

Chapter-1

Introduction

| | | |
|-----|---|----|
| 1.1 | Decision Making For Investments | 4 |
| 1.2 | Strategic Investment Decisions | 8 |
| 1.3 | Foreign Investment Decisions | 16 |
| 1.4 | GCC 's Integration In The World Economy | 25 |
| 1.5 | GCC Structural Reforms & Experiences | 29 |
| 1.6 | GCC Regional Integration | 34 |
| 1.7 | Global Petrochemical Industry | 35 |

Chapter-1

Introduction

After asking the question “what does *globalization* means?” *The Economist*, in its 1992 survey of the world economy, provides an answer, which contributes a substantial part of the topic selected for this research work. “The term can happily accommodate all manners of things: expanding international trade, the growth of transnational business, the rise in international joint ventures and increasing interdependence through capital flows-to name but a few”.

Alongside the growing importance of international versus domestic trade, there has been a parallel growth in importance of foreign versus domestic investment in the market for operating business. At times, the importance of overseas investments has swelled to overshadow that of domestic investments. Among the rewards of globalization of investment has been an improvement in the global allocation of capital and an enhanced ability to diversify investment portfolios.

In addition to the growth of international trade and investment flows, interest in international investment has grown with the increased importance of transnational corporations. Transnational investment grew four times faster than global output and three times faster than international trade during 1983 to 1990.

By 2005, the United Nation estimated that there were 77,000 transnational corporations, with the largest 100 of these possibly being responsible for \$ 8 trillion or approximately 17 percent, of the world’s productive assets. The

power held by these massive stateless enterprises have long been a source of governmental and public concern.

It is generally believed that transnational corporations have come to control more and more of world's trade, production, investment and employment. There is a large body of literature on the factors that cause individual firms from one country to invest in production in other countries. A necessary condition for such investment is that the investing or parent firm possesses some firm-specific advantages that enable it to operate in foreign countries while these firm-specific assets are also the necessary condition for foreign direct investment (FDI). If the trade were free, a company might export its advantages by exporting to each market. *What is the reward that tempts to produce outside their home countries?* The literature on FDI provides a variety of answers, indicating that there may be many motivations varying with firm involved, the industry, the home country, the host country and the time when the decisions are made.

Strategic investment decision making involves the process of identifying, evaluating, and selecting among projects that are likely to have a significant impact on the organization's competitive advantage. According to Carr and Tomkins, 1996, more specifically, the decision will influence what the organization does (i.e., the set of product and service attributes that defines its offerings), where it does it (i.e., the structural characteristics that determine the scope and geographical dispersion of its operations), and/or how it does it (i.e., the set of operating processes and work practices it uses).

The strategic investment decision making process is arguably one of senior management's greatest challenges. There is a critical need to get these decisions right. For on the one hand, if the decision proves successful, the firm reaps major strategic and operational advantages. On the other hand, should the decision be wrong, either an important opportunity is forever lost

(by virtue of the firm's failure to invest when in hindsight it should have) or it has needlessly squandered substantial resources (by virtue of making a fruitless investment).

1.1 DECISION MAKING FOR INVESTMENTS

At the outset, it needs to be mentioned that decision-making is aimed at minimizing risks; at the same time there is need to maximize returns. The hallmark of an effective decision is to manage successfully the risk-return-trade -off. The balancing act is seen in the context of two situations: The balancing act is seen in the context of two situations: personal investment and corporate investment decisions. What the underlying process of managing the risk-return trade-off is remains the same in both the situations. The objectives are different. In personal investment decision-making, the aim is to optimize the return in the hands of an individual, which in case of corporate investment decisions, the returns to the firm are to be optimized.

The return of the firm can be optimized through effective decisions making at two levels: the *strategic* and *non-strategic* level. At strategic level it is concerned with the long-term returns implying the shape of the firms in future. Non-strategic decisions would largely deal with the administrative and routine decisions taken to manage the day-to-day affairs.

The investment decision is the decision to commit the firm's resources (capital, people and know-how and so on) to particular projects with the intention of achieving greater financial and other benefits in future years. These assets may be *tangible*, such as land and buildings, plant and machinery, equipment and inventories or *intangible*, such as investment in patents, brands, know-how, and people. Increasing recognition has been given in recent years to the significance of intangible assets, sometimes accounting for more than one half of a firm's market capitalization value.

The literature on strategic planning is, with few exceptions, relatively unhelpful in guiding us towards an explanatory model on how corporate value might be managed strategically. Early models of corporate strategy, such as positioning grids like the growth/share matrix (Davidson, 1985) provide little enlightenment on how to link strategy and financial (or corporate value). These grids are very limited in helping us make linkage, as they are primarily qualitative in nature. It is best therefore to look at some key areas, which have sought to inter-relate strategic management and corporate value. One of these areas is corporate financial strategy.

Corporate Financial Strategy *is the process, which matches external sources of finance to strategies for corporate development* (Allen, D. 1994). Corporate financial strategy highlights:

- The need to reflect the expectations and aspirations of shareholders, particularly in strategic decision-making and in the ongoing management of financial performance. This suggests that organizations should pursue activities and behaviors, which are directly targeted at adding to corporate value.
- The requirement for financial plans to reflect both short-and long term goals- and accordingly reflect the full resource requirements of achieving these goals.
- The need to take into account life-cycle effects.

Corporate financial strategy is therefore a framework for matching group strategy and investment plans with financing requirements.

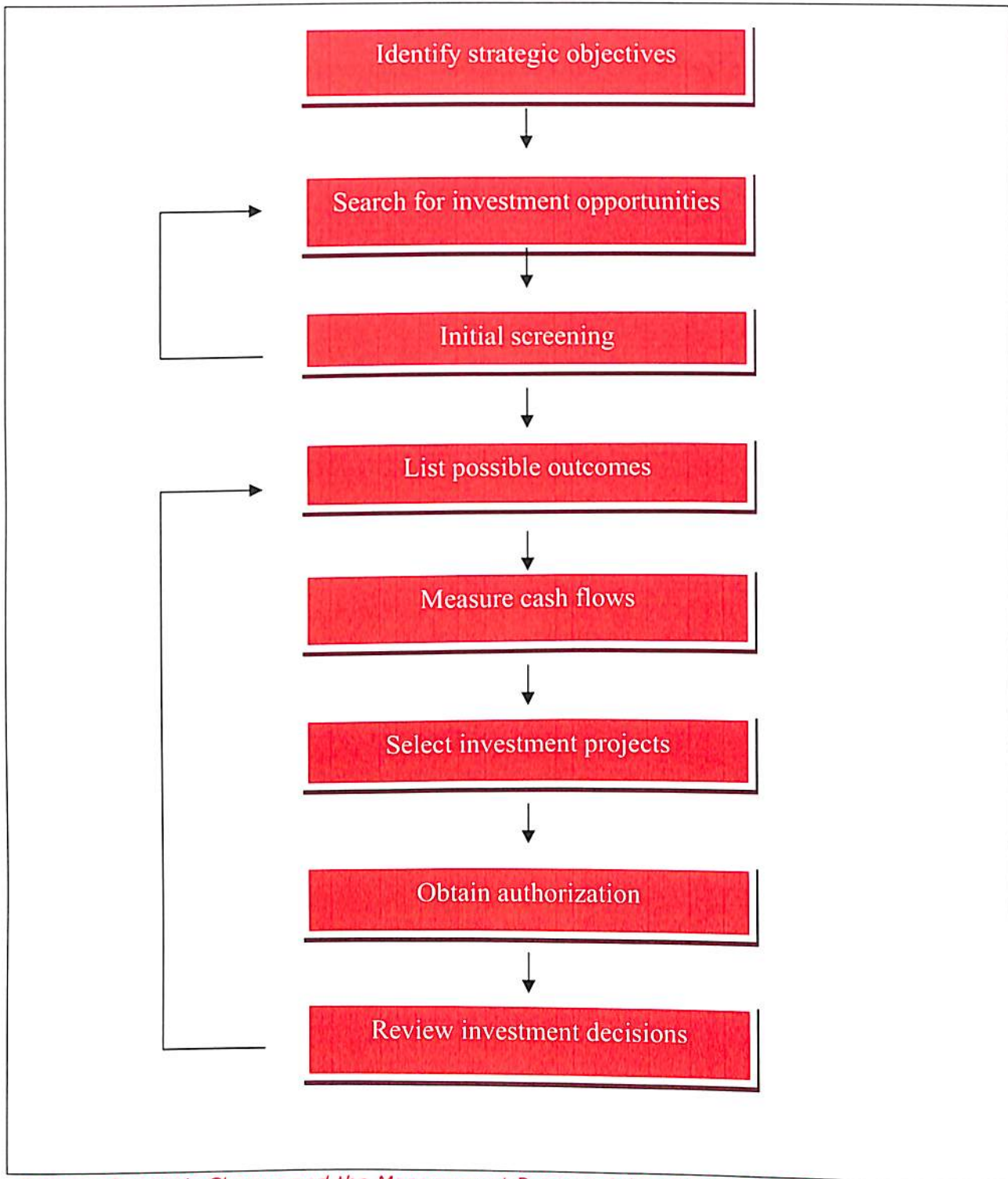
A further question arises here *why do companies invest?* The overriding purpose of new investments is to enhance the return on the investment made by shareholders. This return must be greater or equivalent to the return they can get by investing elsewhere. Investment appraisal is about selecting investments where the benefits of the investment outweigh the cost

and where the cash generated by the project more than outweighs the lost opportunities for shareholders. Behind this simple concept lie a multitude of questions. What is the *true* cost of an investment? What are the benefits of the investment, and how should they be measured? How do I know whether benefits that occur in the future *do* actually outweigh the current cost of investment? To answer these questions correctly managers need to understand what information should go into the appraisal model as well as knowing about the process of investment appraisal itself. They must be able to use their judgment to include both the obvious, tangible cost and benefits, but also the less tangible or hidden costs and benefits. Furthermore managers need to understand which investments are likely to be attractive and acceptable to their company before investing significant time, effort and money in evaluating them in detail.

1.1.1 Investment selection process

There are a number of stages in investment appraisal. Some can be undertaken simultaneously but many follow logically from the steps already taken. Figure 1.1 demonstrates the major stages in investment selection. First step is *identifying the company's strategic objectives*. It ensures that an investment project is in line with these strategic objectives. The next step is to *search for investment opportunities*. The search process should be an integral part of business planning and managers in all functional areas should be continually scanning the environment for new opportunities. In many companies, investments identified by the search process are subject to an *initial screening* which assesses their likely attractiveness.

Figure1. 1 Process of Investment Selection



Source: *Strategic Change and the Management Process*, Johnson, G.J (1987)

For those investment proposals that are going forward for detailed analysis, the reviewer must *consider all the possible outcomes of each investment*, and then *measure the cash flows* associated with those outcomes, together with initial investment cost. *Investments are selected* according to investment criteria, which have been agreed upon by the company.

The next step is to present the appraisal for *authorization* from the appropriate capital budget committees within the company. One step, which is often overlooked when considering investment appraisal is the final step of reviewing investments that have been accepted, and *monitoring to what extent the actual outcomes have mirrored the forecasted outcomes*. This valuable information can be fed back into all the relevant stages of process especially new investment projects that are being forecasted and measured.

1.2 STRATEGIC INVESTMENT DECISIONS

Strategic business finance integrates financial and strategic management tools and techniques in order to manage both internal and external resources for the enhancement of long-term corporate value. These tools and techniques cover strategic decision evaluation, decision-making and implementation, as well as performance evaluation and control measures.

Investment decision-making is the process whereby resources are allocated in organizations in anticipation of future gain. Capital investment decisions rank as one of the most critical types of decisions made in modern industrial society. It is therefore important that we understand the process by which such decisions are made and the means by which this process can be made more effective.

Capital budgeting is the term given to the process by which organizations reach capital investment decisions. The formal capital budgeting process, together with other structures and controls, provide the mechanism by which investment decision-making can be done.

1.2.1 A financial perspective

John Maynard Keynes once described the theory of finance as 'a technique of thinking which helps its possessor to draw correct conclusions'. However, the correctness, of such conclusions rests, in part, on the reality of the assumptions underlying the theory. Modern finance theory prescribes selection rules consistent with the assumed goal of the firm of wealth maximization. One such selection rules concerns *net present value* (NPV). Given certainty and perfect market capital markets, the wealth of the firm's shareholders is maximized when projects with after-tax positive net present values are selected. Long-term investment decisions given result in rise to changes in corporate cash flows in different future periods. It is necessary to incorporate into the decision analysis a means of taking account of the differences in timing between cash flows, and the NPV approach achieves this by discounting all cash flows at a rate commensurate with the time-value of money reflecting the opportunity cost of funds. A related selection rule employs the *internal rate of return* (IRR) approach. Projects should be accepted where the IRR exceeds the cost of capital.

Once it is recognized that decision outcomes cannot be forecast with perfect accuracy, the cost of capital, representing the opportunity cost of funds, is no longer constant. Firms should accept projects where the expected net present value is positive when discounted at the appropriate risk adjusted opportunity cost of funds for projects, risk being viewed in terms of how the project's expected return co-varies with the stock market's expected return (Brealey and Myers 1999).

1.2.2 Capital investment decision process

One way of viewing capital budgeting is to see it as a process with a number of distinct stages. According to this view, decision-making is an incremental activity, involving many people throughout the organization's hierarchy, over an extended period of time. While senior management may retain final approval, actual decisions are effectively taken much earlier to final approval, actual decisions are effectively taken much earlier at a lower level, by a process that is still not entirely clear. We tend to regard investment decision-making as a rational process of resource allocation, although, in reality, decision – making may be somewhat less ordered and rational than supposed. Within a capital budgeting context, various authors have attempted to describe this process (like, Bower 1971, King 1995). For this study I will employ the four-stage process suggested by Mintzberg *et al.* (1976), applied to capital budgeting by Pinches (1982). These are:

- Identification of investment opportunities.
- Development of an initial idea into a firm proposal.
- Selection of projects.
- Control of projects, including post audits.

1.2.2.1 Stage One : Identification

Economic theory views investment as the interaction of the supply of capital and the flow of investment opportunities. It would be quite wrong, however, to assume that there is a continuous flow of investment ideas. Possibly the most important role which top management play in the capital investment process is to cultivate a corporate culture which encourages managers to search for, identify and sponsor investment ideas. Questions to be asked at the identification stage include:

- a. How are project proposals initiated?
- b. At what level are projects typically generated?
- c. Is there a formal process for submitting ideas?
- d. Is there an incentives scheme for identifying good project ideas?

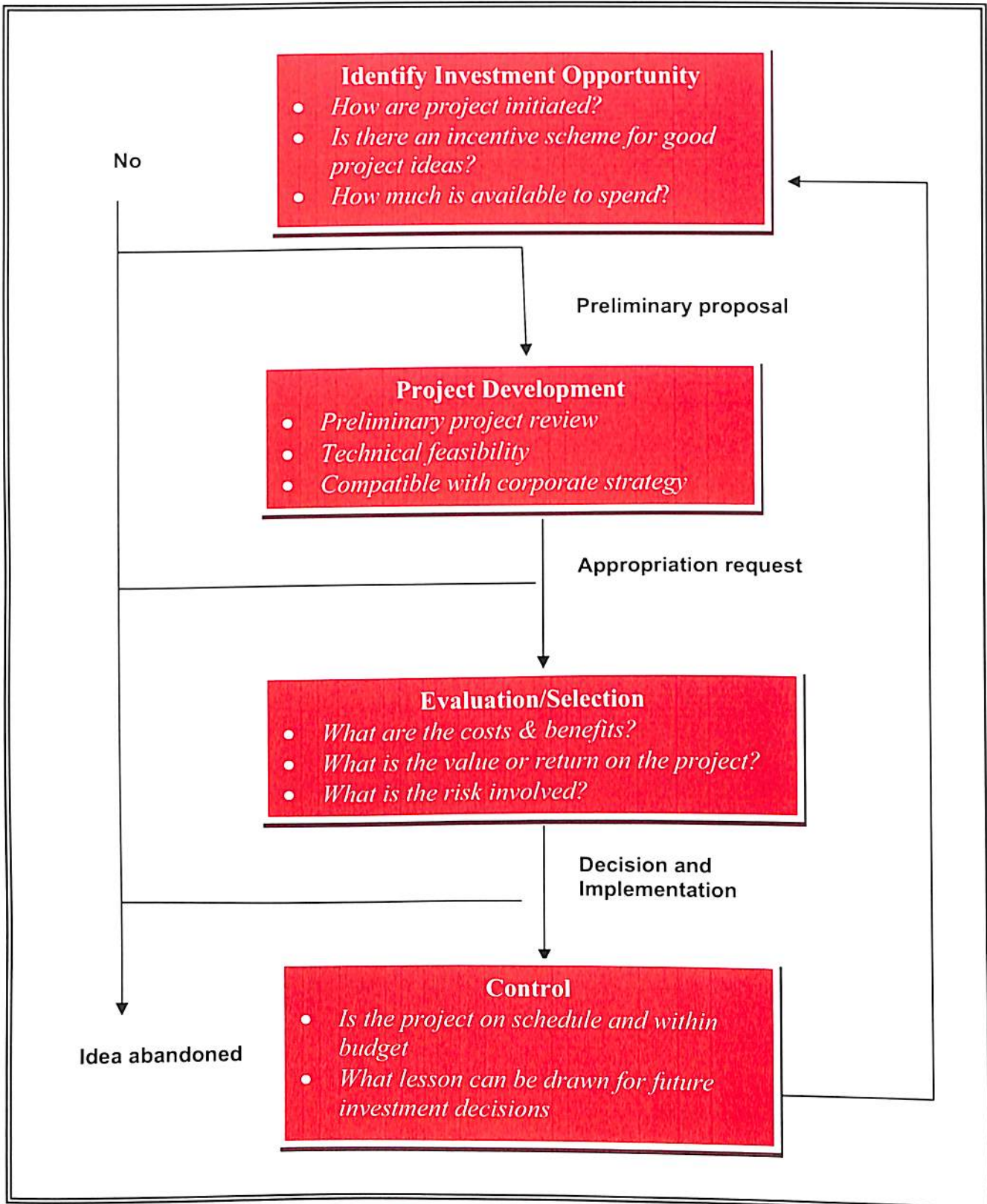
Generating investment ideas involves considerable effort, time and personal risk on the part of the proposer. Any manager who has experienced the hurt and frustration of having an investment proposal fail is likely to develop an inbuilt resistance to creating further proposal unless the organization culture and rewards are conducive to such activity. There is some evidence that firms employing long-term incentive plans encourage the initiation and implementation of capital investment projects (Larcker, 1983).

For identification phase of non-routine, strategic capital budgeting decisions to be productive, managers need to collect information from environmental scanning which is largely externally oriented, much of which is non-financial and *ex ante* (Godrdon and Pinches 1984). We should not expect the formal information system within most organizations to be particularly helpful in identifying non-routine investment ideas. Informal channels of communication are frequently more important in identifying investment ideas.

1.2.2.2 Stage Two : Development

The second stage in the capital investment decision-making process is screening of all investment ideas and development of those showing sufficient promise. This is sometimes termed the preliminary project review. It is neither feasible nor desirable to conduct a full-scale evaluation of each investment idea. The screening process is an important means of filtering out projects not thought worthy of further investigation. Idea may not fit with strategic thinking or fall outside business units designated for growth or maintenance.

Figure1.2 Capital investment Decision Process



Source: Mintzberg, H., Raisinghani, D. and Théorêt, A. (1976) The structure of "unstructured" decision processes, *Administrative Science Quarterly*,

The investment process usually forms part of a wider strategic process. Capital projects are also not viewed in isolation, but within the context of the business, its goals and strategic direction. In an UK study of strategic investment decisions, Marsh *et al*, (1988) found that explicit strategic planning, even at a divisional level, seemed to have only limited impact on the generation and approval of investment projects; it was more 'emergent' than 'deliberate' (Mintzberg and Waters 1985). Screening proposals therefore address such questions as:

- Is the proposal compatible with corporate strategy?
- Is the idea technically feasible?
- Do we have access to the required resources (finance, technology, skills and so on)?
- Does the project need further development?

Another element of the development phase involves defining projects, the detailed specification of the proposal, together with its technical and economic characteristics.) The amount of information gathered is determined by the data perceived as necessary to gain a favorable decision, and the extent to which the proposer will be held responsible for later performance related to the data.

1.2.2.3 Stage Three : Selection

The selection phase involves evaluation of the project and the decision outcomes (for example accept, reject, request further information, and so on). Project evaluation, in turn, involves the assembly of information (usually in terms of cash flows) and the application of specified investment criteria. Each firm must decide whether to apply rigorous, sophisticated evaluation models or simpler models that are easier to grasp yet capture many of the important elements in the decision.

Investment appraisal techniques: Firms conduct a financial evaluation on capital projects, the particular methods of analysis employed differ widely. *Discounted cash flow* (DCF) techniques, of which the *internal rate of return* (IRR) and *net present value* (NPV) methods are the best known, have greatly increased in usage from 58 per cent in 1975 to 84 per cent in 1986, making it a fairly standard technique for the larger firm.

The capital budgeting literature (Klammer 1992 & Pike 1983;) distinguishes between naïve or simple and sophisticated methods of investment analysis. Simple methods include payback period and accounting rate of return techniques, while sophisticated techniques include most, if not all, of the other methods like sensitivity analysis, reduced payback periods, increased hurdle rates, probability analysis and beta analysis. While sophisticated methods have clearly increased in popularity over the years, the observed increase has not come at the expense of similar methods. The pay back method continues to gain support and is now almost universally employed (92 per cent). The obvious conclusion to be drawn is that managers prefer to employ a combination of appraisal methods, sophisticated and naïve.

Risk analysis: An assessment of the risks involved in making investment decisions is a crucial element of the evaluation process. Although the techniques employed in analysis risk in capital projects vary considerably across firms, all techniques have witnessed considerable increase in usage. The most popular approach involves testing the sensitivity of critical investment inputs and underlying economic assumptions. The high usage of sensitivity analysis (71 per cent) and specifying investment outcomes based on 'best' and 'worst' case scenario (93 per cent) suggests a strong movement towards applying multi point estimates.

A strong movement towards the application of probability analysis is also witnessed, most notably by the larger firms surveyed. However, of the 40 per cent applying probability analysis and 16 per cent using beta analysis (a

measure of impact of cash flows on non-diversifiable risk), very few operate them on a regular basis. There now seems to be a greater awareness of the value of risk analysis and management science techniques, which may largely be attributed to the availability of relatively inexpensive computer software.

Approval: Following evaluation, large projects may require consideration at a number of levels in the organization hierarchy until finally approved or rejected. The decision outcome is rarely based wholly on the computed signal derived from financial analysis. Considerable judgment is applied in assessing the reliability of data underlying the appraisal, fit with corporate strategy, and track record of the project sponsor. The selection phase is essentially a political process. Projects put forward at lower level in the organization need the 'impetus' of sponsorship by a higher level manager with a good track record to secure a rapid and safe passage to final approval level (Bower 1971).

1.2.2.4 Stage Four : Control

The capital budgeting literature frequently assumes that control occurs after the selection phase. In fact, for most projects, relatively little real project control is possible, then the process is being more that of monitoring implementation and performance through post-audit and other procedures. These 'controls' do, however, provide useful feedback on how well the capital budgeting process is operating, for example, the realism of assumptions.

The capital budgeting control process may be divided into pre-decision and post decision controls (Scapens, Sale and Tikkas 1982). Pre-decision controls are mechanisms designed to influence managerial behaviour. Examples of such control include the selection and training of subordinates to possess goals and risk attitudes consistent with senior management (selection controls), setting authorization levels and procedures to be followed (intervention controls) and influencing the proposals, submitted by setting

goals, hurdle rates, cash limits and identifying strategic areas for growth (influencing controls).

Post decision controls are introduced to help managers implement the project on schedule and to achieve the planned levels of performance. The most notable increase is the requirement to conduct post- completion audits. Such audits seek to compare the actual performance of a project after, say, a year's operation with the forecast made at the time of approval. In UK since 1975 there has been a marked increase in adoption with 64 per cent now regularly conducting audits on large projects. The main justifications given by respondents for their use are:

- Learning from the investment experience to improve the quality of future decisions, and
- Ensuring accountability of managers in an attempt to deter over optimistic forecasts.

1.3 FOREIGN INVESTMENT DECISIONS

So far the discussion on capital budgeting has been restricted to domestic investment. There are many investment decisions that have wider implications outside the domestic economy, especially the investment decisions of transnational corporations. Therefore it is appropriate to discuss the international capital project appraisal.

Foreign Investment may be divided into direct and portfolio investments. *Portfolio investment* refers to the participation in overseas investment without any control over the running of the business. It involves the

purchase of loan stock or shares in an overseas organization. *Direct investment* refers a lasting interest in an enterprise in an economy other than of the investor, where the investor's purpose is to have an effective voice in the management of the enterprise. Such direct investment usually

risers from the acquisition of an overseas business or the setting up of an overseas branch or subsidiary.

Foreign investments are different in degree than kind. They should not be regarded as fundamentally different from domestic investment although, the political structures, economic policies and value systems are more variable. It is therefore not reasonable to assume that broadly the same capital budgeting approach should be applied for foreign investments as to domestic investments. This is substantiated in a survey by Robbins and Stobaugh (1973) which concluded that 95 per cent of transnational corporations use precisely the same basis for evaluating domestic subsidiaries as for subsidiaries. Piper (1971) suggests that the foreign investment decision is actually subject to less rigorous analysis: in general, many US firms' overall approach to foreign decision making is much less sophisticated than their domestic approach.

1.3.1 Why Invest Abroad?

Both international and domestic trade are founded on the principle that economic units (whether firm or nations) should specialize where they have some comparative economic advantage. However, no comprehensive economic rationale has yet been satisfactorily developed to explain why and when a company should cease exporting goods to a country and invest directly. Brooke and Remmers (1970) categorizes the reasons for direct foreign investment into economic and defensive.

Economic justification covers:

- Comparative cost advantages
- Scale economies to preserve or improve profit margins
- Diversification to secure against over-exposure in any single market
- Strategic reasons

Strategic reasons for companies investing abroad are primarily the desire for new markets, production efficiency and new sources of raw materials. Defensive justification is mainly concerned with fear.

Aharoni (1966), in a survey of 38 primary 'market seeking' US companies which had considered direct investment in Israel, identified four main exogenous reasons for direct investment, as follows:

- An outside proposal provided it comes from a source that cannot easily be ignored. The most frequent sources of such proposals are foreign governments, the distributors of the company's products and its clients;
- Fear of losing a market;
- The band wagon effect: very successful activities abroad of a competing firm in the same line of business, or a general belief that investment in some area is a must;
- Strong competition from abroad in the home market.

Aharoni also found that although the final decision to commit funds was made at the board-of-directors level, this was typically only a formal ratification of the organizational commitments accumulated during the investigation. Financial evaluation and analysis have traditionally then been applied as a screening device to eliminate unacceptable investment proposal, to test the validity of marketing assumptions, and to determine the amount and method of financing the investment.

1.3.2 Evaluation

Transnational Corporations increase shareholders' wealth by selecting investments with positive net present values. The evaluation of foreign investments can be viewed from two levels. *Firstly*, a project can be considered in terms of its viability in its country of operation. The cash-flow analysis will be expressed in local currency and includes:

- Initial investment outlays in fixed and working capital;
- Incremental operational cash flows after local taxes and realistically determined transfer charges;
- Net terminal value based on the estimated market value of the investment at the end of the evaluation time horizon.

The *second* approach to evaluation is to consider the investment from the parent company's viewpoint. Cash flows will be actual receipts and disbursement in parent company currency. These cash flows will include the equity and loans provided, dividends remitted after taxes and other intra-company cash flows, plus the net terminal value.

1.3.3 Required Rates of Return

One practical approach towards estimating the cost of capital for foreign investments is to base it on the local opportunity cost of capital. This is the return currently achieved or required for comparable investments in the same country of operation. If the transnational corporation is prepared to operate at a level of return below the opportunity cost of capital, it would mean that the nation's scarce resources are not being utilized efficiently. In the longer term this would hinder good relations with the host government and possibly give rise to government interface. This logic does not apply to short-lived investments where there is currently an underemployment of national resources.

One reason often cited for investing overseas is that by diversifying corporate assets across a number of different countries, the overall business risk is reduced. Domestic investments are all subject to the same underlying economic circumstances. Foreign investments are subject to different economic circumstances, although most countries are subject to different circumstances that might be positively correlated with each other economically.

This has been more clearly demonstrated with portfolio investment. Watson (1978) has calculated the correlation coefficients between the monthly rates of return on industrial stock-market indices for seven countries. His findings were that, on average, the inter-country correlation coefficients were approximately +0.55. As this is substantially less than +1 (perfect correlation), it leads support to the belief that international diversification can offer significant benefits beyond those offered by diversification within a single country.

The question, which logically follows is whether the obvious diversification benefits can legitimately be extended to foreign direct investment. The answer lies, firstly, in the ability of companies to diversify direct investments and, secondly, in whether it is desirable. To eliminate most of diversifiable risk requires a portfolio of approximately fifteen randomly selected investments. Although some diversification may be achievable, it cannot be as effective as portfolio diversification as only the large TNCs will invest in fifteen or more countries.

1.3.4 Currency Risk

Businessmen do not need to be reminded that currency risk is one of the major problems of overseas investments. Before discussing how currency risk can be managed, we must first consider exactly what we mean by foreign exchange risk in relation to overseas investments.

The overriding concern in the appraisal of foreign investment is with economic (cash-flow) exposure rather than balance sheet (translation) exposure. Balance sheet exposure depends on the asset/liability structure of the investment and on the method used in translating foreign balance-sheet items (closing rate, monetary/non-monetary, current/non-current, etc), economic exposure considers how exchange-rate movements affect the net present value of the investment expressed in parent company currency.

Foreign currency can be purchased immediately in the *spot market*, or it can be purchased in the *forward market* for delivery at a specified future time. Exchange –rate movements are inextricably related movements in inflation and interest rates. We shall consider two explanations of exchange-rate movements.

1.3.5 Purchasing Power Parity Theorem

The purchasing power parity (PPP) theorem states that the rate of change in the spot exchange rate is proportional to the difference between the rates of inflation in two countries. Purchasing power parity rests on the assumption that in a world where assets can be traded freely, identical assets in different places will only differ in price because of transport costs. Thus, in the long term the impact of exchange –rate movements or cash flows tends to be offset by countervailing changes in the prices.

Calculation of the net present value for overseas projects should be on the basis of the commercial merits without distortion by the effect of possible exchange gains and losses. Any exposure to exchange-rate movements can, if required, be hedged and should be treated as separate issue. The PPP proposition provides us with a reasonable long-term estimate of future exchange rates.

If the PPP theorem holds in the longer term, assets and liabilities exposed to foreign currencies are self- adjusting in value and not exposed to foreign currency risk. Exchange risk therefore exists mainly in the short term because of unexpected changes in currency values from the anticipated long-term path.

1.3.6 Interest –Rate Parity Theorem

A second explanation of the difference between the forward and spot rates of exchange is provided by the differences in nominal interest rates in two countries. *Interest Rate parity* (Aliber 1978) implies that in efficient international capital market, an investor will obtain much the same rate of interest on risk-free investments in different countries once the proceeds have been converted into domestic currency and currency risks covered. In other words, it assumes that there are no easy profits to be made from lending in currencies where interest rates are higher than in one's own country, or by borrowing in currencies where interest rates are lower. This is because any apparent gain is offset by the cost of covering for the risk of changes in exchange rates in the forward exchange market.

To manage investment currency risk companies can adopt either a *profit-maximizing* strategy or a *risk –minimization* strategy. The former approach assumes that it is possible to forecast exchange rate movements. This will lead firms to finance their operation in currencies with minimum expected effective interest costs(i.e. interest plus or minus exchange losses/gains).If a depreciation of local currency were expected, positive net cash flows would be expected as the company would benefit from such a currency movement. The risk minimizing strategy involves the following steps:

- Determine how currency movements affect net operating cash flows; and
- Select a finance structure, for the subsidiary or within the group, to offset as far as possible the adverse effects of currency movements.

1.3.7 Political Risk

It is hardly surprising that foreign investment by transnational corporations should involve a strong element of political and social risk. Their very size and strength in relation to host nations create the possibility of political

action, whether favorable (such as granting generous incentives) or adverse (such as expropriation of assets).

Where the objectives of the host nation and the TNCs are clearly at odds with each other, the political risk is heightened. It is not at all easy sometimes for corporations to be clear as to their own objectives, but it is considerably more difficult to ascertain the objectives of various countries. Political risks are heightened where political and social instability prevails. How can instabilities be defined, identified and predicted? Political and social instability is the result of internal pressures or civil strife, which may be caused by such factors as inequalities between various internal factions (whether racial, religious, tribal, etc.), extreme political programs, recent or forthcoming independence or impending elections. A TNC considering foreign investment may observe the signals of political instability, but to measure the extent is more complex.

A major cause of political and social instability is attributable to economic influences. Economic instability often gives rise to heavy overseas borrowings. The risk of default can be gauged by such factor as the overseas debt service ratio (debt service payments to export of goods and services), debt age profile, the extent to which such overseas borrowing will finance exports, and the likelihood that domestic savings will eventually replace overseas borrowings. The political risks of such economic pressure will lead to any of the following actions:

- Exchange controls and currency regulations;
- Restrictions and registration of foreign companies;
- Restrictions on local borrowing;
- Expropriation or nationalization;
- Tax discrimination;
- Import controls;
- Limitations on access to strategic sectors of industry

Expropriation, asset freezing and nationalization represent the greatest political threat to foreign investors. This risk is not so much the expropriation itself as the risk that compensation will be inadequate and deferred.

1.3.8 Managing Political Risk

Managing political risk does not imply that a company can control risk, for risk is by definition an uncontrollable factor. What is possible, to a certain extent, is that such risk can be identified, appraised and sometimes reduced. Lloyd (1976) suggests that political risk management is best applied on a project basis, but it is essentially an overall company approach that involves:

- (a) dispassionate analysis of the project and its likely result;
- (b) identification of all community groups and organizations that will be affected by, and will possibly react in a significant way to, the project;
- (c) comparison of objectives and consequences of the project with the aims to local and national government;
- (d) a carefully organized program of information and involvement using the whole company, which is reflected in the way the total organization operates and is therefore much more than just another public relations exercise.

The risk-averse company will want either to avoid any clear political risk, simply by not investing in such countries, or to fully insure against such risks materializing. A number of governments have introduced insurance guarantee programs. Most of these guarantee programs cover risks for direct investment of:

- nationalization, expropriation and confiscation;
- war, revolution and insurrection;
- restrictions or delays in repatriation of profits and capital.

1.4 GCC 'S INTEGRATION IN THE WORLD ECONOMY

The GCC countries have had their share of a more liberal trade since the early 1980s when the six of Arab Gulf countries (Saudi Arabia, Kuwait, UAE, Oman, Qatar, and Bahrain) formed a free trade area. In effect in 1983, this resulted in the elimination of all tariffs on local products and the placing of a "rules of origin" mechanism to avoid trade deflecting to the member with the lowest external tariff. As a result, the ratio of intra-regional trade to the region's total trade increased from 3.8% in 1980 to about 7.2% in 1994, then fell to almost 6% in 2000. In addition, the six countries reduced their tariffs on non-members to an agreed upon rate of a low 4% and a high of 20% with a few exemptions (IMF, 1998). In their meeting held in December 2002, the six heads of state agreed to form a customs union beginning January 2003 with a unified external tariff ranging between 5% and 10%.

As far as external trade is concern, the GCC states are featuring a high proportion of external trade in their gross domestic product. Even in Saudi Arabia, the country with by far the largest domestic market in the region, exports in 2004 amounted to more than half its gross national product. International integration of the Gulf States will receive further impetus in the coming ten years from the dynamic economies of Asia. Already, almost half the Gulf States' exports head for the Far East and South Asia, and not quite one-third of their imports are sourced from there. The energy-intensive economic upswing in China and India will further fuel trade with the Gulf region, which already delivers half of China's oil imports. To secure the supply of energy in the long term, a growing number of Chinese and Indian companies are planning to invest in energy production in the GCC member states.

Major deliveries of oil and gas to Asia require the appropriate transportation. Gas is considerably more challenging in this respect than oil, which can be shipped by tankers on practically any scale. Capital expenditure on expanding facilities to transport natural gas is consequently one of the biggest projects on the Gulf. They include gas pipelines to South Asia and also gas liquefaction and subsequent transportation in special vessels, in which Qatar plays a pioneering role. With oil exports to the Far East and the Indian subcontinent looking set to continue growing at an above-average rate, at first glance this appears likely.

Already, the region's dynamism has fostered some noticeable changes, evident in areas as diverse as the Dubai skyline and greater foreign interest in the region. Foreign direct investment into the GCC, for example, rose from just under \$2 billion in 2001 to more than \$20 billion in 2005- a trend that will help integrate the GCC's insular economies into the global economy and provide an additional impetus from reform (Table 1.1). Roughly, \$1 trillion in infrastructure investments are now in the pipeline, and by decade's end they could total \$ 3 trillion.

Although, in recent years the region has posted real growth rates of about 7% - low compared with those of China and India-its growth is stronger than that figure suggests. Nominal (rather than real) growth is about 20% a year – among the world's fastest rates. For GCC, nominal growth more accurately reflects the region's dynamism, since real growth rates treat oil price hike as inflation and don't take into account the fact that much of the revenue that oil producers earn come in US dollars.

Table 1.1 GCC Population, GDP and FDI inflows (\$ million)

| Country | Population 2005 (million people) | GDP per capita 2005 (\$) | FDI Inflow \$ million | | |
|--------------|----------------------------------|--------------------------|-----------------------|--------|---------------------|
| | | | 2001 | 2005 | CAGR* 2001-2005 (%) |
| Saudi Arabia | 24.4 | 13,001 | 504 | 4,628 | 74.1 |
| UAE | 4.9 | 23,698 | 1,184 | 12,000 | 78.1 |
| Kuwait | 2.9 | 16,845 | -111 | 250 | - |
| Oman | 2.5 | 9,949 | 5 | 715 | 245.8 |
| Qatar | 0.8 | 30,423 | 296 | 1,469 | 49.3 |
| Bahrain | 0.7 | 15,355 | 80 | 1,049 | 90.3 |

*CAGR: Compound annual growth rate
Source: *Global Insight, UNCTAD*

At present, the stakes are high not only for the GCC states but for the rest of world as well. The development in the region could shape global investment flows more and more significantly. This influence is already visible. The combination of ever stronger institutions, ambitious leaders and sustained oil income- coupled with comparatively lower growth in a more challenging west- has prompted the GCC to look to the East. If current trends continue, the Gulf will play a central role in channeling oil income generated in the West to invest in East.

1.4.1 The Pressure for Reform

During the oil price surges of the mid 1970s and early 1980s, most of the GCC states were newly founded states and lacked institutions that could absorb a six fold increase in revenue. Today, disciplined fiscal regimes and debt reduction policies suggest that the region's governments have the political will to cope up with this latest windfall. From 2002-2006, annual GCC revenues from oil and gas more than tripled to \$ 325 billion from \$100 billion. During the same period, the government spending increased by 74% to \$ 207 billion mainly to finance health and education initiatives. In addition, it has been used to cut the region's external debt, which grew considerably during the 1980s and 1990s. For example, in Saudi Arabia, it felt from a

peak of 97% of GDP in 2002 to less than 41% in 2005, while in Kuwait during the same period it declined to 17% of GDP from 32%.

There are three powerful factors that are pushing the reform forward in GCC countries: falling per capita oil and gas production, a growing mass of unemployed youth and an inefficient financial system.

The GCC pace of reform has been uneven. Countries with relatively little oil and gas production per citizen will find it increasingly difficult to sustain their standard of living. It may come as surprise that Saudi Arabia, the world's largest oil producer, fall in this category, its production per citizen is one sixth of the UAE's, so its oil reserves are spread much thinly across the population.

The GCC has one of the world's youngest and fastest growing populations, for example, 61% of Saudi Arabia's population is under 25 years old, compared with 50% of India's, 39% of China's and 30% of Europe's. A young labor force is normally an asset, since it replenishes the private sector and drives economic growth. But young GCC nationals face a future of underemployment or no employment at all, the education system has failed to prepare them for the rigors of working in the private sector.

In a region flooded with excess cash, weak capital market and banks prevent adequate funds from reaching small and midsize businesses which in most economies are the engine of growth, innovation and employment. The GCC financial system instead channels fund to large government owned enterprises and elite businesses, while starving others.

1.5 GCC STRUCTURAL REFORMS & EXPERIENCES

In order to overcome the above listed problems, the authorities in the GCC have reinforced their structural reform programs along the lines of the strategy set out by each country (see Table 2). Since the programs are driven by specific pressures in each country, they are at different stages of implementation. In all GCC countries, progress has been made over the past few years toward fiscal consolidation, lessening the budgets' vulnerability to terms of trade shocks from oil price volatility. Some countries have made progress in separating public expenditure decisions from the short-term developments in oil revenues (as in Kuwait and Oman) through formal oil savings and stabilization funds.

Saudi Arabia has adopted two-track approach: fixing the old and creating the new. To fix the old, Saudi Arabia has joined the WTO, cut import duties, privatized telecommunication, and preparing to liberalize electricity and water sectors, and airline industry. Two private airline companies have been provided the licence to operate in domestic market in January 2007. To create the new, it has embarked on a \$200 billion initiative to develop new industrial cities and economic zones with regulations that are friendly to the private sector. Within a decade, the six new cities will become the main vehicle for attracting domestic and foreign investment with desirable living and working condition for about 2.5 million people (about one Saudi national in ten).

Attempts to raise non-oil revenues have met with mixed results; they are expected to be more successful in the medium term. Moreover, containment of public expenditure has proven to be harder than expected: reducing public sector employment and curtailing the scope and budgetary impact of subsidies have been difficult and the generous welfare systems have remained largely unchanged. More steadfast attempts to structurally

strengthen the budget, including through the implementation of fiscal rules with strict transparent reporting and accounting procedures, would be useful.

The restructuring and privatization of utilities and related services have been placed at the top of the agenda in many GCC countries. Oman, Qatar, and the United Arab Emirates are presently relying on the private sector and foreign direct investment to fund and manage infrastructure projects in the energy and water sectors. The state enterprise reform and privatization can be sustained by a more sequenced approach, including establishing a process-monitoring system, further reducing regulation, offering common treatment of investors, implementing time-specific programs to improve the efficiency of state enterprises, and gradually increasing energy and water tariffs to recover costs.

New incentives have been recently adopted in all GCC countries to attract foreign direct investment. These include the establishment of regulatory, institutional, and legal frameworks to govern foreign capital inflows under a generally liberal exchange and trade system. In fact, 100 percent foreign ownership of companies has been allowed in most non-hydrocarbon sectors. Corporate income tax on foreign corporations has been reduced substantially, administrative steps for investment approval streamlined, and foreign investors' access to local stock markets improved.

More significantly, the banking systems of all GCC countries have remained resilient to the volatility in oil prices, as high capitalization and strengthened prudential oversight, together with cautious monetary policies, have helped preserve the quality of banks' assets. Steps have also been taken to deepen the financial system through the promotion of capital and equity markets in a number of GCC countries.

The labor market challenges differ across GCC countries. The rapid expansion in the number of young nationals in the labor market, particularly in Bahrain,

Oman, and Saudi Arabia, combined with downward rigidities in reservation wages—while expatriate workers are available at internationally competitive and flexible wages—has created the potential for strong unemployment pressures. Foreigners account for at least 40% of the GCC’s labour force and in some countries hold 90% or more of all private sector jobs.

The authorities are aware of the pitfalls of a quick "nationalization" of the labor force and are appropriately focusing on long-term structural solutions while taking interim steps to ease the transition to a market-based system in which wages reflect labour productivity. In fact, all GCC countries have initiated ambitious programs for retraining and educational reforms to meet the medium- and long-term skill demands, particularly in the private sector.

Table1. 2 GCC Countries: Recent Key Structural Reform

FINANCIAL SECTOR

| | |
|----------------|---|
| Bahrain | Issued the first Islamic government bills to complement the working of the Islamic financial institutions; took steps toward improving prudential regulations for Islamic banking; ratified anti-money laundering legislation in 2001; and enforced Bahrain Stock Exchange rules and regulations. |
| Kuwait | Adopted a foreign investment law allowing foreigners to own and trade shares of joint-stock companies listed on the Kuwait Stock Exchange, subject to specific limits. |
| Oman | Expanded repossession facilities to the inter bank market; implemented a capital market law to restructure the Muscat Securities Market into three separate bodies dealing with regulations, trading and exchange, and depository registration; and adopted a new banking law in 2000. The central bank has reactivated the issuance of certificates of deposits to manage liquidity, and implemented measures to reduce the risk of over-lending to individuals, corporations, and their related parties. Oman has taken steps toward full compliance with the Financial Action Task Force (FATF) recommendations on money laundering and combating the financing of terrorism. The central bank is also strengthening risk-management assessment. |
| Qatar | Removed interest ceilings on local currency deposits in February 2001; strengthened bank supervision, resulting in tightening of nonperforming loan criteria; and introduced a new scheme to enhance liquidity management. Under this scheme, commercial banks can deposit their excess liquidity with, or borrow from, the central bank at rates determined by the central bank, which are fixed on a daily basis. |

Saudi Arabia Allowed foreigners to trade on the stock market through open-ended mutual funds and approved a new capital markets law to deepen the financial markets and strengthen the stock market. Enforced recommendations in line with FATF guidelines relating to the prevention of money laundering.

UAE Established formal stock markets in 2000, and regulatory body for capital markets; enacted a new Securities Law to address volatility and malpractices that plagued security markets in 1997 and 1998, and adopted comprehensive anti-money laundering legislation along with combating the financing of terrorism in January 2002. The central bank is implementing a comprehensive pilot risk-management module for banks.

FOREIGN DIRECT INVESTMENT

Bahrain Eased rules on non-GCC firms to own buildings and lease land; established a one-stop shop to facilitate licensing procedures; and permitted foreign ownership to increase from 49 to 100 percent of businesses in all but a few strategic sectors (e.g., oil and aluminum).

Kuwait Passed a law allowing foreigners to own 100 percent of Kuwaiti companies and reduced corporate taxes from 55 percent to 25 percent. Established Foreign Investment Capital Office to process foreign direct investment applications.

Oman Allowed 100 percent foreign ownership of companies in most sectors; reduced income tax disparity between Omani and foreign companies by raising the single rate for the former from 7.5 percent to 12 percent and lowering the rates for the latter from 15–50 percent to 5–30 percent; redefined "foreign" company as one with more than 70 percent foreign ownership instead of currently 49 percent; and allowed foreign, non-GCC, firms to own buildings and lease land. Opening up the service sector to full foreign ownership in line with WTO agreements, starting in 2003 with the information technology sector

Qatar Allowed 100 percent foreign ownership in agriculture, industry, health, education, and tourism sectors, and streamlined investment approval procedures. Reduced maximum corporate tax from 35 percent to 30 percent.

Saudi Arabia Enacted a new Investment Law and established the associated investment authority (SAGIA) to facilitate foreign direct investment processing, including the establishment of a one-stop shop. Allowed for 100 percent foreign ownership of business in most sectors, including gas, power generation, water desalination, and petrochemicals. Cut the highest corporate income tax on foreign investment from 45 percent to 30 percent. Permitted non-Saudis to own real estate for their business or residence, except in the two holy cities.

UAE Launched several new free trade zones intended to establish the emirate as a global center for trade in gold bullion, research and development of technology, and financial activities. Relaxed restrictions for foreign investment in specific real estate projects

STATE ENTERPRISE REFORM AND PRIVATIZATION

| | |
|--------------|---|
| Bahrain | Privatized the Public Slaughter House and the capital's waste collection and incineration. Other privatizations are under way, including the public transport company (bus) and tourism facilities. The telecommunications and postal services sectors are being liberalized. |
| Kuwait | The privatization law, approved by the Finance Committee of the National Assembly, established a comprehensive framework for large-scale privatization, identified areas and modes of privatization, and set up a pricing mechanism and safeguards against job losses. The government plans to offer for sale to the private sector most of the 62 public sector entities still under its control. |
| Oman | The power sector is at the forefront of privatization efforts, with three power plants now under construction by foreign investors under a build-own-operate basis. Existing government power plants are being restructured for their future privatization. Oman has also recently privatized the management of airport services. Other services to be privatized in the near future include water distribution, waste water network, postal services, and telecommunications. The government also plans to gradually sell its participation in the few remaining non-oil public companies listed in the local stock market. |
| Qatar | Partially privatized the Telecommunications Company at end-1998. Corporatized the electricity and water sector and sold most of the government's power generation plants to Qatar Electricity and Water Company, which is majority-owned by the local private sector. Construction is under way of the first independent power and water plant, which is majority-owned by a foreign developer. Sold 60 percent of the government's stake in a recently created company—spun off from Qatar Petroleum—to take over the local distribution of gasoline. |
| Saudi Arabia | Announced in June 2002 a new privatization strategy under which autonomisation of management would be followed by deregulation (corporatization) and ultimately private ownership. Twenty sectors are presently identified for privatization, including telecommunications, electricity, industrial parks, postal services, water, railroad, education, and air transportation. Saudi Arabia has recently privatized 30 percent of the Saudi Telecommunications Company. Eight regional electricity companies have been merged into the Saudi Electricity Company, and a regulatory authority was established to set tariff rates and regulate market access to new entrants. |
| UAE | Embraced utility privatization, embarking on new power projects through joint ventures with foreign investors, and selling some existing assets. |

LABOUR MARKET REFORM

| | |
|---------|---|
| Bahrain | Recently developed a new National Employment Strategy that includes providing fiscal subsidies for training nationals in the private sector and financial aid for the unemployed. Introduced measures to improve general education standards, and vocational and technical training programs, and increased employment quota of Bahrainis in small and medium-sized companies while abolishing the "free visa" system to expatriate labour force. |
|---------|---|

| | |
|--------------|---|
| Kuwait | Established Manpower and Government Restructuring Program (MGRP) in July 2001 to implement the labour law, provide unemployment benefits to unemployed Kuwaiti nationals, and provide training and facilitate employment of Kuwaiti nationals in the private sector. Approved, in September 2002, quotas for the proportion of Kuwaitis that private companies must employ; companies that fail to meet this target would be subject to a fine and sanctions such as exclusion from bidding for government contracts. |
| Oman | Introduced measures to improve vocational and technical training programs, and set a uniform minimum wage for Omanis at RO 100 (plus RO 20 as transportation allowance) instead of the previous two-tiered (skilled/unskilled) minimum wage. The authorities are also modernizing the educational system at all levels. A new ministry of manpower was created in 2002 and a new labour law adopted in May 2003. |
| Qatar | Formally ended the policy of automatic employment for Qatari graduates. Now assists job seekers by maintaining information on job openings and by counselling and training. Established a department in the ministry of civil service with responsibility for this function. |
| Saudi Arabia | Created the Human Resources Development Fund (HRDF)—with financial participation of the private sector—to provide training of Saudi labour force in skills required by the private sector, and development of a database for matching and placement of Saudi workers in the private sector. |
| UAE | Established the National Human Resource Development and Employment Authority to help improve skills of U.A.E nationals looking for jobs; and established a national labor market database to facilitate nationals' job searches. |

Source: Fasano-Filho, Ugo & Iqbal, Zubair: GCC Countries: From Oil Dependence to Diversification, International Monetary Fund, 2003

1.6 GCC REGIONAL INTEGRATION

Regional integration efforts in the GCC countries have recently gained momentum and will help coordinate and strengthen the numerous structural reforms. Indeed, significant progress toward regional integration has already been achieved since the GCC was established about two decades ago. Barriers to free movement of goods, services, national labor, and capital have been largely eliminated, prudential regulations and supervision of the banking sector are being gradually harmonized, banks are now allowed to open branches in member countries, individuals and corporations of GCC countries have been granted national treatment for tax purposes, and

nationals have been permitted to own real estate and invest in the stock markets of all GCC member states.

A GCC single common external tariff (CET) is now in place. Also, imports originating from GCC countries are exempt from duties if 40 percent of their value added is from the region. However, differences in regulations on foreign investment, ownership, capital markets, and integration with the global banking system remain and have militated against the development of an enlarged regional common market.

The planned monetary union of GCC countries by 2010—an initiative to cap the integration effort initiated in the early 1980s—will reinforce the beneficial efforts of ongoing structural reforms and related macroeconomic policies. The monetary union is likely to promote policy coordination, reduce transaction costs, and increase price transparency, resulting in a more stable environment for investment. In particular, the introduction of a common currency is likely to enhance growth prospects by contributing to the unification and development of the region's capital markets and improving the efficiency of financial services.

The economic and monetary integration is also likely to help these countries face the external challenges imposed by the rapid pace of globalization, which is transforming all aspects of economic and financial activity. In addition to addressing external challenges, integration should also help the GCC countries to face together their internal challenges, in particular increasing strains in the labour market and still-high oil dependence.

1.7 GLOBAL PETROCHEMICAL INDUSTRY

The global petrochemicals industry is estimated to generate well over \$ 2 trillion in sales each year, more than the global market for crude oil. Although demand remains more concentrated in developed markets (US,

West Europe and Japan account for 60% of the market), there has been strong growth in emerging economies and the petrochemicals market is truly global. Chemicals are critical components of most everyday items in both industrial and personal goods, from direct products such as plastic packaging, agrochemicals, paints etc, which contain more than 80% of their total material input from chemicals, to less obvious uses such as aircraft manufacture (10%), household appliances (20%) and medical equipment (30%). Growing use of chemical products is a critical element of emerging economies, from infrastructure and construction to industrial packaging to the development of a consumer products sector.

The distinguishing feature of *petrochemicals* is the carbon atom, derived from hydrocarbons (petroleum and natural gas). The main building block is **ethylene**, representing 40% of total petrochemical volumes. Ethylene is produced by “cracking” or separating bonds in the hydrocarbon chain to produce ethylene, along with other **olefins** such as propylene and butadiene, and **aromatics** such as benzene, toluene and xylene. The proportion of these basic petrochemicals depends mainly on the feedstock used by the ethylene cracker, with some further flexibility from differing operating conditions. Although there are few direct uses for ethylene itself (it has been used to stimulate the ripening of tomatoes in Spain, for example, but not much else), it is familiar through its many derivatives such as plastics (polyethylene, PVC, polystyrene) and fiber (PET and polyester). In the US, nearly 70% of end uses are for non-durable goods such as packaging, bottles etc. The remaining 30% for durable includes pipes, automotive parts and electrical components. With such a diverse spread of uses, many of which are focused on basic economic activities such as packaging and construction, there is a very close correlation between petrochemicals and GDP.

The global chemical industry is growing at the rate of close to 1.5x GDP and at twice the general rate of manufacturing growth as a whole. However, the multiple to GDP varies between different products and regions depending

mainly on their level of maturity. The superior economic growth rates seen especially in China and South East Asia have led to ethylene demand growth in Asia (ex Japan) of 6.5% compared to 3.0% for the rest of the world.

The petrochemicals industry is deeply cyclical in nature. Growth as a multiple of GDP tends to exaggerate the effect of changes in overall economic growth, leading to large movements in inventory especially in more storable downstream products. Temporary shortages attract stronger prices from customers to capture supply, which in the near term produces some flexibility in supply as higher margins encourage higher industry utilization. However, any unexpected growth in underlying demand rather than temporary supply disruption is more difficult to satisfy, due to the long lead times in sanctioning and constructing major new capacity. Excess margins encourage over-investment, which then tends to start up at around the same time, leading to severe decline in margins.

Despite some consolidation over the past decade, the ethylene industry remains relatively fragmented, with limited opportunity for any natural market leaders to mitigate inventory build by reducing production. Because of the high level of capital intensity and the level of integration into numerous petrochemicals products and markets, marginal producers have often felt incentivized to continue to produce even when making losses on their volume in order to make a contribution to fixed costs or protect position during what is seen as a cyclical downturn.

With much of the rapid growth in petrochemicals having taken place in the 1970's based in industrialised countries, one of the critical issues for the petrochemicals industry today is the mismatch between growing centres of demand and existing capacity, which is becoming more isolated from either demand growth or production cost advantage. Capacity in the USA grew again in the 1980s due to large quantities of cheap gas, while European capacity was based on naphtha as the cheapest way of meeting local

demand. Neither of these bases is as valid today, with emerging markets providing both the demand growth and access to feedstock which drive competitive advantage. Resolution of this mismatch is likely to be painful for such producers, but provides a significant opportunity for those who offer one or even both of these key criteria.

1.7.1 Economics of the Petrochemical Industry

1.7.1.1 Demand

Global ethylene demand has typically grown at a rate of 4% to 5% per year, normally related to shifts in the overall economy as expressed through GDP. The combination of higher GDP growth and exports of finished goods into developed countries has provided exceptionally strong growth in the Far East, especially in China, which has been growing at 13.8% on average over the past five years and is expected to continue at 10.5%.

1.7.1.2 Supply

Ethylene is produced from several raw materials (or feedstock), each of which has widely varying costs and output. The most common feedstock is naphtha, a refinery product with only limited and normally lower value use into the gasoline pool, making petrochemicals the preferred route. Naphtha is the main feedstock used in Europe and Asia. This process produces a higher proportion of co-products, notably propylene, used mainly in polypropylene, which has been growing more quickly than polyethylene. Other products include butadiene from which benzene may be extracted.

Naphtha is a liquid, but ethylene is also produced from gases: ethane, and to a lesser extent LNG's (liquefied natural gases, i.e. propane and butane). Depending on the local value of the gas feed, this route tends to be cheaper than naphtha, but has the potential disadvantage of being less flexible and not providing integration into the propylene wedge of derivatives.

A higher proportion of new capacity coming on stream to 2010-11 will be based on ethane due to its cost advantage especially in the Middle East, but naphtha based capacity is continuing to grow and is expected to remain the feedstock for 50% of the world's ethylene in 2010. Most of this growth is driven by capacity located in the regions of faster growing demand in the Far East, where naphtha is the main feedstock due to the growth in refining capacity and limited availability of advantaged gas.

1.7.1.3 Prices reflect industry structure

As with most commodities, the price of ethylene is linked closely with supply and demand, with the higher cost, marginal suppliers setting the price in each region, tempered by the availability of imports into that region either of ethylene itself or of ethylene derivatives.

Ethylene can be traded in bulk in certain areas (sea trade to South East Asia, China, North West Europe), but local availability depends on having access either to an import terminal or to pipelines which transport the gas in certain regions. This pipeline system is particularly extensive in the US Gulf Coast region and to a lesser extent in North West Europe (Rhine delta and inland), which allows derivative producers to purchase ethylene more practically from third parties in the "merchant market", but in practice the combination of limited infrastructure and the preference for security of supply/dependable off-take means that there is a high degree of integration from ethylene into its major derivatives.

This level of integration has tended to increase, as the scale of ethylene plants has increased. With new plants now sized at 1.3 million tons per year of ethylene, it would be commercially impractical to depend on third parties to provide the bulk of demand as this would place severe volume risk on the new ethylene plant. Traditionally some dependable volume has been placed on long term contract, but in practice there can be a high level of flexibility in the volumes finally nominated, between agreed maximum and minimum

levels. Other volumes may be sold in the market at “spot” rather than “contract” prices, but this adds price risk as well as volume risk, so again there tends to be a preference for large, integrated complexes which provide a fairly neutral “mass balance” between olefins capacity and reliable downstream demand.

1.7.1.4 Regional imbalances and importance of trade

Ethylene is a flammable gas, which has to be stored at high pressures and low temperatures making it difficult and expensive to transport. For international trade, specialist ships are required which provide the high-pressure storage, and equally importantly, customers are dependent on a specialist import terminal, which can receive shipments in bulk.

For this reason, most of the ethylene that crosses international borders does so in the form of derivative products. In fact, about 8-10 times as much ethylene is traded internationally as derivatives rather than the original monomer. This can be in the form of polyethylene pellets, which can be shipped in bulk or containers; or for example ethylene glycol or styrene, which can be shipped in bulk as liquids.

This ability to export petrochemicals more cheaply and effectively encouraged the development of a global petrochemicals market, and allows some regions to continue to meet demand effectively despite being strongly deficit in their local production capacity.

The most dependent region on trade imports is the Far East, which has traditionally been supplied by exports from United States and Middle East. Two significant trends have supported the development of petrochemicals production in the Middle East, each of which is expected to increase in the future:

- The Far East retains a structural deficit in ethylene and its derivatives despite the significant increases in domestic capacity, indeed the deficit continues to grow through to 2010; and
- The United States (and other mature exporting regions) is at a major cost disadvantage which has not only curtailed its ability to export competitively but which threatens even its ability to supply its own domestic market.

1.7.1.5 Industry margins are linked to overall supply and demand

In order to assess profitability and investment criteria, the petrochemicals industry uses the concept of "industry margins" particularly in reference to three typical areas of interest: US Gulf Coast, North West Europe and South East Asia. The industry margin is normally derived from a formula combining the local ethylene price plus any co-product credits (for example, propylene) minus the cost of raw materials. This may be tracked on a monthly basis to provide a measure of industry profitability. Industry margins are volatile, but tend to reflect the present or perceived future balance between supply and demand.

1.7.1.6 Ethylene cost curve

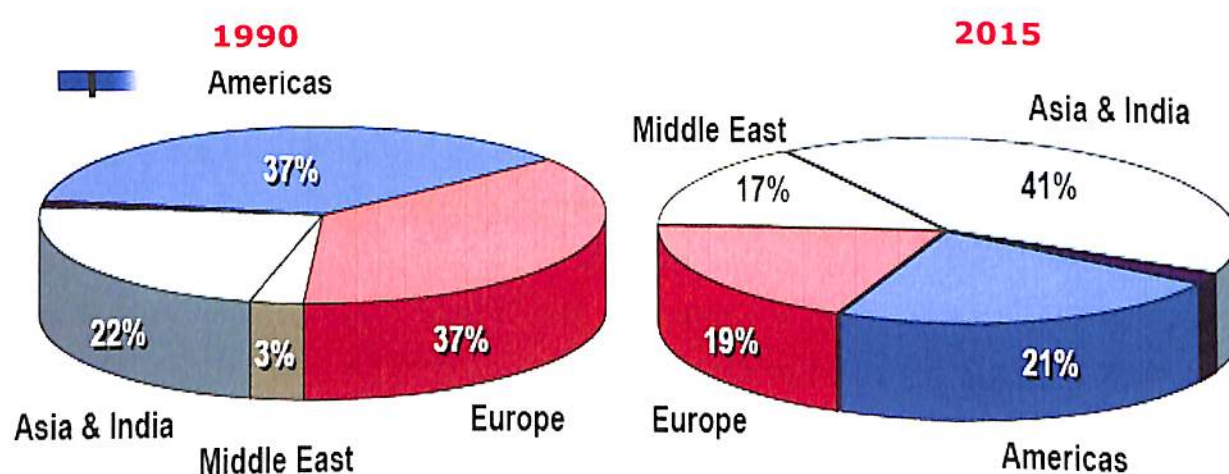
Naphtha provides the raw material for so much of the world's ethylene production, particularly at the marginal suppliers, ethylene prices tend to reflect medium to longer term movements in the oil price. This has important implications as it raises the variable cash cost of production, the minimum to which ethylene prices are likely to decline even in a period of overcapacity. For those producers whose feedstock price is based on naphtha, the less efficient will be unable to make their variable cash costs even when the ethylene price is higher than we have seen in previous cycles. In 2000/01, the cost to the marginal producer was around \$450-460 /ton. At prices of \$50 oil and \$6/mmbtu gas, the marginal cost is estimated to have risen to \$600-625/ton. For those whose feedstock is based on fixed price gas, this difference goes straight through to the benefit of their margins.

This process is demonstrated by industry data looking at the total cost to supply HDPE into China. This includes not only the production cost advantage for the Middle East, but also freight, duties, etc, to determine the effective cash cost of various elements of global capacity. This demonstrates that although an exporter, the economics of a typical Middle Eastern producer make it the cheapest to supply, a long way ahead even of the leading local producers in China itself. The marginal producers are not exporters, but weaker local producers whose volume is at risk. It will be these higher cost producers who effectively act as swing producers and set the price.

1.7.2 Shift in Petrochemical Business from West to East

There is a paradigm shift in the petrochemicals business from the West to the East, with the Middle East emerging as a global hub, backed by the region's advantages of low-cost feedstock and labour, fast growing demand in Asia and new technologies.

Figure 1.1 Basic Chemicals and Plastics Capacity Distribution (1990 vs. 2015)



Source: CMAI Chemical Market Preview, February, 2007

There will be further shake-up in the global petrochemical industry, wherein established western companies will exit, shrink, or move eastwards through partnerships, in order to defend their stakes. The Middle East's share in the global ethylene market is expected to grow to 20 per cent in 2011 from 9 per cent in 2002, which means that 50% of all new ethylene capacity will be built in the Middle East. The total global ethylene capacity is projected to increase to 150 million metric tons in 2010 from 109 million metric tons in 2002. There is industry projection that a growth of 119 per cent in net trade from Middle East to East Asia by 2010, with China accounting for a major part of the increase. In addition to its huge population, China's chemical-intensive and export-driven industry is also driving demand for petrochemicals. As gravity of the polyolefin world is shifting eastwards, and chemical companies that want to stay in the business need to move and transform before their entire economic rationale is swept from under their feet (McKinsey, 2005)

1.7.2.1 Petrochemical Growth Phases

The history of this industry since the days of the early pioneers can conceptually be viewed in seven stages. These stages are meant to aid our understandings of the evolution of this industry:

Phase- I 1945-1960 : The rapid growth in Europe & USA was catalysed by the post war reconstruction efforts and a boom in consumption. Most Western economies were in an expansionary mode and this led to rapid economic growth, which in turn stimulated demand for petrochemicals.

Phase- II 1960-1972 : The post war reconstruction spilled over to Japan, which built its first 20 KTA steam cracker at Iwakumi (near Hiroshima) in 1958. This was followed by two decades of rapid expansion, when almost 3 MMT of naphtha based ethylene capacity was built. Mitsui, Mitsubishi and Sumitomo were the Japanese pioneers of petrochemical industry.

Figure 1.2 Global Petrochemical Growth Phases

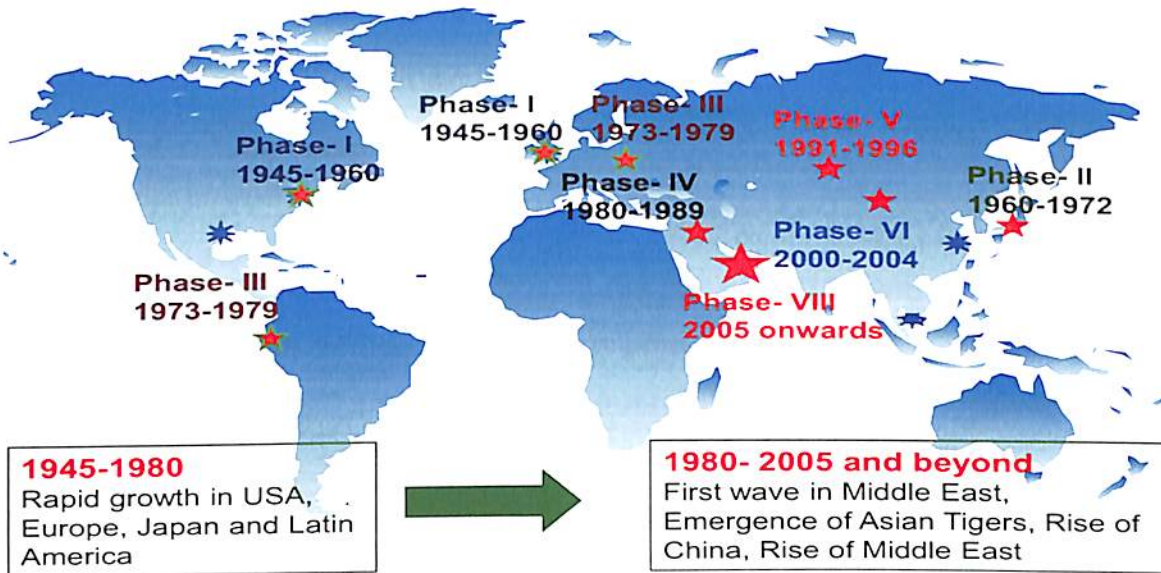
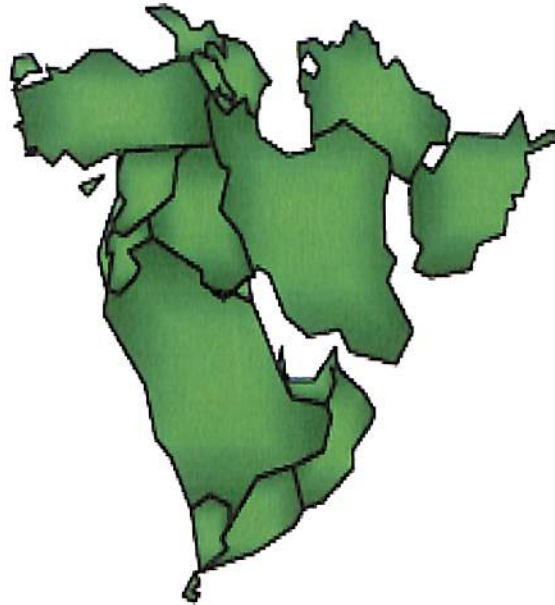


Figure 1.3 Evaluation of Middle Eastern Petrochemical Industry

1984 -2005

- SABIC, Master Gas System (MGS) & Royal Commissions formed in Saudi Arabia
- Saudi Ethane prices revised at 75 cents/mmbtu in 1998
- Qatar, Kuwait, Abu Dhabi establish petrochemical facilities
- Propane and condensate cracking starts in Saudi Arabia
- Qatar establishes large scale LNG facilities, planes pipeline projects
- Private sector in Saudi Arabia announces number of projects



2005 and Beyond

The Middle East will continue to expand its role in regional trade of ethylene derivatives and ultimately become the major supplier of incremental ethylene derivatives to all regions.

Phase- III 1973-1979 : The phase -III was a brief period of capacity building in Eastern Europe & Latin America. By technological assistance from Japan, the polymer industry came to Latin America. This phase also witnessed the severe oil crisis and sharp increase in oil price. The successive *oil shocks of 1973 and 1979* affected the entire world economy with grave consequences for the petrochemical industry.

Phase- IV 1980-1989 : The oil shocks of 1970s were the period of *oil price boom* for the Middle East oil producers. This high oil price led to massive capacity build up in the hydrocarbon rich nations. The aim was to take the advantage of cheap availability of natural gas to achieve higher value addition. This led to the first wave of development of petrochemical industry in the Middle East.

Phase- V 1991-1996 : The most important change in the global petrochemical industry landscape was the emergence of Asia as rapidly growing manufacturing and consuming centre. In late 1980s, Thailand, Malaysia and Singapore began to build large petrochemical projects followed by Korea and Indonesia. Ethylene capacity rose to 17.7 million metric tons by 1995 contributing 22% of global ethylene capacity of 80.8 million metric tons.

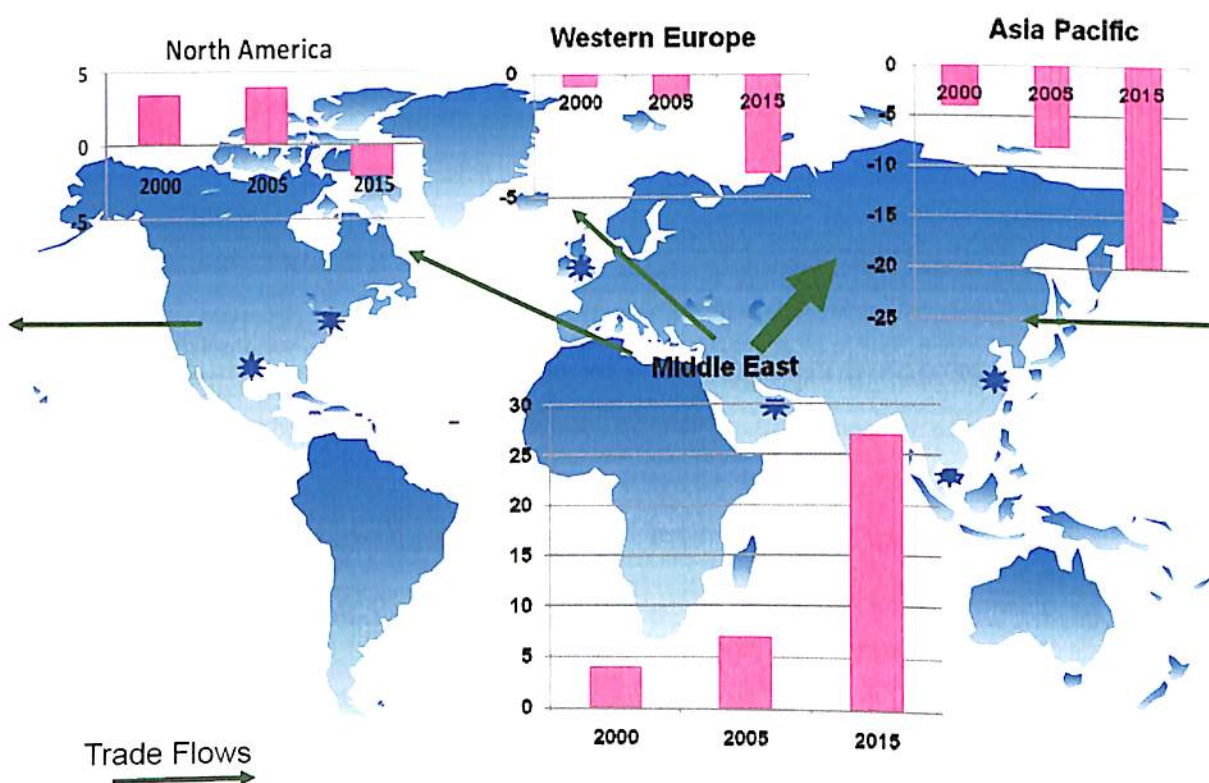
Phase- VI 2000-2004: The beginning of 21st century witnessed the rising disposable income and a strong export oriented policy in China which soared Chinese demand for chemicals and plastic. The country quickly became the largest importer of petrochemicals with an appetite so large that it has strongly affected the dynamics of the entire global market.

Phase- VII 2005 onwards: Middle East is emerging as major ethylene producer based on ethane/propane feedstock. Once production goes on full stream, the Middle East would be meeting most of the trade demand of Asia and other region of the world.

1.7.2.2 The Paradigm Shift

The paradigm shift which is taking place in the petrochemical industry are forcing the established western companies to exit, shrink, or move eastwards through partnerships, in order to defend their stakes. Today, USA's share of global trading in ethylene derivatives has fallen to less than 10 per cent today from 30 per cent in the 1990s, and it will be less than 5 per cent by 2010. Over the same period, the Middle East is likely to increase its share to more than half of the globally traded volume.

Figure 1.4 Changing Trade Flow pattern of Ethylene Derivatives (export of ethylene derivatives (in million tonnes)



(Data sources for Figure 1.2 to 1.4: CMAI & SRI Databank, 2006)

Western petrochemical players are under increasing pressure given disadvantages in feedstock, poor improvement in productivity, expensive workforces and subscale assets. As the gap between price and cost

diminishes, they have a hard time coping. As a result of this, petrochemical plants in the US and Europe are becoming less competitive as compared to those in the Middle East, which is leading to a flat or declining production for ethylene and polyethylene there can be several reasons for the re-direction on both the supply and demand side of the scale. Primary among these is a projected boom in demand for petrochemicals in the Asia-Pacific region, which is catching up rapidly with the US and Europe. Demand is expected to achieve the same levels with the two regions combined by 2010.

Demand for polyolefin is expected to grow at around 10 per cent per annum with high density polyethylene (HDPE) growing by nine per cent, linear low density polyethylene (LLDPE) growing by 12 per cent and polypropylene (PP) growing 10 per cent. Besides this, Middle Eastern companies have access to cheaper gas, with ethane costing \$0.75 to 1 per MMBTU. The cost of crude oil would need to drop below \$ 15 per bbl for western producers to be competitive for LLDPE in Asia.

One can easily spot a trend of emerging alliances between the Middle East and China, which will combine the benefits of the Middle East's cheap feedstock costs and China's access to Asian markets. For example, In 2005, Saudi Aramco has picked up a 25% equity stake in China's Fujian Refinery and Petrochemical and now in 2007, Saudi Aramco has entered in second Chinese joint venture investment to operate 750 petrol stations and a petrochemicals refinery. Saudi Aramco will take a 22.5% stake along with Exxon Mobil, which will also hold 22.5% stake. Chinese refiner SINOPEC will hold a majority 55-per cent stake.

Analysts observe, there are three dimensions to the growth of the petrochemical industry in the Middle East - capacity, portfolio and geography. The Middle East's heavy investments in ethane crackers and polymers will enable it to exploit the huge quantity of gas available. Its ethane supply will be able to meet around 17 % of the global ethylene demand, which is expected to be 150 million metric tons per year by 2010.

Companies in the Middle East are also expanding by acquiring the assets of Western companies or by forming joint ventures with them. SABIC's acquisition of DSM's petrochemicals operations in the Netherlands and Germany in 2002 and manufacturing business of Huntsman in 2006, at Wilton and North Tees in UK are prominent acquisitions by Middle Eastern petrochemical companies. Among the noteworthy joint ventures are SABIC's partnership with Exxon Mobil, Chevron Phillips Chemicals and Dow Chemicals, Saudi Aramco's partnership Sumitomo Chemical and Dow Chemicals and Tasnee with Basell in Saudi Arabia. Petrochemical Industries Company and Dow Chemical's JV project in Kuwait, Dow Chemical and Oman Oil, and Qatar Petroleum's joint project with Chinese Petroleum Corporation, Taiwan, and Total Chemicals ADNOC and Borealis in UAE.

To summarise, an industry which was born in the West is irreversibly shifting to the East and will continue to flourish in the East at least for several decades.