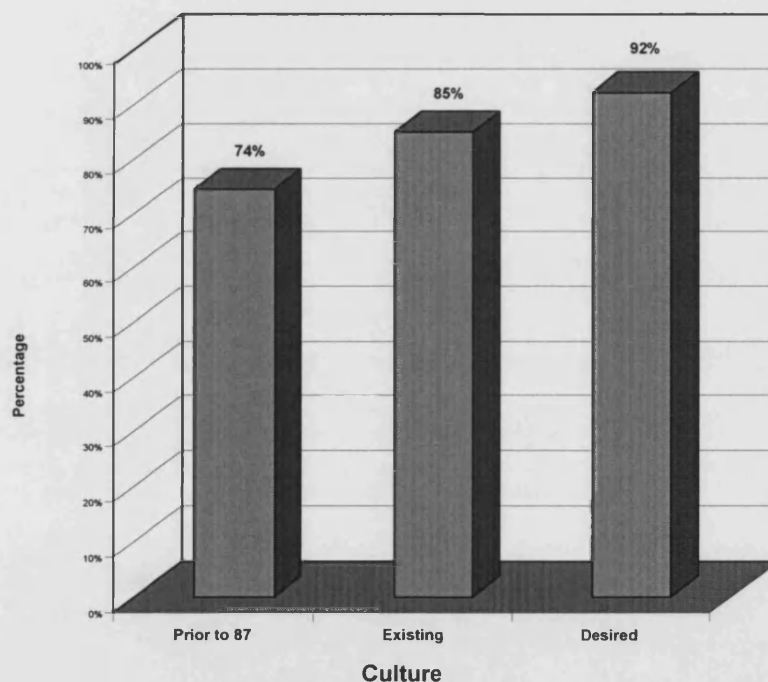
This attribute of organisational culture 'loyalty' is represented by another five factors in this survey as shown in sections 8.1 to 8.5.

Figure 59, shows that the satisfaction rate with the attribute, loyalty, for the existing culture is 85% which is higher than the satisfaction rate for the culture prior to 1987 (74%). It also shows that the satisfaction rate for the desired culture 92%, is again much higher than the satisfaction rate for the existing culture.

The information indicates that GPIC employees believe that the existing culture is better characterised by loyalty than the culture prior to 1987. This relatively large improvement has also contributed to the success and growth of GPIC over the past decade.

During this demanding period, GPIC employees feel that the culture at GPIC is characterised by loyalty.

Figure 59: GPIC Employees Satisfaction Rate with "Loyalty"



8.1 *Viewing Positive Appraisal from Outsiders*

It can be seen from Table 94 that 83% of respondents felt that GPIC employees viewed positive appraisal from outsiders towards GPIC as very important in the culture at GPIC prior to 1987; 96% of the respondents felt that GPIC employees view this aspect as very

important for the existing culture at GPIC. Regarding the desired culture, 93% of the respondents felt that GPIC employees should view positive appraisal from outsiders towards GPIC as very important.

Table 94
GPIC employees view positive appraisal from outsiders towards
GPIC as very important

Culture	Percentage Agreed
Prior to 1987	83%
Existing	96%
Desired	93%

Based on the above data, it can be deduced that GPIC employees view positive appraisal from outsiders towards GPIC as very important, more so in the existing culture than the culture prior to 1987. It is also more significant than the desired case.

In many ways, being viewed by other organisations, whether this is for bench marking or promotional, educational or technological reasons, has very important links to how an organisation like GPIC feels about its activities.

Regular exposure to and communications with outside organisations allow a mutual comparison of how successfully GPIC operates. GPIC is fortunate that their employees fully appreciate the many accolades the company receives.

8.2 *Strong Loyalty of Long Serving Staff towards the Company*

It can be seen from the following Table 95 that 70% of respondents felt that long serving staff felt strong loyalty towards the company in the culture at GPIC prior to 1987; 81% of the respondents felt that this is the case for the existing culture at GPIC. Regarding the desired culture,

91% of the respondents felt that long serving staff should feel strong loyalty towards the company.

Table 95
Long Serving staff feel strong loyalty
towards the company

Culture	Percentage Agreed
Prior to 1987	70%
Existing	81%
Desired	91%

Based on the above data, it can be shown that this loyalty is much better represented in the existing culture than the culture prior to 1987, by 11%.

This is a pleasing statistic. It shows a firm 'personal' attachment by employees to their company.

8.3 *Showing Loyalty towards its Employees*

It can be seen from Table 96 that 76% of respondents felt that GPIC showed loyalty towards its employees in the culture at GPIC prior to 1987; 89% of the respondents felt the same way for the existing culture at GPIC. Regarding the desired culture, 97% of the respondents felt that GPIC should show loyalty towards its employees.

Table 96
GPIC shows loyalty towards its employees

Culture	Percentage Agreed
Prior to 1987	76%
Existing	89%
Desired	97%

It appears to be the norm that the GPIC culture is to work in a team as opposed to in an individual manner.

8.5 *Management Encouraging Loyalty to the Company*

It can be seen from Table 98 that 73% of respondents felt that management in GPIC encouraged loyalty to the company in the culture at GPIC prior to 1987; 89% of the respondents felt management in GPIC does this in the existing culture at GPIC. Regarding the desired culture, 98% of the respondents felt that management in GPIC should encourage loyalty to the company.

Table 98

Management in GPIC encourages loyalty to the company

Culture	Percentage Agreed
Prior to 1987	73%
Existing	89%
Desired	98%

Based on the above data, it can be seen that this encouragement is much stronger and healthier in the existing culture than the culture prior to 1987, by 16%.

Both are good indicators of a successful culture that is infectious in nature.

Overall Satisfaction Rate

After addressing each of the 40 issues covered by the eight attributes, the researcher sought to obtain an overview of the overall situation. The responses to all 40 questions have been summarised in Table 99.

Summary Results of Organisational Culture Survey

Table 99

Culture Element	Prior 1987	Existing	Desired
GPIC emphasises commitment to creativity & innovation more than rules & regulations	46%	69%	82%
Success in achieving the work depends on preplanning than responding to events when they happen	57%	91%	93%
The successful managers in GPIC are used to providing detailed information related to how to achieve objectives more than permitting employees to determine how to achieve objectives	47%	65%	93%
The organisation atmosphere emphasises on preplanning more than accepting the present situation	53%	83%	93%
The organisational culture focuses more on quality of work than quantity of work	27%	36%	38%
Many staff in GPIC are concerned about planning for the future more than solving the present crisis	70%	74%	89%
Employees in GPIC all follow the same set of work values	50%	57%	91%
The tasks requested of the employees are based on power and authority	45%	61%	70%
Success in GPIC requires distinguished performance more than building good relations with the power figures	60%	73%	91%
Success in GPIC requires initiative & providing ideas more than commitment to rules & procedures	50%	63%	75%
Staff who are in authoritative positions try to increase social with people who have lower positions	53%	59%	94%
Staff of GPIC in general are concerned to a great extent about others	60%	79%	95%
Relations between task forces in GPIC are characterised by co-operating for common objectives	76%	83%	96%
Relations between task forces in GPIC are characterised by initiative & great desire for co-operation	74%	87%	99%
Relations between task forces in GPIC are characterised by working for common objectives	63%	85%	100%
Organisation culture emphasises on forming good relations with other team members for success	60%	93%	99%
It is expected from employees to object to their boss if their views differ	30%	50%	68%
There are rules & regulations that govern almost all situations	64%	82%	88%
How GPIC employees view positive appraisal from outsiders towards GPIC is very important	83%	96%	93%
Staff who are working in GPIC for 1 year or more feel strong loyalty towards GPIC	70%	81%	91%
GPIC shows more loyalty towards its employees	76%	89%	97%
GPIC staff feel very proud working in GPIC	76%	89%	97%
GPIC encourages its staff to continuously persist in raising their levels of performance	67%	87%	98%
Most tasks in GPIC are accurately defined as permitting only a few events which are unexpected	64%	82%	94%
Most GPIC staff co-operate with their superiors for setting objectives representing challenge to them for excellence	74%	89%	97%
Opportunities are available for GPIC staff to develop their capabilities to reach excellence	67%	86%	99%
Tasks are determined according to synchronisation between work requirements & staff capabilities	70%	88%	96%
In GPIC collective work has greater value than individualism	70%	70%	82%
GPIC staff believe time spent to reach collective decisions is important time	80%	89%	90%
Superiors in GPIC encourage loyalty to the company	73%	89%	98%
GPIC encourages staff working on collective projects only	60%	59%	75%
GPIC usually encourage staff on working as a team	80%	91%	98%
GPIC superiors are proud with the individual achievements of their employees	67%	85%	96%
GPIC staff show great enthusiasm & desire in work & excellence in performance	63%	86%	97%
GPIC staff are concerned about work mainly for achieving & contributing in the GPIC success	70%	75%	89%
The design of compensation system in GPIC contributes mainly for achieving collective interests	67%	80%	93%
GPIC focuses on achieving long-term objectives	40%	34%	35%
The main rewards in GPIC depend upon distinguished achievements only	44%	42%	64%
Job tasks are determined so the staff know what's expected from them	73%	87%	97%
GPIC consider the creative ability to improve performance is rewarded to great extent	56%	76%	96%
Satisfaction Rate	60%	76%	83%

Table 100
The overall Satisfaction Rate

Culture	Percentage Agreed
Prior to 1987	60%
Existing	76%
Desired	83%

The overall satisfaction rate is calculated based on the average satisfaction rate for each of the 40 components, as listed in Table 99.

These survey results clearly show that the overall satisfaction rate (i.e. percentage of employees agreeing with the positive statements) in the existing culture was 76%, which is much higher than the overall satisfaction rate in the culture prior to 1987 (60%). This indicates that there has been a significant improvement in the culture during the past decade.

The survey also shows that the overall satisfaction rate for the desired culture is 83%, which is higher than the overall satisfaction rate for the existing culture. This indicates that although GPIC employees are satisfied in general with the existing culture, they also desire some improvements. Table 100: summarises the above data.

This also reflects the ambitious nature of GPIC employees as they continue to look for improvement, despite being relatively happy with the current situation. This is a strong indication that their culture has scope to exercise the tried and true principles of continuous improvement and enhancement. This is a very healthy situation in which employees are reminded that the way people are managed must be dynamic and must promote continuous assessment, improvement and change to meet the global challenges that the market place competitiveness and business success demand.

The survey results further indicate that the satisfaction rate for each of the eight attributes of the organisation's culture, was higher for the existing culture than the culture prior to 1987. It also shows that the satisfaction rate for the desired culture is higher than the existing culture.

Although the majority of the factors/issues examined scored high satisfaction rates with the existing culture, three issues which had relatively low scores were:-

1. *Focusing on achieving long-term objectives only*
(satisfaction rate : 34%)

The prevailing satisfaction rate (34%) for focusing "on achieving long-term objectives only" was found to be low compared to the culture prior to 1987 (40%). This applies to the desired culture as well (35%). GPIC employees would prefer to see more focus on achieving a mixture of long-term and short-term objectives, as is the case in the current situation.

2. *The organisational culture focuses more on quality of work than quantity of work* (satisfaction rate : 36%)

The satisfaction rate with the organisational culture focusing more on quality of work than quantity of work has also been found to be low compared to the culture prior to 1987 (27%) and compared to the desired culture (38%). GPIC employees seem to prefer that the focus should be on both quality as well as quantity of work, as is the case in the current situation. In fact, many feel that prior to 1987 the focus on quantity of work was much larger than the current and desired situations.

3. *The main rewards in GPIC depend upon distinguished achievements only (satisfaction rate : 42%)*

The satisfaction rate with the main rewards in GPIC depending upon distinguished achievements only, has also been found to be low compared to the culture prior to 1987 (44%), but not as low compared to the desired culture. In fact, GPIC employees would like to see more focus on rewarding distinguished achievements than the current situation reflects. They do desire to see this issue based on other factors, as was the case, to some extent, in the culture prior to 1987.

The salient points that one can deduct from the Survey Summary Results are:

- The overall satisfaction rate for the culture at GPIC prior to 1987 was 60%.
- The overall satisfaction rate for the existing culture at GPIC is 76%.
- The overall satisfaction rate for the desired culture at GPIC is 83%

The three elements, which scored the highest satisfaction rates amongst GPIC employees regarding the culture prior to 1987, were as follows:

- The importance of positive appraisal from outsiders (83%)
 - The importance of time spent to reach collective decisions (80%)
 - Encouraging staff to work collectively on projects (80%)
-

Conversely, the three elements, which scored the lowest satisfaction rate amongst GPIC employees regarding the culture prior to 1987, were as follows:

- The organisational culture focused more on quality of work than quantity of work (27%)
- It was expected from employees to object to their boss if their views differed (30%)
- GPIC focused on achieving long-term objectives (40%)

Regarding the existing culture, the four elements which scored the highest satisfaction rate among GPIC employees were as follows:

- The importance of positive appraisal from outsiders (96%)
- The organisational culture emphasis that the staff form good relations with other team members for success (93%)
- The success in achieving the work depends on preplanning more than responding to events when they happen (91%)
- Encouraging staff to work on tasks as a team (91%)

Regarding the desired culture the four elements which scored the highest rate among GPIC employees were as follow:

- The relations between task forces in GPIC are characterised by co-operation and working towards achieving common objectives (100%)
 - Relations between task forces in GPIC are characterised by an initiative and great desire for co-operation (99%)
-

- The organisational culture emphasises that the staff form good relations with other team members for success (99%)
- Opportunities are available for GPIC staff to develop their capabilities to reach excellence (99%)

Conversely, the three elements, which scored the lowest rate among GPIC employees regarding the desired culture, were:

- GPIC focuses on achieving long-term objectives (35%)
- The organisational culture focuses more on quality of work than quantity of work (38%)
- The main rewards in GPIC depend upon distinguished achievements only (64%)

The results very clearly show a marked and substantial improvement in the satisfaction level of all components of the way GPIC manages its people. Based on how they were perceived prior to 1987, the organisation's culture has registered a marked improvement. This appears to have followed from good strategic management planning, application of winning ideas, proven concepts and a management style that recognises the significant ownership and involvement of its people in all aspects of their work.

The existing and desired satisfaction rates show a very healthy overall work environment, but that also appears to have scope for further enhancement and improvement. GPIC seems to accept that their people not only look seriously for further improvements, but also demand that they adopt this attitude. Pushing for innovative change, improvement and other means that promote a dynamic management of

business are essential success components in this demanding day and age. Without this drive, no organisation will be able to meet the business challenges of the year 2000 and beyond.

Too many organisations fall into the trap of becoming stagnant by failing to continuously evolve a management style that addresses employee needs at various points in time. They also fail to appreciate that the employee needs are constantly changing.

GPIC seems to have met this essential challenge. Similar improvements can be seen from pre 1987 to their existing position. The commitment that has been exercised carefully during the last 10 – 12 years should continue with the essential assistance of a satisfied but highly motivated workforce, under the direction of a dynamic and effective management structure.

Conclusions from the Surveys

The foregoing two surveys enabled the researcher to obtain an enlightening feedback from the employees on various aspects of organisational culture.

This provided an ideal basis for testing the effectiveness of the organisational culture in GPIC against specific hypotheses.

The conclusions drawn therefore, have been elaborated in Chapter Eight of this study.

Chapter Eight

Summary, Discussion and Conclusion

SUMMARY

A society's culture is expressed not only in its art, heritage and history, but also in the manner in which it handles its present situation and solves its survival problems. Similarly, the organisational culture concepts, behaviour of people and trends help one to understand the past, which in turn help one to better explain the present and thus, to predict the future. This insight gives management more influence and control over future events. When the company under review, Gulf Petrochemical Industries Company, Bahrain (GPIC), a government owned undertaking, was confronted with difficult survival issues it transformed its organisational culture to resolve its problems and ultimately emerged successful. There are a number of lessons to be learnt from this experience.

The subject of the study is not merely to narrate the 'what' but also the 'why' and 'how' of measures taken by the GPIC management to achieve the turnaround in the business performance of the organisation. Amongst these measures the most prominent was the transformation of the organisational culture, which the researcher puts forward as the key to success of any commercial organisation, be it a private or a government undertaking.

This study examines values such as creativity and innovation, teamwork and collaboration, superior-subordinate and peer relationships, quality, safety, environment, congenial work

atmosphere, cost control and efficiency in operation and maintenance. The importance of these values has been studied by examining the financial and technical data and the historical narrative showing what actually transpired in GPIC as well as analysing the feedback received from staff surveys.

In order to lend a vivid and appropriate perspective to GPIC as an organisation the researcher deemed it appropriate to delve into the background of the industry, as well as the profiles of the country and the region.

Chapter Two describes at length the oil, gas and petrochemical industry in general and ammonia and methanol in particular. While it is a well known fact that gas is widely available in the Arabian Gulf region, Bahrain in fact has relatively limited gas resources and hence the need arises to utilise these resources in an optimal fashion. In Bahrain, gas has been used as fuel and feedstock for the manufacture of petrochemicals and fertilisers (GPIC being the sole government owned undertaking to do so) as well as in the energy sector (power generation) and water desalination plants.

Chapter Two also covers the production and marketing/export aspects of the global ammonia and methanol industry, as related to GPIC in terms of volumes and market share. It is demonstrated that the products are international commodities and that GPIC as an organisation had no influence on global prices. The technical processes involved in the manufacture of ammonia and methanol are also discussed to highlight the fact that the manufacturing process involved is very sophisticated, necessitating a high degree of expertise to operate and maintain the plant at an optimal level. In view of

volatility in the global market, it was necessary to remain competitive by optimising production levels and ensuring cost effective operations on a consistent basis.

The history of GPIC is recounted by the researcher in Chapter Three starting from the formation of the company in 1979, as an equal partnership between the governments of Bahrain, Saudi Arabia (through Saudi Basic Industries Corporation) and Kuwait (through Petrochemical Industries Company) with paid-up capital of US\$ 160 million. The aim was to utilise and add value to Bahrain's natural gas to manufacture 1000 tonnes per day each of ammonia and methanol. The construction phase was completed in 1985 and in mid-1989 GPIC undertook a US\$ 20 million debottlenecking project to enhance the design capacity of the ammonia and methanol plants from 1000 to 1200 tonnes per day of each product. In 1996/1997 GPIC constructed a US\$ 170 million granulated urea plant which was commissioned at the end of 1997.

The history of GPIC's development is traced in two distinct phases, i.e. pre-1988 and 1988-1997. The first phase covered the period of construction, trial production and commissioning. This coincided with the period when international market prices plummeted and the actual revenues were far below projections, leading to operating losses and cash flow deficits which in turn led to job insecurity and low employee morale under a contractor-run management regime. The year 1988 was marked by a new leadership and a management team which made it their prime objective to motivate the employees, boost morale and thus encourage creativity through a changed culture.

Chapter Four details forty five performance factors against which a comprehensive empirical analysis was carried out in order to undertake an in-house evaluation of GPIC's performance for the period 1987-1997. This included production levels, maintenance levels, onstream factors, profitability, increase in net-worth and return on investment. The results of these forty five performance factors (as summarised in Table 5: Chapter Four) demonstrated the extent to which GPIC had indeed performed successfully. A comparative analysis was also done to evaluate GPIC's performance at both regional as well as international level. GPIC was ranked as the foremost among ammonia plants in the Arab region, particularly with respect to capacity utilisation and annualised operating rate, and the second best in terms of downtime performance. From an international perspective GPIC's methanol plant was ranked as the foremost in respect of the annualised operating rate, onstream factor, onstream operating rates and number of start-up/shutdown cycles. The results reaffirm that technically GPIC's plants are indeed among the best operated and managed plants in the world. In financial terms, GPIC has adequately rewarded its shareholders, stakeholders (banks, vendors, marketing partners and customers) as well as its employees.

Chapter Five reports a detailed literature review in the fields of Creativity, Motivation and Organisational Culture and their impact on the success of an organisation. The researcher observed that the concepts and theories contained in the literature review actually applied in reality to GPIC. GPIC can now be classified as a learning organisation as defined in Senge's book "Fifth Discipline", i.e. "an organisation where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspirations are set free and

where people are continually learning how to learn together”. By the same token, creativity in GPIC fitted in with Leonard D. Straus’s definition “Being creative is seeing the same thing as everybody else but doing something different.” Building a charity fish farm in the path of the complex water outlet to demonstrate environmental care was a good example of creativity at work in GPIC.

The researcher also had the opportunity to peruse literature by anthropologists (Chapter Five) and trace the history of systematic attempts to understand work organisations in cultural terms, particularly in America, commencing from the post-World War II era of economic domination, when the supremacy of American management theories went unchallenged, until the downturn in the US economy in the 1970’s, which generated conflict between workers and management. Learning from the apparent harmony in Japanese work places US managers saw culture as a way to integrate manager’s and workers’ concerns to create consensus and cooperation. Following that, quantitative approaches were replaced with qualitative methods for interpreting organisational culture. The growing importance of the role played by human resources management was crucial to changing the economic performance of organisations.

In Chapter Six, the practical implementation of some of the theoretical elements of these management tools and how they are applied in GPIC are discussed. The techniques adopted by GPIC management to ensure that success, both in technical and financial terms was achieved, have also been covered extensively in Chapter Six. Apart from the steps taken to remedy the financial situation, to inject capital to debottleneck and enhance the plant capacity while endeavouring to operate and maintain the plants in a safe, reliable and cost effective manner, the

major thrust of GPIC management in the post 1988 era, was to transform the organisational culture.

Over the period 1988-1997, in definite phases marked out by predetermined milestones, GPIC accomplished a turnaround in its organisational culture. The researcher then decided to reinforce his views on the turnaround by undertaking employee surveys to seek their views of the level of job satisfaction, attitude to work and the prevailing organisational culture as compared to the pre-1987 period. A random sample of 112 employees (out of a total workforce of 434) was carefully chosen in a manner such that the sample was most representative in terms of organisational hierarchy, department, gender, nationality, length of service and age. The results of these surveys, as reported in Chapter Seven, were in line with the researcher's intuitions.

Thus, the dissertation supports the hypothesis that organisational culture and management tools such as creativity and motivation have a significant bearing on the business performance of an organisation.

DISCUSSION

At the outset, it is worth noting that the researcher had a unique role of being a participant in the transformation of the company. As General Manager of GPIC, the researcher had access to detailed and valuable information regarding the development of a strategy and its implementation for transforming the organisational culture. His commitment to the leadership of the company and encouragement of his core team and workforce to use creative techniques in the key spheres of managing the business of the company (including training,

staff development, materials management and areas relating to operation and maintenance of the plant in an optimal manner) resulted in the successful performance of the company. This privileged position, in being instrumental to effecting the change has lent added significance and weight to the study.

The role of leadership cannot be over-emphasised. An effective leader with strong personal characteristics has a positive effect on the morale of the employees and gives hope and determination to overcome obstacles and achieve success. In the case of GPIC, this leadership brought greater independence and innovation to the organisation, through a democratic humanistic approach to work and people, while maintaining discipline, respect and perseverance in order to achieve the organisation's goals and objectives.

The new leadership and the management team in GPIC recognised that a new, more positive and creative culture was needed in order to reduce the effect of the adverse market situation and to enhance the company's performance. The team was determined that adversity could be converted into opportunity. They recognised that the internal problems of low staff morale, job insecurity and the high cost of production, due to the exorbitant cost of contract labour, could be tackled to reduce the impact caused by external turbulence (adverse international market prices) to enable them to initially survive and then to consolidate as the market situation improved.

In the normal course, a typical government undertaking would have generally adopted a 'laid-back' approach of accepting the situation arising from plummeting international market prices for its products (and consequent cash constraints and debt default situation) as

something beyond their control. This was not the case in GPIC's situation. A programme of change was initiated with a change in the company's leadership who in turn created a new management team.

Accordingly, as the cultural transformation proceeded the company's business performance improved in parallel. Some of the steps taken for effecting this transformation were:

1. A proactive approach to negotiating with the consortium of banks to reschedule the debt in an innovative manner, namely year end projected cash surplus was used as a criterion for determining the repayment of debt instalments instead of the uniform periodical repayments usually employed.
 2. Defining a management strategy based on company missions.
 3. Replacement of contract staff.
 4. Human resource planning with emphasis on Bahrainisation.
 5. Intensive training programmes to enhance skills.
 6. Job design and implementation of a new organisation structure.
 7. Comprehensive documentation covering every major aspect of business activity.
 8. Communication and teamwork by functioning through committees.
 9. Empowerment - Managers were given more authority to exercise their responsibilities.
 10. Employee involvement through modification requests and suggestion schemes .
 11. Introduction of a formalised quality system.
-

12. Enhancing safety of the plant and employees.

With limited resources and several constraints the management recognised that it had to take an unconventional and innovative approach to create a more positive and productive organisational culture to overcome the challenges that faced the company. Strong cultures, it is argued, can only be built under the leadership of strong individuals or teams with a clear vision and mission. In GPIC the managers and selected key staff formed the core teams to implement a strategy of a change of culture.

In mid-1988 this team developed a set of values which they believed would assist in tapping the talent, creativity and cooperation of the entire workforce to achieve the cultural change at each functional level. This was expressed in the mission statement of the company. A conscious effort was made by this team to create an environment that generated trust, as well as one that encouraged employee participation in the functioning of the company, thus affording them the opportunity to influence and contribute to the decisions affecting the business. Several goals in different aspects of work were adopted and various committees were set up in which staff from every level of the organisation were encouraged to develop plans of action and achieve predetermined targets. The company also addressed the basic and fundamental issues that affected employees by addressing emoluments and other benefits in the workplace.

A scientific exercise was undertaken to design jobs by incorporating the three elements of job engineering, job characteristics and job enrichment. Based on these, job descriptions were developed and a job appraisal scheme was launched. The aim was to have the right

individual for the job, possessing the right qualifications and experience, slotted into the appropriate grade and paid in accordance with the correct pay scale. Since Bahraini staff had to be developed to eventually take over positions held by contract staff, a comprehensive and intensive training and development programme was launched. The training was undertaken in-house as well as by means of sponsorships of local staff to universities abroad and to vendors' sites and other petrochemical companies in the region. The scope of training was not limited to their respective discipline or field of occupation, but extended to allied areas such as safety, health, environment, communication and supervisory skills, as well as exposure to "thinking techniques". Edward de Bono states that creativity is no longer a matter of old fashioned brainstorming and wishful hopes that ideas would somehow happen but believes that individuals and organisations can be trained to be creative. The researcher found that GPIC had made use of formal management creativity tools that could be used deliberately and systematically to teach creativity. These included lateral thinking techniques by de Bono and mind maps by Tony Buzan and a wide range of other techniques.

Job Design was followed by Job Match to ensure a Job Fit - i.e. right person for the job with the right qualifications, in the appropriate grade and paid a fair salary. A Job Appraisal scheme was put in place to monitor performance, to highlight areas for improvement, and also to emphasise the setting and achievement of goals.

A clear cut job description under an appropriate organisation structure is a key element in job satisfaction. It enhances job security, increases loyalty and motivates employees to achieve their goals, thus giving them complete latitude to being creative.

Once the Job Design and Job Description are in place, it is imperative that an appropriate basic structure of an organisation is established before an organisational culture can be transformed. There is no standard design or “one-size-fits-all” framework for an organisational structure and that each organisation has to develop a structure that is suitable to the ownership, industry, region, manpower and financial resources available, taking into account the experience of their own and similar industries. GPIC was established in 1979, but the formal cohesive organisation structure was only developed in 1988.

The researcher recommends that utmost care and consideration be given to designing the organisation structure, jobs should not be defined in isolation, but the relationships between jobs need to be clearly identified. From the GPIC experience (as detailed in Chapter Six) the researcher recommends that it is essential that for each job, the Job Design is planned to suit the organisational culture with the following culture perspectives in mind:

- Power culture perspective, to control the workforce. This is essential to focus on the right input of resources to attain consistency of output of the highest quality.
- Support culture perspective, to enrich quality of work life. This involves ensuring job variety, job rotation, horizontal and vertical job enlargement and creation of autonomous working groups.

- Achievement culture perspective, to match the work environment with the individual to obtain optimum results. This encompasses social processes as well as ergonomics, as much attention should be paid to the welfare, health and safety of the workforce as is paid to efficiency and economy.
- Role culture perspective, to create the appropriate socio-technical system to suit the desired organisational culture.

Although motivational theories are not ideal due to the complexity of the variables involved, varying human behaviour at different times and situations and lack of laboratory style controls, the researcher found them useful if suitably adopted and applied. Accordingly, the researcher found some evidence of the Hierarchy of Needs as proposed by Maslow from the survey results. During the 1987/88 phase of job insecurity, GPIC employees sought fulfilment of their lower order needs such as physiological and safety needs. Later, as management invested in human resources with a definite plan of action for replacing the contract staff with locals, under an improved job security situation, the employees sought satisfaction of social needs. Thereafter, as the jobs became more secure and the employees saw better career improvement opportunities, they sought satisfaction of ego and self-fulfilment needs. In the Culture Survey, when the employees indicated a desired level of satisfaction higher than the existing one, it was indicative of their desire for esteem and self-actualisation, needs which lie at the apex of Maslow's Hierarchy of Needs. The ERG theory of Clayton Alderfer relating to the three groups of core needs, namely existence, relatedness and growth, was evident in the employees' response in the two surveys. The researcher saw that

GPIC management had successfully satisfied McClelland's Trichotomy of Needs, namely, need for achievement (nAch) by providing employees with career development opportunities, need for power (nPow) by providing employees with a self-management environment in which they felt empowered to perform their tasks, and need for affiliation (nAff) by being associated with various task forces and through various social activities among fellow employees.

In GPIC, the aim of the training was to transform the staff into motivated and creative individuals who could contribute to the organisation. All these steps, which were aimed at creating job security, providing career development opportunities and establishing an atmosphere in which the company cared for its employees and thus gained the loyalty of the workforce.

The investment made by the company in human resources, which were recognised as its most important asset, paid dividends. By the end of 1990 all the exorbitantly paid contractor personnel had been replaced by well qualified local manpower or by directly recruited expatriate employees, thus achieving substantial cost savings. Apart from the financial benefits, the company gained in terms of loyalty as well as from the benefit of a well motivated and creative workforce.

The improving financial situation enabled the company to enhance the benefits to employees, improve ergonomics and every other aspect of the work environment, as well as undertake various social and charitable activities. The management was constantly seeking ways to increase employee involvement. The plant modification scheme and later the employee suggestion scheme were examples of improving employee involvement and motivation. The management created an

environment that was free from fear and rigidity and developed a culture that allowed employees to contribute. Employee contributions were recognised formally through awards and informally through an institutionalised process of genuine appreciation for tasks well performed or contributions beyond the scope of normal duty.

The researcher felt it appropriate to validate his perceptions and intuitions by obtaining a feedback from employees in respect of the transformation in the organisational culture, attitude to a job and work satisfaction at GPIC. To this end, an Attitude (Job Satisfaction) Survey and a Culture Survey were undertaken.

For the purpose of the Attitude Survey the researcher had listed forty-one generalised aspects of a job (Table 14: Chapter Seven) in consultation with the managers. Views of the GPIC management team were sought to rank these aspects in order of importance. These aspects were then put forth in the form of questionnaires to employees to seek their perception, both in terms of importance to a job in general as well as with specific reference to their job satisfaction in GPIC. The survey reveals a significant degree of convergence in the management's and employees' perceptions. The other interesting finding was that in terms of job satisfaction, working for a company that was concerned with safety, health and environment, was rated highest both by employees and the management.

The Attitude Survey also indicated that human resource management was considered by employees as very important in terms of good superior-subordinate relationship and communication, effective leadership, teamwork and good relationships within working groups, opportunities for training and self-development. Further, while fair pay

was considered to be important by employees, it was not deemed as important as some other aspects of the job. These observations match the Hierarchy of Needs Theories already discussed in the literature review section.

The Attitude Survey focused on the three key elements of the study, namely creativity, motivation and organisational culture. When the results of these forty one questions were classified under these three key elements, it was observed that the majority of the employees had perceived these elements to be 'very important' in terms of job satisfaction.

As the study progressed and evolved, a similar survey focusing on organisational culture was undertaken. For the purpose of the Culture Survey, the researcher identified eight attributes that represented a framework of organisational culture issues, such as creativity and innovation, enterprise, performance, work values, care and consideration for employees, teamwork, excellence and loyalty. Under each of these eight attributes, five factors were determined and questions were developed for each factor to obtain the employees' response as to their satisfaction level with respect to each of the forty factors. When the results of these forty questions were tabulated (Table 99: Chapter Seven) it was observed that overall only 60% of the employees were satisfied with the organisational culture (in terms of creativity and innovation) that prevailed in the pre-1987 era; the satisfaction level significantly increased to 76% with the existing culture. The overall satisfaction rates were also calculated for each attribute and it was observed that the existing culture rating was invariably higher than the one prior to 1987. Further, in each case the desired cultural levels were higher than the existing culture levels

indicating that there was room for improvement in each sphere. This may be interpreted as a very healthy overall work environment where employees constantly strived for improvement and change.

GPIC developed such a work environment for nurturing the creativity of its workforce by:-

1. Giving a free rein to employees to come forward with innovative ideas, suggestions and methods of tackling problems.
2. Stimulating their creative thinking process by encouraging constructive non-conformity, individuality and diversity.
3. Equipping them with modern management tools (based on the conviction that individuals and organisations can be trained in being creative).
4. Encouraging self-starters and empowering them.
5. Giving appropriate guidelines, goals and time-bound targets to individuals, teams and task forces to attain desired results.
6. Recognising, appreciating and rewarding good performance.
7. Making the employees accountable.
8. Trusting the workforce.

The management also used the forum of committees and task forces to tap group creativity with the belief that in groups visions are shaped and structured into reality by people in a complementary or competitive manner. In doing so, the management must provide the necessary training and tools to ensure that all members of the

committees and task forces are aware of the need to be professional and cooperative in their deliberation, rather than confrontational.

Under this scenario of empowerment and task force functioning, the manager's role is to monitor and ensure that the groups/committees function cohesively to attain individual group targets, without conflicting with the overall corporate targets or with the overall mission. While interference by top management should be kept to the minimum, some form of direction and control is necessary, as follows:

1. Control by regulation to achieve
 - a) Result oriented culture, to obtain achievement by focusing on predetermined targets and strategies/mission.
 - b) Support culture, which is inclusive of planning, monitoring and where necessary, correcting.
2. Encourage achievement by appreciation, to sustain employee motivation and creativity.

It is important to realise that such an effective organisational culture can play an important role in the success of an organisation. Effectiveness is a function of the inter-relationships of core values and beliefs, organisation policies and practices and the business environment.

Based on the data gathered during the course of this study, the evidence from employee surveys and literature on the subject, the key inter-relationship can be summed up by four integrated elements that address the effectiveness of an organisational culture, namely, the

involvement element, the consistency element, the adaptability element and the mission element.

On reflection, the manner in which these philosophies and theories fitted with the actual experiences and the ultimate result, the turn around of the company to a successful entity, was a most gratifying experience for the researcher. This was especially rewarding as he was also actively involved in the successful transformation.

CONCLUSION

Much of the published research on organisational culture has emphasised the central importance of the values and beliefs that lie at the core of an organisation's social system. Few publications have explored the interrelations of an organisational culture, its management practices to enhance creativity and motivation and its impact on the performance of an organisation.

Traditional theoretical studies of management have not fully evaluated the practical effect of management systems on human resources. Unfortunately, some organisations still treat people as expenses rather than assets, and are thus managed with an eye to reducing costs rather than increasing returns on investments.

The researcher is convinced that this dissertation will give new insight into how an organisation, even when a government owned undertaking, can overcome obstacles and chart a safe course to success by creating or transforming the organisational culture to one which is conducive to motivation and creativity. Since the study covers the regional and international comparison of the operations of the

petrochemical business and critically examines the action plan of GPIC management over a span of a decade, it highlights the link between success, creativity and organisational culture, thereby demonstrating the sustainability of the hypothesis.

The history of GPIC's progress, starting from a difficult financial situation and low employee morale, the steps taken by the management to address these issues, the resultant success of GPIC as viewed from various perspectives, are all indicative of GPIC being a creative organisation. The research shows that in GPIC there was evidence of the existence of the three elements of creative behaviour, outlined in Torrance's model (Figure 49: Chapter Five) namely abilities (particularly visualisation, ability to define problems, logical thinking, emotional intelligence, analysis and evaluation, flexibility and transformation); skills (problem definition, idea generation and problem solving through teamwork); and task motivation (work environment and teamwork with commitment towards the task). The researcher also concurs with N. Coade in his listing of obstacles to creativity (Chapter Five) on the basis of the work environment and culture that prevailed in the pre-1987 phase. Similarly, the researcher concurs with the characteristics of organisations that nurture creativity, as proposed by Amabile, on the basis of the prevailing organisational culture in GPIC.

The researcher cannot emphasise enough the role of creativity in the transformation of an organisational culture and the belief that creativity is a tool that individuals as well as organisations could be trained to use. According to Amabile's conceptual description creativity can best be defined as the production of novel and useful ideas and products, and is dependent upon creative skills, creative

abilities and motivation towards the task. The researcher strongly recommends the model for understanding creativity and its importance to organisations, as elaborated in Figure 50 of Chapter Five.

Apart from the organisational structure, the power of 'group creativity' that can be achieved through teamwork is of even greater importance. Employee participation in various aspects of an organisation's plans enables the input of views and experience of all those employees who are affected by the business. The resultant collaborative decision is therefore made based on shared interest. This affords the employees the opportunity to influence and contribute to decisions that affect them. The researcher saw clear evidence of numerous professionally managed committees in GPIC, where employees perceived that they had common interests and shared the same goals with their employers.

Culture to a large extent is an intangible force that breathes life into an organisation. The people in the organisation influence, or are influenced, by the set of parameters that determine the environment through which work gets done. Consequently, the perception of these people as to how they view these parameters is critical to the assessment of the organisational culture.

In GPIC the corporate mission, as well as missions of individual departments, sections and functions combined a business strategy, a career strategy and an individually meaningful work plan into one driving force and identity, thereby unleashing the power of the individual employee's creativity and innovation. This was adequately evident through the response of the organisation to international safety

standards, product quality requirements, cost effective operations and safeguards.

The direction, whether at corporate level or down the line, was extremely clear and well defined through documentation as well as through clear directions/guidelines from superiors to their subordinates. Consequently, fewer day-to-day administrative controls were required to ensure coordinated activity.

Clearly, the relationships outlined, provide the wider context in which an organisational culture change can be studied. In view of the transformation of GPIC organisational culture to achieve success, the researcher recommends that a deeper understanding of such factors and their consequences be made the subject of future studies to assess their sustainability over a cross-section of organisations.

The study also reaffirms that GPIC's plants (Ammonia and Methanol) are indeed among the best operated and managed plants in the world. It clearly complements and substantiates the claims and strong statements made in the narrative section of Chapter Four which deals with GPIC's progress and development. It is clear from the quantitative and qualitative data analysed that the company's performance improved significantly over the period under investigation. GPIC had a turnaround from a losing company to a profitable one. The negative rate of return in the initial period of operation has become very positive since 1991 and continues unabated.

The remarkable rate of growth of about 150% in the networth during the period 1987 to 1997 is a noteworthy achievement recognised internationally, as demonstrated above.

Production increased by about 20%. Rate of Return on investment which was a negative 9.26% in 1987 has significantly increased to over 23% in 1997. The shareholders' networth increased from US\$ 153.2 million in 1987 to over US\$ 371.3 million in 1997, an increase of 142%. Similar significant improvement was evidenced in other areas of the company's business performance, including a remarkable improvement in profitability which turned from a loss of over US \$ 15.6 million in 1987 to a profit of approximately US\$ 74.2 million in 1997.

It has to be made clear that the performance of the company would have improved even if the market prices for its products had remained constant, because there was a steady reduction in the cost of production without affecting the overall satisfactory business performance.

In addition to internal assessment and evaluation of the performance of the company, independent assessment of performance through benchmarking also clearly showed that the company's performance is exceptional by world standards. A positive culture was created and developed to facilitate this growth and success. This clearly highlighted that creativity, motivation and organisational culture were the three critical success factors that contributed to the exceptionally good performance of GPIC.

In the ultimate analysis, the success story of GPIC has led the researcher to conclude that when an organisational culture is transformed, where the workforce is motivated and creativity is nurtured, business performance is bound to improve.

Chapter Nine

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