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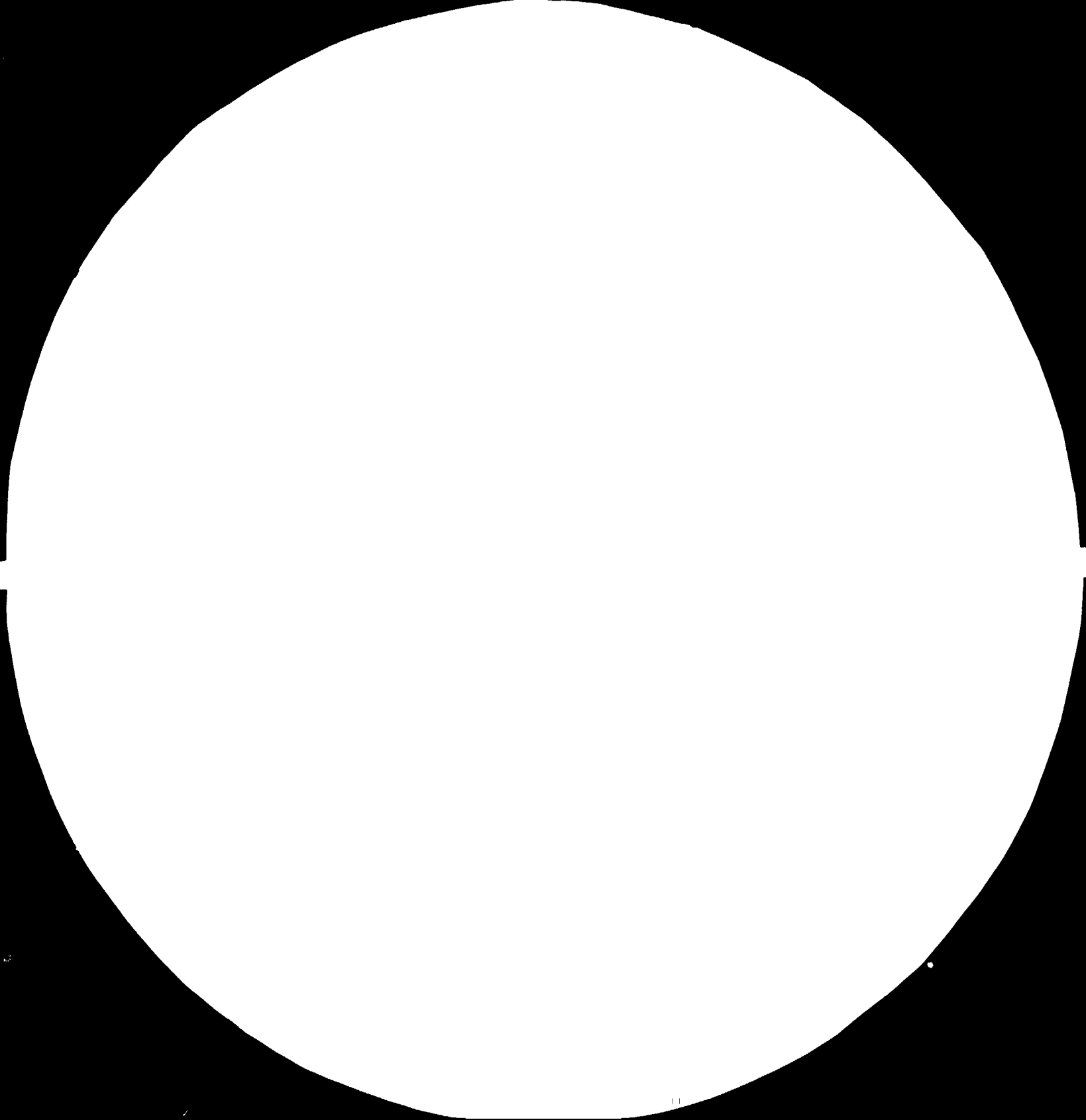
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GUIDELINES ON JOINT VENTURE ARRANGEMENTS

IN

PETROCHEMICALS INDUSTRY

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3271

31.1.1985

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Chapter 1 : Introduction

1.0 Introduction

1.01 Industrial co-operation between countries plays an important role in developing business relationships. The petrochemicals industry with its spectacular growth during the last three decades became a dominant industrial sector with significant potential for international co-operation; the industry, as in most other cases, developed in the industrially advanced countries. In its initial stages of development, the companies possessing technology and know-how for petrochemicals industry held a close control over the manufacturing technology and only exploited products all over the world under their brand names. As research and development and product applications research acquired a decisive role in maintaining superiority over technology and know-how; the more conventional manufacturing plants were set up by established petrochemicals companies in developing countries under their wholly-owned subsidiaries. In sixties major developments took place through investment in joint ventures in Japan and Europe; joint ventures also simultaneously came up in some developing countries which offered large potential demand and an industrial base as well as infrastructure suitable for production and growth in consumption of petrochemicals. The unusually high rate of growth enjoyed by this industry for over two decades derived benefit from the joint venture provisions and technological support in terms of diversity in product design and market promotion and improvements in production techniques.

1.02 The unprecedented changes witnessed in oil markets during seventies introduced uncertainties on availability and prices of the petrochemicals raw materials. The control by local agencies and Governments of the oil producing countries on production, supply, distribution and pricing of crude oil and its products created a new situation which forced the oil and chemical companies in the developed countries to recast their strategies and policies concerning their overseas business relationships. The petrochemicals industry in developed countries threatened by steep increase in prices of feedstocks and energy was faced with imminent competition from the new production centres in the oil producing countries. Although it became apparent that the petrochemicals industry has matured and further creation of capacity should be established with great care and caution, a number of competing international petrochemical companies

established large petrochemicals complexes in beginning seventies; recessionary situation coupled with excess capacity added to its problems and the industry entered the worst period since its inception. Thus commenced the restructuring of the petrochemicals industry during a period of uncertainty on availability and prices of raw materials, depressed demand and oversupply, tight finances and a general economic recession. A number of companies in the developed countries found it economically more attractive to participate in the new manufacturing facilities in oil producing countries and to import either intermediate chemicals for manufacture of products in their existing plant even by shutting down their own plants for production of such intermediates or to completely close down some of their existing plants and import products for marketing through their existing network. Such operations were considered more profitable by them instead of production from their existing plants. This approach was pursued differently by international companies but joint venture mechanism of co-operation for development of business was adopted in practically all new ventures. Any exercise aimed at promoting petrochemicals industries has accordingly to take into consideration the role that joint venture arrangements can play in fulfilment of these objectives.

- 1.03 Co-operation through joint ventures is considered by the petrochemicals industry as most flexible instrument of collaboration. An innovative approach could bring together partners without any hang up of their existing operations though it will at the same time permit complementarity of their strengths. The failure rate of the industrial joint ventures is reportedly unusually high which underscores the need to intimate understanding between partners on all aspects before a joint venture is entered into - such understanding is facilitated by prior long-term business relationships such as co-operation in trading of products or representing interest of the proposed partner etc. It nevertheless takes a long time, some times five to ten years, before appropriate ground work is well laid for a successful joint venture.

- 1.04 A manual on the establishment of Industrial Joint Venture Agreements in Developing Countries (ID 68) was published by UNIDO in 1971; this manual sets out the contractual framework for joint venture

agreements and provides explanatory notes on the specimen clauses in the agreement. Another study on preparation of Guidelines for the Establishment of Industrial Joint Ventures in Developing Countries was undertaken in UNIDO and a draft published in December 1982 is now being finalized. These Guidelines pertaining to Joint Ventures in petrochemicals industry have been prepared in consultation with other concerned branches in UNIDO as well as benefit from the studies undertaken in the Technology Branch so as to avoid any duplication of effort.

1.1 Background

The Second Consultation Meeting on the Petrochemicals Industry organized by UNIDO held in June 1981 considered long-term arrangements for the development of the petrochemical industry in developing countries on the basis of a document (ID/WG.336/2) prepared by UNIDO. The participants generally underlined the need to examine the trend of restructuring taking place in the industry and to relate the need for such long-term arrangements with these trends. It was pointed out that long-term arrangements can cover a variety of subjects but the implementation of the long-term arrangements can be carried out through different collaborative forms such as joint ventures. It was recommended that the existing guidelines on Industrial Joint Ventures should be modified to adapt them for petrochemicals industry and this modification should be undertaken in co-operation with experts from various geographical groups; the check list recommended for consideration inter alia included:

1. Agreement of intent, feasibility studies, organisation including ownership and financing of projects.
2. Provision of feedstocks and fuel.
3. Construction of the plant including processes, technologies and off-site facilities.
4. Organization, management and operation of the plant.
5. Provision of infrastructure
6. Production and pricing policies
7. Marketing arrangements including product transportation and storage facilities.

8. Training and personnel development
9. Technical support
10. Legal considerations.

Accordingly the recommendation of the consultation relevant to joint ventures stated that UNIDO examine the various forms of long-term arrangements for the development of the petrochemical industry in developing countries along the parameters (set-out above) and update the existing general guidelines for joint ventures.

This report on Guidelines for Joint Ventures in Petrochemicals Industry has been prepared in pursuance of the mandate given by the consultation and this subject is to be considered at the next Consultation proposed to be held during the last quarter of 1985.

1.2 Structure of the Petrochemical Industry

Petrochemicals simply put are the chemicals that are produced from petroleum or petroleum derived feedstocks. These chemicals basically cover organic chemicals though inorganic chemicals e.g. ammonia are also manufactured in large quantities from petroleum raw materials.

The petrochemicals industry spans a variety of industrial sectors, a number of activities and has flexible boundaries upstream and downstream of it. While the industry can be linked upstream to the oil production and petroleum refining, the downstream may interphase with a variety of polymer (plastics and elastomers) processing and fibre user industries as well as chemical conversion industries. The petrochemical industry employs complex technologies in terms of process, equipment and operation as well as requires a high level of technical support through Research and Development for efficient and safe plant operation and market development.

In its primary stage the petrochemicals industry covers the building blocks e.g. ethylene, propylene (gases), benzene (liquid) which are converted through secondary processing stages into intermediate chemicals e.g. ethyl benzene, ethylene glycol, acrylonitrile. The tertiary processing sector converts the intermediate chemicals into usable products e.g. fibres, resins, plastics and elastomers; the tertiary and secondary stages can be telescoped into one stage in a number of cases. The industry is characterised for employing low

temperatures, high pressures, exotic materials of construction to meet the severe conditions of operation, corrosion or erosion not normally encountered in the industry. The basic petrochemicals industry, covering all the three stages of production broadly identified earlier, is highly capital and technology intensive and is susceptible to the economies of scale of operation.

The petrochemical products are, however, converted into usable consumer goods in conversion industries which if so designed can be labour intensive and amenable to being set up in smaller capacities without adversely affecting the advantages of economies of scale of production. The petrochemical conversion industry accordingly includes production of plastic products, detergents, rubber goods, fabrics produced from synthetic blended fibres etc. The development of technologies for production of basic petrochemicals synthetic materials was followed by development of appropriate processing technologies suitable for transformation of those materials into usable products. The processing technologies hitherto used for natural materials were inadequate for petrochemical products because of the narrower uses of the conventional natural materials. The textile industry as an example adapted its cotton spinning system to synthetic fibres, the weaving processes were modified for handling synthetics and major developments were made in the dyeing and finishing operations to suit the requirements of different synthetic fibres and yarns.

The petrochemicals industry in the basic manufacture is technologically complex and sophisticated and requires high calibre of skills; however, in the downstream stage represents comparatively simpler technologies and skills which can be acquired through intensive training of technicians. It would be easier for a cadre of personnel trained for downstream industries to acquire the more complex technologies and skills used in the basic manufacture in due course. A number of developing countries may find it convenient to set up downstream industries compatible with their infrastructure. In most cases the stages of development may be classified as units for manufacture of basic petrochemicals; intermediate chemicals and polymers and downstream conversion industries. It is normally expected that the countries setting up basic petrochemicals plants would also establish the units to produce intermediate chemicals and polymers and that a developed downstream conversion industry exists to process the materials proposed for local

consumption. However, establishment of petrochemicals industry beginning with the downstream conversion industry and integrating it upwards in a planned manner can be achieved through stepwise independent stages and to bring about its harmonious integration with the growth in demand, creation of infrastructure and capabilities and availability of finances.

The approach to a collaboration in setting up petrochemicals plants can vary substantially with the manner of development adopted; issues which may be of considerable importance for the basic petrochemicals industry may not be relevant for the downstream conversion units. The provisions of a joint venture may therefore vary in scope, content and objectives with the type of petrochemical operations covered by it.

1.3 Methodology

In pursuance of the mandate given to UNIDO, it was planned that the new guidelines should have the benefit of the experience of existing joint ventures arrangements in the petrochemicals industry in various regions. This approach is intended to bring out the evolution of the joint venture concept in the petrochemicals sector and the impact on it of the process of restructuring that the industry is going through. The profile of development of this concept may throw up the likely trends for future development. It has been quite apparent that the stage of development of petrochemicals industries in various regions will vary widely and large variation may exist even within the regions identified. However, this approach is the most practical to draw any meaningful conclusions from the past experience.

The regions considered for study by independent consultants are the following:

1. Asia and Far East
2. Latin America
3. Middle East
4. Industrial countries - medium sized
5. Industrial countries - extensive multi-national operations

In view of limited time, the studies by consultants from each region were confined to specified group of countries expected to yield most appropriate information relevant for the preparation of

the guidelines. The information sought by the consultants was expected to be uniform on the pattern of a predesigned format. It however, appears that considerations of confidentiality relating to business practices contractual obligations as well as provisions concerning corporate plans did inhibit free access to the required information. As far as possible information available within UNIDO as well as in literature has been used to fill the gaps in the data received.

Chapter 2 : Experience of Developing Countries in Joint Ventures

2.0 Experience of Developing Countries in Joint Ventures

Joint ventures in developing countries are not necessarily limited to the international corporation; the successful joint ventures in developing countries include those conceived on regional basis as well as ones between different sectors within a country. Most developing countries surveyed offer specific incentives schemes covering investment incentives as well as provide guarantees on specified basic rights to attract good partners for a joint venture operation. Some developed countries also encourage investments overseas; this approach is now being adopted by more industrially advanced developing countries as well.

The joint ventures in the field of petrochemicals in developing countries mainly came about in sixties when production of petrochemicals came to be interpreted as an indicator of development of a country. The recent joint ventures are, however, promoted by the desire of the companies from developed countries to get away from recession at home and moreover access to markets in developing countries is now possible only through local manufacturing plants. The motivations behind the formation of joint ventures in developing countries has, therefore, gone through a big change. In the early sixties the motivating factors were:

a. Market Oriented

- i. have access to markets in developing countries with large potential consumption
- ii. take advantage of the restricted import policies in the developing countries and thereby supply a captive market from local manufacture
- iii. use the local manufacture to popularise brand name and product produced by foreign partner abroad aiming at supplies from overseas in case local demand exceeded production in future.

b. Feedstock Oriented

- iv. utilise chemical feedstocks e.g. chlorine, ethanol available locally at incredibly low prices.

c. Technology Oriented

- v. have an edge over others in selling technology owned by the foreign partner and have access to market research data on pattern of penetration of petrochemical materials in developing countries.

The joint ventures established after the oil producing countries took over the control of pricing the crude oil and products derived therefrom have possibly been promoted by the following considerations:

a. Market Oriented

- i. to be able to retain the marketing channels and market share held by the foreign partner in the world markets despite the likely availability of low priced petrochemical products from oil producing countries.
- ii. to retain his contacts with the regular customers of the foreign partner as well as to keep market back-up assistance and developmental services provided by the foreign partner's home office even when the material sold comes from the oil producing countries.

b. Feedstock Oriented

- iii. to have access to low priced hydrocarbon raw materials and fuels.
- iv. to be able to obtain intermediate chemicals from the joint venture at attractive prices and to sustain further conversion into final products in the existing plants of foreign partner at locations in developed countries.
- v. to acquire privileged position in regard to availability of crude oil from the oil producing country through economic ties in field of petrochemical joint ventures.

Miscellaneous

- vi. to acquire competitive edge in regard to selection of technology
- vii. to take advantage of changed situation in which money to joint venture is made available at low rates of interest; it is more attractive for multi-national companies to market bulk petrochemicals produced by oil producing countries instead of manufacturing these themselves.

The experience of the developing countries is available on the joint ventures established under the above-mentioned first set of expectations of the partners from the developed countries. The joint venture set up under the later set of motivations have gone into operation only recently. These ventures, however, do reflect the evolution that the joint venture arrangements in the petrochemicals industry have come to acquire over the last decade.

A brief review of the performance of the existing joint ventures in various regions is presented hereunder:

2.1 Asia and Far East (region surveyed: ASEAN)

The region produces crude oil and gas; the countries producing the hydrocarbons have plans to set up the basic petrochemicals manufacture. The present joint ventures involve shared ownership between local and foreign partners cover mainly fabrication and finished product processing; the scope is now being extended to cover manufacture of intermediate and basic building blocks. The backward integration is expected to require more inputs of technology and accordingly greater participation of foreign investors in local ventures.

2.1.1 Major elements of the existing joint ventures surveyed in ASEAN region are presented under tables II.1 in the form of a predesigned matrix.

2.1.2 The main objectives of the Joint Ventures firms is generally to manufacture and sell its products in the host country and in other nearby country markets; these firms were usually established to serve as a base in the region to facilitate market penetration. Most plants are of small capacities and sometimes employ older technologies compared to the developed countries. As the local regional market is becoming important and the ambitions for export are also being given the official support and encouragement; th new plants are expected to meet the internationally proven efficient concepts used in such industries.

II. Profile of Joint Venture Companies in Developing Countries

	<u>Major Elements</u>	<u>Objectives Set</u>	<u>Inhibiting factors</u>
II.1	ASEAN Region (Indonesia, Malaysia, Philippines, Singapore and Thailand)		
II.1.1	Basic Considerations:		
	<ul style="list-style-type: none">- Attractive market in ASEAN countries, each of the six countries in the association is adopting policies aimed at industrial growth, export promotion, regional growth support and utilisation of human and natural resources.- Agreement within ASEAN countries on Preferential Trading.- Agreement of ASEAN member states that large projects be set up to meet regional requirements.	<ul style="list-style-type: none">- Import substitution aimed at meeting the requirements of the countries in the association.- Desire of hydro carbon resource rich countries to integrate exploration with downstream industries.- To manufacture and sell its products in host country and in other nearby country markets; they serve as a base in the region to facilitate market penetration.- Social impact of employment opportunities, economic and regional development	<ul style="list-style-type: none">- Regional demand still smaller than production from a world-scale plant and exports to neighbouring countries will face competition at international level with traditional exporting countries such as USA, Europe, Japan and now the new entrant Middle East.
II.1.2	Pattern of Development:		
	<ul style="list-style-type: none">- Joint Ventures cover industries mainly in downstreams sector namely: finished product processing and product fabrication. Downstream companies manufacture final petrochemical products such as: plastics fibres and fertilisers.	<ul style="list-style-type: none">- Successful operations so far accompanied with the growth in demand and suitable industrial environment, plans for manufacture of intermediate chemicals and basic raw materials are being envolved.	<ul style="list-style-type: none">- Impact of petrochemicals production programmes launched in the regions nearby which are specifically designed to cater to export markets.

Major Elements

Objectives Set

Inhibiting factors

II.1.3 Internal Structure

II.1.3.1 Ownership pattern:

- Mostly local partners maintain greater share of equity: in cases with majority foreign ownership the JV performs like a subsidiary of the foreign partners. In isolated cases with equal foreign and local participation also the operation of JV as a subsidiary of the foreign partner is reported.

- Foreign partner generally contributes to finance, raw materials, production, and technology, training, industrial property rights and general management.
- Marketing is the major contribution of the local partners since they are more familiar with local conditions, business practices and customs.
- In case of foreign majority owned firms the foreign partner makes major marketing approaches and approving prices of products; local partner participation is limited to making recommendation.

- Additional costs incurred by JV as a result of increased work by the foreign participant. Differences in the view point on managing and operating business do crop up due to differences in business policies and the cultural background of the parties concerned.

II.1.3.2 Financial Structure

- The JV firms avail of both local and foreign short and longterm loans from: Commercial banks
Financial Institutions and
Investment banks as well as the foreign partner and parent company. The ASEAN approach the prospective lenders as a group; the host country in ASEAN can act as a representative of the association before the project company is formed. After incorporation of Project Company, loan negotiations with potential financiers as well as any additional requirements are the responsibility of the project company.

- Secure maximum amount of concessional loans.
- Secure largest possible amount as untied loans.
- Minimise direct Government guarantees.
In event guarantees are necessary, the host country of the project is responsible for the guarantees.

- None. On the contrary reputation of the foreign partner could be instrumental in negotiating loans and other components of financing package successfully.

Major Elements

Objectives Set

Inhibiting Factors

11.1.4 Government Framework:

Programmes of industrial and economic development of Governments in all ASEAN countries promote participation by foreign partner in joint ventures; specific Governments incentives relate to:

- Investment Incentive Schemes: including
 - . reduced rate of income tax and
 - . exemption from tariff duties on imported equipment and machinery.
 - . tax incentives on individuals and corporate income.
 - . Avoidance of Double Taxation agreements.
- Basic rights and guarantees like
 - . guarantee against expropriation
 - . permission to repatriate capital in its original currency.
 - . employment of foreigners in specific positions.
 - . permission to convert into foreign currency and remit earnings and payments.
- Absence of any specific legislation on Joint Ventures. Legal requirements on Joint Ventures are incorporated in various laws of the countries concerned under corporate and commercial codes, Civil laws and foreign investment legislations.

The objectives set out by the Governments for any industry to take advantages of its incentives are:

- i) save foreign exchange through the establishment of import substitution industries.
- ii) Introduce new technology or process which may facilitate backward or forward integration.
- iii) Promote the utilisation of indigenous raw materials and intermediate products and local labour and
- iv) Generate foreign exchange through promotion of export-oriented industries.

Foreign investments are encouraged in these areas which represent the priority issues.

Assurance that the investment by the foreign partner in the country of Joint Venture is well secured and that the Government framework will continue to support it to the same extent as it did at the time of incorporation.

Major Elements

II.1.5 General Legal Frame work:

- Essentially most of the Joint Ventures are limited liability companies with specific nature of business. The basic documents of incorporation are more or less similar in different ASEAN countries.
- Some countries have entered into specific Joint Ventures agreements while others have Specific Technical Assistance Agreements and Licensing Agreements in addition to the basic documents of incorporation.

(A typical content of Articles of Incorporation; a typical outline of a Joint Venture Agreement, a typical outline for a Technical Assistance Agreement and that of a License Agreement are enclosed)

II.1.6 Implementation of Joint Venture:

- Predominantly implementation of Joint Venture project is done by a joint effort of the two partners in the company.
- Foreign partners' selection usually determines the technology to be employed. Experts from foreign partners also assist the project management team of the JV company in technical studies, plant design and procurement of plant and machinery.
- Evaluation of bids and negotiations with selected bidder are usually undertaken with involvement of both parties. Extent of participation of local partner depends on his experience and organisational

Objectives Set

- A venture covered by proper and adequate legal frame work would minimise the possibilities of differences of opinion on the essentials elements of the JV.

Inhibiting factors

- The laws governing the JV are generally the laws of the host country. Uncertainties arising out of the inexperience of the foreign partners relating to legal coverage in the country of the JV as well as lack of knowledge on the extent of risk being taken on aspects such as protection of patents and trade marks.

- Project to be established on appropriate technology with projected cost and time schedule. Use of the local capabilities in design, engineering, equipment supply construction to be maximised without affecting project objectives adversely and interest of shareholders.

- Inexperience of local partner can delay decisions, on the other hand decisions taken only by foreign partner as in case of majority foreign owned firms can be potential some of misunderstanding. Local capabilities, in equipment fabrication and construction have lead, in an isolated case, to maintenance problems with equipment.

Major Elements

set-up to undertake responsibilities; however, in foreign majority owned firms, the foreign partners take lead in precontracting activities as well as in sourcing funds specially when equipment supply originates from the country of the foreign partner.

- In large projects project management teams drawn from the two partners in the JV invariably execute all the phases like engineering, designs, procurement, construction, supervision of erection, start up of operations and training.

II.1.7 Operation of Joint Venture firm:

II.1.7.1 Management:

- In majority foreign owned firms, top operating positions are normally occupied by expatriates. In practically all cases board of Directors is composed of directors nominated by the parties concerned and the numbers usually reflect the relative equity interests. There are instances of the financial institutions, who provided loans, being represented on the board. The board is concerned with major decision areas e.g policy formulation, long term investments, major capital expenditure organisational restructuring and hiring of senior management personnel.
- The powers are delegated to middle management levels to be able to efficiently undertake day to day operations. These powers may be exercised by an executive committee

Objectives Set

- Longterm policy has to be geared towards localisation of management in a planned manner. Preference in hiring given to people from the area in case qualified personnel are available..

Inhibiting factors

- Decision making process has to be well defined and understood to ensure correct and quick action. In cases of some majority foreign owned firms, the expatriate Manager who cannot take important decisions takes up directly with foreign participants without going through local Board of Directors.
- Local Management take responsibility of hiring and dismissing local employees whereas foreign partner appoints the expatriates.

Major Elements

(which can also exercise specific wider powers by the board on its behalf) or by individuals say General Manager.

II.1.7.2 Training:

- The joint venture firms arrange training for their personnel in house, abroad, locally and with the suppliers of equipment. In house training is provided by local senior staff as well as expatriates from the foreign partners company, key technical and management officers sent to foreign partners' plant for on job training and management development related to business.

II.1.7.3 Procurement of consumables:

- The purchase are mainly made on basis of best terms and conditions of supply available. Long term arrangements with foreign partner have also been entered into to assure regular supply. While "multi channel supply system" is also being practised to have access to wider market; subsidiary companies order feedstock through parent company as well.

II.1.7.4 Major Operational Problems:

- Frequent electric power interruptions and machinery breakdown (mechanical troubles) are the two single constraints faced by JVs! Maintenance is affected by non-availability of spare parts and the lack of skilled maintenance crew which has a high turnover.

Objectives Set

- Training has been a major concern of the joint venture firms and continues to be an important component of collaboration. Adequate training has to be provided to ensure safe and efficient operation of the plant.

- Regular uninterrupted supply of feed materials at available on attractive terms.

- Operate the plant at highest possible on-stream factor.

Inhibiting factors

- None. On the contrary promotes better working relationship between the partners.

- None, foreign partners world-wide contacts facilitate procurement to the best advantage of the JV firm.

- Disruption of production process and adverse impact on product quality for reasons beyond the control of JV. Consequent increase in cost of manufacture.

Major Elements

Objectives Set

Inhibiting factors

II.1.7.5 Marketing arrangements:

- Products are mostly sold in domestic market; some service overseas markets in Asia as well. Local market is mainly handled by local partners who are familiar with host country market environment. World market prices and the production cost are the two main factors influencing the product prices.
- A large number of JV firms provide after sales service by sending technical personnel to customers who encounter difficulties in the use or quality of product.

- Market development and access to markets to enable operation of the plants at maximum throughput.

- The foreign partner is most appropriately placed in undertaking exports and in organising technical back up for
 - i) developing local markets
 - ii) after sales service to the customers.
 - iii) market research to assess further diversification in product pattern and quantity.

- 2.1.3 The basic motivation of local and foreign collaboration in joint ventures in the region is firstly to have access to foreign technology which is not in the possession of local investors and secondly assure joint venture a raw material supply source which may be available to the international petrochemical firms more readily. The transfer of technology, access to alternative sources of raw materials, imparting training and management know-how and assisting in securing financing are the major contributions of the foreign partner.
- 2.1.4 The joint venture are controlled by either of the two partners though more than 60 per cent of the ventures surveyed have majority local ownership; the joint ventures with foreign majority equity also appear to be satisfied with the collaboration. In the units with high capital costs (like olefine plant and fertilizer plant), there is significant government participation.
- 2.1.5 Practically all joint ventures surveyed availed of tax and non-tax incentives offered by Governments for the capital intensive petrochemicals industry. Tariff protection has also been enjoyed by these firms to shield the joint ventures from competition by international firms which operate world scale sized plants; the notable exception could be Singapore which aims to set up petrochemicals complex primarily for competition in export markets.
- 2.1.6 Joint venture relationships in ASEAN do not necessarily require formal, written agreements as is evident from a number of successful joint ventures without such an agreement. There are, however, other governing documents such as articles of incorporation and technical assistance agreements which govern the responsibilities and relationships between local and foreign partner. Some ventures covered by the survey indicate that successful joint ventures warrant that the partners are compatible and understand each other which is more important than any legal document.
- 2.1.7 Implementation of joint venture projects are normally undertaken through the joint venture firms who as corporate entities are ultimately responsible to their respective shareholders. However, in the majority foreign owned firms, it is the foreign partner who

takes the lead in precontracting and contracting activities particularly since the foreign partners have the technological background and the network for procurement and securing financing. In the majority local owned firms, on the other hand, the local partner takes the lead in implementation, although often taking the advice and utilising the knowledge of the foreign partners particularly in technical aspects.

2.1.8 Management and direction of joint venture operations are normally channelled through the Board of Directors, the body which sets policies, makes major decisions and is directly responsible to shareholders. There is an isolated single instance in survey where decisions in a majority foreign-owned firm are taken up directly by the local general manager with the parent company abroad without routing through the Board. The composition of the Board of Directors broadly represents the relative share of the equity contributions of the partners.

2.1.9 The survey categorically brings out that the joint venture approach of implementing projects is working successfully in the ASEAN petrochemical industry. The problems and disadvantages of the joint ventures (mentioned in the matrix presentation) notwithstanding, there is no other form of collaboration considered suitable by the firms surveyed.

2.2 Latin America

The region includes important crude oil and gas producers namely Venezuela, Mexico, Brazil (with its developing reserves). It offers a long experience of joint ventures as well as intense activity in field of petrochemicals industry. The countries within the region having access to hydrocarbon feedstocks have established basic petrochemicals industries while the ones with smaller demand have concentrated on production of intermediate chemicals and finished products. The small countries in the region seldom have any competition as the markets are small and one plant per product is adequate. The larger countries with own hydrocarbon resources have established plants of the capacities comparable to those in developed countries employing modern technologies.

II. Profile of Joint Venture Companies in Developing Countries

	<u>Major Elements</u>	<u>Objectives Set</u>	<u>Inhibiting factors</u>
II.2	Latin America (Argentina, Brazil, Chile, Mexico, Venezuela)		
II.2.1	Basic Considerations:		
	<ul style="list-style-type: none">- Substantial and dynamically growing market of the region. Policies of individual countries promoted establishment of petrochemical manufacture in a coordinated manner e.g. allocation of specific manufacture to member countries of Andean Pact Group with access to markets of the countries covered by the Pact.- Utilisation of hydrocarbon resources available in some of the countries in the region.- Regional free trade system approved by the Latin American countries (ALADI) which permits preferential trade concessions and opportunity for access to the entire Latin American market.- Smaller countries in region with less developed petrochemicals industry have access to large markets in the region on preferential basis.	<ul style="list-style-type: none">- Import substitution in the concerned countries and to meet needs of the countries in the region under market preferential trade arrangements.- Desire of the countries with rich hydrocarbon resources to undertake production of high value petrochemicals.- Develop export markets required to maintain the operation of plants at economic production levels.- Promote participation of local private capital in relatively high risk investment areas.- Socio-economic impact on the development and industrialisation process.	<ul style="list-style-type: none">- Foreign partner has to take into account the indenticity of his longterm interest and the pattern of development that the JV will follow.- A view on longterm plans, diversification and approach to future developments may have to be reflected in the philosophy and structure of the JV.
II.2.2	Pattern of Development:		
	<ul style="list-style-type: none">- JV cover basic and secondary petrochemical sectors in most of the countries. The capacities of plants in	<ul style="list-style-type: none">- Provide suitable production base consistent with techno-economic environment	<ul style="list-style-type: none">- World capacity plants throw up large quantities, from some areas, for exports more so after the

Major Elements

countries with large markets are world scale units. Variety of models of participation by government companies, and/or private sector and/or foreign partner are in successful operation.

- The pattern varies with size of local market and the complexity of operation involved. Large complexes with clear corporate distinction between production of basic building blocks and secondary production plants and involving different types and forms of JV arrangements have been set up and are operating.

II.2.3 Internal Structure:

II.2.3.1 Ownership pattern:

- Successful models mostly constitute greater share of equity by local partners (government agencies, private either or both); case of majority or equal foreign ownership, though few, exist. The policies of the majority foreign owned companies are influenced largely by the foreign partner. A three party joint venture system including a private investor who may be an industrial corporation, financial or holding groups with an government agency specifically identified for this industry and a foreign

Objectives Set

- Develop uses of petrochemical products with the help of the technical knowledge of the foreign partner.
- Obtain know-how on market development and market service for sale of products.

- Contribution of foreign partner mainly includes, finance, technology, know-how on production and marketing, training and industrial property rights.
- Raw materials and marketing of product both locally and abroad are the major contributions of the local partners who are more familiar with requirements for local sales and business practices as well as the requirements for exports to the preferential trade regions. Some countries have well established companies to undertake exports.

Inhibiting factors

- recessionary trends in the local consumption and stagnant demand.
- Long gestation period in some projects in the initial periods.
- In isolated cases the political situation inhibited establishment of petrochemicals plants inspite of substantial hydrocarbon resources and a fairly well developed domestic market in the country.
- Local private investors prefer government enterprises as minority partners to provide internal support with central government authorities regarding pricing policies, foreign competition protection etc.
- Impact of the evolving ownership patterns like dilution of the equity of foreign partner in ventures established prior to the government policy statements in this regard and the holding company concept where a company in secondary petrochemical units can

Major Elements

partner has been very successful. Similarly a clearly identified sector of industry reserved for the Government leaving the remaining for private sector has also proved useful.

Objectives Set

- In isolated foreign majority owned firms the market decisions and actual marketing activity is performed solely by the foreign partner.

Inhibiting factors

purchase shares of the 'Mother Unit' to a certain proportion and these companies can be represented at the board through a holding company with a significant position.

II.2.3.2 Financial Structure:

- The ground rules for the participation of local and foreign capital are well defined. Foreign partner normally capitalises the equity corresponding to production technology supplied and his other technological inputs.

- The firms avail of both local and foreign short term and long term loans e.g.

. Syndicated bank loans including, if required, foreign banks to cover purchase of foreign equipment.

. Suppliers credit to finance purchases from capital goods suppliers of the concerned country.

. National financing institutions which in a particular case also has an investment arm to temporarily participate in equity formation of new ventures. (for example 15 year repayment including 5 year grace period, 9% of annual interest on foreign component and 6% annual rate on local component)

Lead in chalking out financing proposals is invariably taken by local partner.

- Secure maximum amount of loans from developmental banks and other concessional sources.

- Secure maximum amount of untied loans.

- Guarantees by the host country as well as the donor country as required.

- Little direct assistance of the foreign partner in developing the financing package. Association of a foreign partner in a joint venture could be an added assurance to the financing bodies of the economic soundness of the investment proposal.

Major Elements

Objectives Set

Inhibiting factors

11.2.4

Government Framework:

- Establishment of well defined frame work and regulations system for the Joint Venture structure, area of action and protection through establishment of import licenses to competitive products. The main incentives offered by governments of the region are:
- Investment incentive schemes covering:
 - . deferment of corporate taxes
 - . exemption from import duties on imported equipment required for plants.
 - . tax diferment benefits on profits invested in new petrochemical venture.
 - . diferment of future income tax for a period of time after start-up.
 - . export certificates which can be applied against corporate taxes.
- Basic rights and guarantees like:
 - . guarantee on foreign exchange to convert profits (and eventually capital) for remittance abroad.
 - . guarantee of no increase in the applicable corporate tax rate for a period of (say 10) years
 - . free convertability and fixed exchange rates during periods of foreign investment influx.

- Governments in the concerned countries took lead in promotion; ANCOM concept of common market and joint programming of industrial development in selected areas considered most dynamic and with higher impact on participating country's economy petrochemicals industries received high priority in industrial programming. Well defined but flexible ground rules for establishment of joint ventures right at the beginning of development of petrochemicals industry and mostly common elements in majority of joint ventures.
- Specific rulings and policies defined for the petrochemical industry, integrated policy with individual functions identified and assigned as well as active participation by the regularity and financing agencies of the Government at every stage of the petrochemicals projects. Consequentially the firms planned:
 - . import substitution, development of export markets to spread the market. area with better possibility of stablised production.
 - . promote production of petrochemicals from raw materials available

- Increased and in some cases leading participation of the local partners, can facilitate a negotiated withdrawal of foreign partners in case of clash of interests in running the joint venture.
- Petrochemical industry in Latin America is passing through the stage of consolidation of its present position through efficiency and product diversification and in this process local partner is playing the crucial role.
- Financial crisis in some regions brought all developments in petrochemicals field to virtually a standstill with fall in domestic demand and pressure on prices, the problems of return on investment and financial requirements of some projects have been faced.

Major Elements

- Supply of petrochemical raw materials and fuels at attractive discounted prices (upto 30%), attractive reduced transfer prices for basic and intermediate petrochemicals at below international prices whereas the final product prices were 20% or more higher than the international prices.
- Import of feedstocks and intermediates not available locally duties.

Objectives Set

- locally including non-petroleum based feedstocks.
- Setting up petrochemicals core units in accordance with the plans developed by national bodies.

Inhibiting Factors

- Law governing petrochemical industry limits equity participation by foreign partner. Joint ventures established before promulgation of law even if wanting to dilute equity can not do so due to recessionary trends and cannot diversify due to non-conformity of its corporate structure with the prevailing law.

11.2.5 General Legal Framework:

- In most cases the governments of the concerned countries participate through specific companies nominated for this purpose. In some countries purchase of license is mainly used to acquire technology and keep joint venture free of such linkages. Foreign partners, however, have technical assistance agreements with annual fee for such assistance being a percentage of sales.
- Presence of foreign technology partners has also been tied in a number of important projects in joint ventures through mostly a minority equity participation as well as by a longterm technical assistance agreement giving joint venture the access to technological improvements as well as rapid response trouble shooting.
- The partners in such ventures vary from case to case and with the countries but the variations are between Government through its specified agency, local private
- A great degree of flexibility in establishment of joint ventures is provided to promote the petrochemicals industry: Presence of Government agencies in the joint venture as well as well defined laws and regulations in a number of countries relating specifically to setting up this industry is intended to assure the foreign partners of the support at Governmental level to the ventures.
- Government intervention through its established agencies for assigning product selling prices as a result of inflationary economy and increase in the input costs is designed to provide a fair return to this industry. Appropriate mechanism in fixing transfer prices for intermediates such as ethylene, benzene etc. have helped the integrated development of industry though under distinctly separate ownership.
- Regulations permit that all important decisions e.g. those relating to selection of technology, engineering company to supply basic engineering and overall concept of project implementation be taken by active participation of the local partner either private or public sector.

Major Elements

group and one or more foreign companies. Depending upon the composition, the joint venture technical assistance and other agreements are entered into; contents of a typical joint venture agreement are enclosed.

Objectives Set

Inhibiting factors

II.2.6 - Implementation of Joint Venture:

- A project management team is organised in most cases very early in project development. Upon promotion of the joint venture and selection of technology through the selection of foreign partner, the experience of foreign partner in putting up similar plants was utilised to maximum extent in selection of engineering contractor, during development of basic and detailed engineering, procurement, erection and start up. Overall supervision of the project is provided by the technical personnel assigned by each partner; in most cases foreign partner is better placed to provide such support.
- In some cases selection of inadequate technologies and plant designs resulted in difficulties in operation of plants at designed capacities. In spite of supervision exercised by the partners having long experience in project management in such cases the independent project management team could not make use of the expertise and capabilities.
 - Development and maximum use of local capabilities in selection of technologies, project conception and joint venture definition.
 - Implementation of the project by pooling best resources of the partners in joint venture and if required acquiring services of independent professional managerial staff.
 - Maximise procurement of equipment and materials from local sources.
 - Acquisition of experience and know-how in various facets of project implementation and management of projects.
- A few cases of deviation from project schedule and budget were attributed to disagreement of joint venture partners on investment policies and participation.
 - Foreign partner may be placed in a situation wherein all decisions on project conception, location and sometimes even technology may already have been taken before formation of the joint venture.
 - Transfer of technology and know how related to process will include techniques of mechanical design, fabrication, of plant equipment, erection techniques and methods of testing and control of plant and machinery by local fabricators and contractors.

Major Elements

Clear identification of management responsibility to one of the partners produced the results. Formation of a technical committee of experienced professionals from parent companies to help Project Manager has also been useful tool. In large projects procurement of plant and equipment from local fabricators was maximised.

II.2.7 Operation of Joint Venture firm:

II.2.7.1 Management:

- In practically all cases final management decisions rest with the Board of Directors where the partners have a representation in proportion to the shares owned by them. President or Managing Director of the joint venture is the Chief Executive Officer fully empowered by the Board to run the company and take day to day decisions. CEO is normally nominated by the largest shareholder and ratified by a Board consensus. In very few cases the CEO was nominated by the foreign partner. Board in some cases delegates specific powers to an Executive Committee to help CEO in contingent and special aspects. Local majority participation is reflected in the management structure though no voting privileges

Objectives Set

- The policy generally involves both Government and local private sector in the developmental plans; the emphasis accordingly is on utilisation of management capabilities available locally and creation of such cadres on a longterm basis.
- Participation of Government through identified agencies to help evolve the management structure consistent with national policies and regulations.
- Develop management techniques and procedures specific to the industry taking advantage of the facilities and experience of the foreign joint venture partner of similar industries.

Inhibiting factors

- In case of conflicts between some petrochemicals joint ventures and clients, the Government intervenes as arbitor.
- In cases where top management is appointed by Government, the changes in Government can result in changes in top positions of the joint venture.
- In countries with well developed management capabilities, the selection of the foreign partner possessing best production technology is not adequate but also the flexibility in his approach to the longterm objectives of the joint venture and the foreign partners approach in reaching these objectives.

Major Elements

Objectives Set

Inhibiting factors

to any particular partner have been reported; the CEO responds to the Board of Directors.

- In majority foreign owned companies, the foreign partner appointed more key personnel in the joint venture in addition to CEO. The overall responsibility in some such ventures rested in the hands of foreign partner.
- In cases where CEO is proposed by the local partner; a key technical officer a technical director is appointed by the foreign partner.
- Joint Ventures are reported in some cases to have contracted specific management and administrative services with the local parent company when such experience was available.
- The Board of Directors generally direct all corporate policies and the management structure; the pricing and distribution policies are also established by the Board on the recommendations of the CEO. In the Joint Ventures where Government have significant participation; the top management in some cases is appointed by them.

II.2.7.2 Training:

- | | | |
|--|---|---|
| <ul style="list-style-type: none">- The joint venture firms by and large provide for extensive training for project and plant personnel of | <ul style="list-style-type: none">- Appropriate training of personnel assigned to the plant and considered adequate to understand all aspects | <ul style="list-style-type: none">- In principle none; in most cases promotes better understanding among partners. In cases where the |
|--|---|---|

Major Elements

different disciplines e.g. operations, maintenance, technical services, quality control. The training is provided abroad for key operation personnel; during design, engineering and construction for the concerned categories and under the supervision of trained key personnel and the expatriates from the foreign partner for the middle level supervisory staff and for operators of all categories. The continuity of training is also maintained through on-going technical assistance contracts signed by the joint venture with the foreign partner which provides an access to the operating experiences of the foreign partners plants to the operating personnel of the joint venture.

- Training of personnel has also been a priority in the strategy of foreign majority joint ventures who have maintained about 10% of total payroll as expatriates from parent company to provide perpetual training opportunities on job.

Objectives Set

of complex technologies and equipment employed in manufacture. Training is the most important component of the collaboration.

- In plant training and on job experience is planned as a regular activity.

Inhibiting factors

foreign partner is unwilling to go along with local partners in the plans of modifications, diversification and expansions; the increased participation of local partners in day to day functions of even the complex operations of petrochemicals plants and with extensive trained personnel, the local partners are in a position to negotiate withdrawal of the foreign partner if it comes to it.

II.2.7.3 Procurement of Consumables:

- The purchases are made by the joint venture on the rules of purchase adopted by the company. Longterm supply arrangement exist only in some cases of majority foreign owned companies. In majority case the companies have an independent supply sources.

- Develop its own sources of regular and reliable supply of feed materials and auxiliaries.
- Obtain satisfactory supply arrangements for materials classified as proprietary or available from a single source.

- Foreign partners and suppliers of technology have to make available specifications and composition adequate to purchase materials from untied supply sources - disclosure of these details in some cases may not be liked by the foreign partners.

Major Elements

- Raw materials not available locally are permitted for import from most suitable source.

II.2.7.4 Major Operational Problems:

- The joint venture mechanism has, by and large, been used successfully to operate the complex petrochemical plants efficiently. Cases of inadequate planning in use of olefine building blocks in downstream units because of inordinate delays in completion of part of some of the projects have been reported. Inadequate selection of technology, plant design and difficulties in operation were ultimately rectified through joint venture arrangements and employing services of expatriates from the foreign partners.

II.2.7.5 Marketing arrangements:

- Practically all Joint Ventures have their own marketing channels and sales organisations without any participation of the parent companies. The preferential market arrangements in the region enable companies access to the markets in other countries mainly through local representatives in each of the countries these are mostly chemical industries with concurrent interests.

Objectives Set

- Import of materials not available locally is freely permitted by regulating authorities; in some countries without any import duty.

- Provide for participation in various facets of project implementation and pre-commissioning to import know-how relating to plant operations.
- Use Technical Assistance of foreign partner to ensure safe and efficient plant operations.

- Development of local market and replacement of imports by local materials.

Inhibiting factors

- Participation of local staff in large numbers at all levels may require confidence building of the foreign partner specially for operation of complex technologies applied in production of basic petrochemicals.
- Foreign partner need to get assurance that joint venture will be run by professionals with adequate flexibility to discharge day to day functions of operations, maintenance and labour relations. Such confidence is all the more necessary in view of participation by Government in these ventures.
- Non participation of the parent companies in marketing, market development and market services.
- Virtual exclusion of local partner from the marketing activity in case

Major Elements

- The majority foreign owned companies in some cases undertake the complete marketing activity themselves with the help of their principals.
- Most Governments provide significant incentives for export of industrial products. In some cases Government owned international trading companies have helped petrochemical producers and undertook responsibility to market excess production in international markets, even absorbing marketing costs whenever necessary.
- After Sales Services are provided in some cases for local markets in case of specialised products of complexity and variety in application.
- For customers abroad or in within Latin American countries no special after sales services are provided but these products are marketed through local technical sales organisations or a local chemical producer.

Objectives Set

- After Sales Service to the local industry to establish a sound basis of production.
- Development and access to overseas markets through independent arrangements.
- Supply materials in the region in accordance with the regional plans and agreements.

Inhibiting factors

- of majority foreign owned ventures.
- Export marketing by Government trading agencies according to the policies and strategies outside the purview of Joint Venture.
- Producers prefer to compete on prices and not so much on services. After Sales technical Services are virtually non-existent.

- 2.2.1 The major elements of the existing joint ventures in the countries surveyed are present in predesigned matrix in Table II.2.
- 2.2.2 Most joint venture firms have access to the markets within the region because of the formalised arrangements for preferential imports from the member countries of the regional free trade system. The ventures in countries with large petrochemicals production are established to develop exports in addition to supplying the local requirements. These plants employ modern technologies, operate efficiently, have access to R + D support and in some countries their operations are greatly assisted by regulatory agencies and official corporations of the Government which have a very important role in generating propitious milieu for the development of petrochemicals industry with regard to raw material availability, domestic market protection, selling price regulation, export market development, technology development etc. It is therefore a logical consequence that petrochemicals industry consolidated in such countries for more rapidly and effectively as well as made a significant contribution towards the important aspects of technology adoption and new technology creation.
- 2.2.3 The key element provided by the foreign partner to a joint venture is a permanent link to technology improvements, access to his in-house technical information and long proven experience on trouble shooting. These services are also being obtained through separate technical assistance agreements between the joint venture and foreign partner. If these services are non-existent or inadequate or in case the foreign partner is unwilling to be integral part of new developments or diversification programmes launched by joint venture, then there is little justification for the foreign partner to have a share in the joint venture. The local partners in countries surveyed emphasise that it is important for the local partner to select the foreign technology partner not only on the basis of the merits of the production technology that he may bring to the joint venture but consideration should be given to his philosophy and policies regarding a long-term collaboration with the local partners.

- 2.2.4 The administration of the joint venture by local partners proved useful whenever the local partner - government or private - had already developed capabilities for such industrial administration. In cases where such capabilities do not exist, the administration maybe assigned to the foreign partner - possibly under fixed term contract.
- 2.2.5 The role of the governments in developing countries is of vital importance for the success or failure of the petrochemical joint venture due to the inherent inflexibility of the industry to the drastic changes in the macro-economical milieu. The well defined ground rules and permanence of those ground rules in time as well as a certain degree of flexibility and adaptation to the macro-economical changes are important preconditions for the economic survival of petrochemical joint venture in developing countries.
- 2.2.6 The local availability of basic petrochemicals building blocks if produced by a non-controversial organization e.g. a national company always facilitates the establishment of joint ventures for production of chemical intermediates as there is an implicit support and active interest of the governments in subsequent processing industries.
- 2.2.7 The marketing of the petrochemicals produced by a given joint venture, within or outside the developing country where it operates, will normally rest with the producing joint venture as its specific responsibility. During initial period of export either the government trading organization or the international trading channels may be of help. The actions taken at the governmental level are even more important to secure a more permanent access to export markets such as the ALALC-ALADI market preferential arrangements or the ANCOM common market approach developed within Latin America.
- 2.2.8 In countries with large petrochemical production, the prime mover is the current consolidation of its present position through efficiency and product diversification and it is here that the local partner is starting to play a crucial role.
- 2.2.9 The representative petrochemical joint ventures operating in Latin America and undertaken for survey were established in mid-sixties or early seventies. Their examination clearly suggest that the joint venture mode of constituting companies to develop, build and operate petrochemicals plants had demonstrated its usefulness in consolidating the petrochemical activity in the region.

2.3 Middle East

The region is the centre of attention of companies from developed countries particularly since the national governments there took over the control on production and pricing of crude oil in 1973. An unprecedented investment boom in the region followed; the national governments alive to the new situation undertook significant investments in building from nothing the modern infrastructure and facilities necessary for setting up technologically complex industrial plants. The middle east offered completely different set of conditions to those in other places; virtually new cities with supporting services were created in desert areas for setting up petrochemical plants through joint ventures. A construction boom was witnessed in the region. The middle east offered a variety of attractive incentives to get good partners in the joint venture projects and the middle east of today is the outcome of the joint venture business. Large international petrochemical companies and the construction companies are among the important collaborations in the petrochemicals development schemes launched in the region.

2.3.1 The results of the survey of the countries in the region relevant for petrochemicals industry are presented under table 5.3 in the form of a pre-designed matrix.

2.3.2 The joint venture's are designed to manufacture and sell most of its products in export markets; the local demand mostly small is not a material factor to the joint venture. The plants employ the up-to-date concepts in capacity, technology, construction methods and operations. As the products are destined for exports and availability of local technicians is limited; the plants are conceived to employ minimum manpower.

2.3.3 The local companies through the joint venture have access to know-how, technology, technical back up and the industrial management experience of the foreign partner. The facilities of the foreign partner for training local staff as well as the marketing experience is also an important consideration for the joint ventures' in the region. All joint ventures look to foreign partners to supply expertise and experience in constructing and operating large petrochemicals complexes and in marketing their products.

2.3.4 An important incentive for a foreign partner in a joint venture in the region is the low requirement of capital as equity and whereas the equity contribution at this low level is equally contributed by the local and the

II. Profile of Joint Venture Companies in Developing Countries

	<u>Major Elements</u>	<u>Objectives Set</u>	<u>Inhibiting factors</u>
II.3	MIDDLE EAST (Saudi Arabia, Qatar, Kuwait, Egypt)		
II.3.1	Basic Considerations:		
	<ul style="list-style-type: none">- Utilisation of oil field gases, which have been flared all along, for production of high value products namely: petrochemicals including fertilisers.- Positive steps taken by the concerned countries in the region to set up the infrastructure required for establishment of high technology manufacturing units.- Most attractive price and assured availability of the main raw materials ethane rich gas separated from associated/non-associated gases.- Cooperation in high technology areas and consequential relationship could provide a desirable channel for access to crude oil supply arrangements with respective countries.- In some countries like those with significant local demand, production of second generation petrochemical products based on imported intermediates.	<ul style="list-style-type: none">- Pursue national objective of laying basic infrastructure of the economy and expansion of hydrocarbon based industries to create national economy with less dependence on oil as a single source of wealth.- To reduce reliance of the country on export of crude oil.- To manufacture and market products within the host country and each partner undertake responsibility for export of defined quantities.- To establish first generation basic petrochemicals projects as first priority to effectively use the hydrocarbon feedstocks from associated gas and thereafter promote generation of downstream projects.- To cooperate in suitable joint ventures abroad.- National policy encourages setting up capital intensive industries employing minimum manpower.	<ul style="list-style-type: none">- National or Regional demand is inadequate to absorb the production from proposed joint ventures.- Joint venture production mainly aimed at export markets: In the current situation of overcapacity in the industry and with number of plants in developed world either closed down or operating at reduced throughputs, the foreign joint venture partner must see a higher return in proposed production vis-a-vis his maximised production from existing facilities elsewhere.- Relatively new environment with no history of high technology plant operation over a sufficiently long period. Accordingly the necessity of creating an industrial culture for operating the units employing complex technologies which is a long process.- Recent development in crude oil demand and supply situation with consequential cutback in production in a number of countries have affected the production of co-product associated gas. One of

Major Elements

Objectives Set

Inhibiting factors

II.3.2

Pattern of Development:

- The important joint ventures relate to first generation basic petrochemicals complexes. The pattern employed for first time in 1974 in Qatar made great impact when a number of agreements were concluded by Saudi Arabia in 1979 and immediately thereafter in modified form for manufacture of basic petrochemicals in large complexes. With the completion of these projects successfully the modicum of joint venture arrangements are now being used to set up second generation petrochemicals projects.
 - In some countries the second generation petrochemical manufacture is being set up in the first instance based on imported basic chemicals. The plans envisage backward integration later on.
 - Two distantly different patterns have been used to achieve the objective set i.e. countries with small local demand but with very large quantities of gas being flared have embarked on ambitious plans to produce large quantities of basic and intermediate petrochemicals for export. On the other hand in potentially large consumption area as well as more conservative oil producing countries developmental plans have been under consideration for a long time and appear to be settling down for manufacture of second generation materials. Forward integration in the first case and the backward integration in the second case are the objectives set for the joint ventures.
 - Western industrialised countries and Japan feel threatened by the anticipated flow of petrochemicals from Middle East into their markets. Prices of basic building blocks e.g. ethylene and propylene are much higher in the developed economies.
 - Compared to the corresponding prices of Middle East products low prices coupled with large quantities have led major companies to restructure their strategies.
- the basic attractions in promotion of joint ventures for production of petro-chemicals may appear to be moving to the borders of uncertainty

Major Elements

Objectives Set

Inhibiting factors

II.3.3 Internal Structure:

II.3.3.1 Ownership pattern:

- In practically all recent ventures the local and foreign partner hold equal equity; in earlier joint venture collaborations, however, the major capital is put in by the local partner. The countries planning to develop second generation petrochemicals manufacture propose to buy technology and as far as possible entirely keep the local ownership. There are instances of minority equity holding by foreign partners principally meant to have access of the market of the foreign partner who is usually also a consumer of the materials. Joint ventures between two or more arab states are mostly equal equity participations with well defined roles. Whereas in the joint ventures in petrochemicals joint ventures abroad the arab state participates as a minority equity partner.

- Participation of foreign capital both in public and private sectors is designed to ensure that the ventures are professionally designed, set up and operated and managed and that their products in excess of local demand will find receptive international markets. Technology, operating experience and marketing are the major contributions of the foreign partner.
- Local partners arrange and ensure supply of raw materials, infrastructure, local and some overseas marketing (in recent joint ventures).

- Experience of only one joint venture operating for the last 3 years is available, the others are just going into production.
- More ambitious projects with significant export targets are seeking greater involvement of the foreign partner as well as greater dependence on his technical, management and international market experience.
- Countries with more conservative approach are still undecided on the pattern of ownership though preferring outright purchase of technology and managing the projects themselves.

II.3.3.2 Financial Structure:

- The joint ventures mainly rely on the soft loans arranged by the Governments of host countries through specialised credit institutions like Industrial Development Fund. These institutions give both medium and long term financing requirements of industrial projects in private or public

- Provide soft loans to the industrial sector of the economy both in the private and public sector. Long term loans from commercial banks are available to cover the working capital needs of the joint venture projects.

- Foreign partner has a very little role in arranging the financing package. The package is also quite flexible and untied.
- In certain case the foreign partner overstated the cost of his technology to take maximum credit

Major Elements

sector through loans and equity participation.

- The local promoter company undertakes the action and the negotiations for the financing arrangements with local financing bodies.

Objectives Set

- The Governments stipulate participation by the foreign partner and the designated Government company in order for the joint venture to take advantage of the investment incentives.
- The Government policy also envisages that most of the stock held by Government owned company will be turned over to local citizens as well as those from other specified neighbouring countries in the region in due course.
- Introduce new technologies and concepts aimed at earliest utilisation of feedstocks available locally.

Inhibiting factors

for setting it off against his equity contributions.

II.3.4 Government Framework:

- In pursuance of its ambitious plans to construct large scale petrochemicals industries the Governments in some of these countries offered specific incentives for the foreign joint venture partners like:
 - Investment incentives Schemes covering
 - . Exemption from import duties on all machinery, equipment, tools, instruments, spare parts, raw materials, (primary and semi manufactured) and packaging materials.
 - . Entitlement of land for the manufacturing facilities and for housing at nominal rent.
 - . Industrial development fund loans are available to private sector at a nominal service fee.
 - . Product protection by limiting or prohibiting imports of competitive products and/ or raising import duties

- Government framework was designed to attract good joint venture partners. The foreign partners and the local authorities invariably spend long time and protracted discussion to quantify the impact of these policies and concessions on the operation and profitability of the proposed joint venture.

Major Elements

- on the imports of competitive products.
- . exemption from duties and other taxes on all exports of locally manufactured products.
- . Tax holding for a long period after the commencement of production.
- . Provision of utilities at subsidised rates.
- Basic rights and guarantees e.g.
 - . Guaranteed freedom of movement of capital in and out of the country.
 - . employment of foreigners where required.

Objectives Set

- Promote export of materials utilising the experience and knowledge of the foreign partner.
- The Government policy promotes foreign investment in joint venture petrochemicals projects and have accordingly undertaken at each location a comprehensive programme of creation of elaborate infrastructure.

Inhibiting factors

II.3.5 General Legal Framework:

- All the joint ventures are limited liability companies with specified nature of business.
 - After selection of the foreign partner on criteria fixed by the local partner, a task force or an executive committee comprising of the two partners examines all facets of the project as well as drafts the joint venture agreement covering financing, applicable rules and regulations.
 - In most cases separate agreements were set out for Technology and know-how, marketing, Technical assistance and management as well as training.
- Flexible approach greatly helped to create interest with reputable international companies who could supply the expertise and experience in constructing and operating large petrochemicals complexes and in marketing their products.
 - Legal frame work designed to provide confidence to the foreign joint venture partners for operations in the concerned country.
- The agreements are governed by the local laws; the reconciliation of the requirements and the coverage required according to the laws of the foreign partners' country with the local laws took a considerable time. The discussions on the projects accordingly took 5 to 7 years to reach a stage of concluding the joint venture agreements.
 - In some other countries the joint venture partner sought special regulations to cover the projects. (Though these were not acceded to by the host country)

Major Elements

Objectives Set

Inhibiting factors

II.3.6 Implementation of Joint Venture:

- The implementation of the project is the responsibility of the executive committee or task force comprising of equal representative of the partners in the joint venture until the joint venture company is formed which then performs all the functions. The technology selected on recommendation of joint venture can be acquired by a central local body which sublicenses to the joint venture as well as others who may set up plants subsequently. The technical back up is mainly provided by the foreign partner whereas commercial and legal aspects are assigned to the set up organized within joint venture. The precise participation of the local partner depends upon the availability of experienced personnel in the organisation. Large projects in the region, for the first time in the worldwide construction history, employed modular concept in fabrication, transportation and erection.
- The engineering design, supply of equipment and construction were entirely handled by the contractor selected.

- Achieve project implementation in shortest possible time taking into consideration the local conditions and the limited availability of skilled technicians and labours.
- Joint venture personnel specially the experienced personnel from the foreign partner monitor the project implementation and follow the project schedules.

- New and untested concepts need to be employed for setting up these complex units if recourse has not been taken to bring large skilled technicians from outside.
- In number of project sites the infrastructure has been built specifically for the industrial complex. The industrial culture would take time to establish to an extent that it can be called upon to assist the industrial requirements.

II.3.7 Operation of Joint Venture Firm:

II.3.7.1 Management:

- In practically all recent joint ventures surveyed the top management positions dealing with corporate policies,

- Acquire management techniques specific to this industry.

- The situation in the region is changing fast. Fixed period management assignments to the foreign

Major Elements

administration are held by the locals; the travel is composed of equal directors' from the partners. The technical positions are usually filled by the personnel from the foreign partner. The locals do occupy independent supervisory positions or as an understudy.

- In some earlier joint venture agreements the foreign partner was specifically assigned the responsibility for technical management of the complex for a certain period after start-up.
- The management tasks are shared by both partners in more recent joint ventures.

Objectives Set

- Pursue long term policy of inducting local personnel though no limitation on utilisation of expatriates from the foreign partner in the conduct of the venture.

Inhibiting factors

partner are giving way to joint management of the complexes. Greater management control relating to policies and corporate plans can be expected. As yet experience in the region is rather limited.

11.3.7.2 Training:

- Training is arranged by the foreign partner in his own plants or plants of his other licensees. The local companies also arrange training of their personnel in third party plants on payment.
- Key technical and management personnel are provided training abroad for periods exceeding one year. The operating personnel have been trained in the training centres maintained by each venture and thereafter sent abroad for specialised on the job training. In all cases large number of trainees mostly in hundreds have been trained for long periods ranging upto 3 years.
- Training is an important component of the joint venture.
- Novel methods of construction employed and the concept of minimum manpower in construction, operation and maintenance of plants required extended and comprehensive training programmes designed to meet the specific needs and requirements.
- Perpetual training at plant site to inculcate industrial culture suitable for such high technology industries.
- A number of large multinational petrochemicals producers have reduced their training centres to small facilities and in some cases even disbanded the training facilities in order to affect savings in the industry highly pressed to cut costs and reduce losses. Training requirements of joint ventures can represent task for which adequate facilities may not be available.

Major Elements

Objectives Set

Inhibiting factors

II.3.7.3 Procurement of Consumables:

- The purchases are made by the joint venture with major guidance of and in accordance with the procedures agreed with the foreign partner. Long term arrangements with foreign suppliers have also been entered into and in some cases like catalysts and speciality chemicals purchases are made using purchase channels of the foreign partner.

- Develop reliable sources of supply with acceptable quality of materials required for sustained operation of projects.
- Enter into long term arrangements for supply of proprietary consumables.

- Desire of the joint venture to develop alternative sources and to produce the consumables locally at a later stage.

II.3.7.4 Major Operational Problems:

- The infrastructure has been planned in professional manner; in more recent projects infrastructure was completed in about five years before the projects were launched. The earlier projects also laid emphasis on infrastructure development in stages.
- There are no reported operational difficulties. In some projects a large number of expatriates from developed and developing countries are reported to be working.

- Plant operations at maximum throughput and at designed efficiencies.
- No limitations on maintenance spares and inputs for preventive actions against possible operational upsets.

- Fluctuations in the production of crude oil could affect the availability of ethane rich gas thereby upsetting the production plans. The crude oil production programmes are fixed without taking into account the impact on petrochemicals industry.

II.3.7.5 Marketing Arrangements:

- The recent joint ventures learned from the performance of the earlier ones to limit the scope of the venture to production only. The marketing is the responsibility of each partner with the share of local partner fluctuating

- Marketing is the most crucial fall out of the joint venture. Acquire marketing experience through marketing of imported materials before production commences.

- Foreign partner is called upon to train the personnel of local partner in all aspects of marketing of products and thereafter he has to meet his

Major Elements

according to the sales he can make. The foreign partner undertakes marketing upto a maximum portion of the total production. In the earlier ventures the entire marketing including that within the host country was the responsibility of the foreign partner. The local partner is developing his marketing network, experience and marketing services and technical support.

Objectives Set

- Develop market through product development set up and back facilities at various locations.
- Develop distribution centre for local markets and exports.

Inhibiting factors

encroachment in the export markets which are very competitive.

foreign partner; the remaining capital is provided by local financing organizations such as industrial development fund as a soft loan. The Board of Directors of the joint venture is accordingly composed of equal number of directors from each partner. The chairman of the Board is mostly the representative of the local partner but other senior management positions e.g. the President, Vice President or managers are shared between the partners in consideration of the requirements of the job.

2.3.5 All joint ventures have availed of - and in fact came into existence taking into account that - statutes for protection and encouragement of national industries provide tax and non-tax investment incentives as well as adequate commitments on basic rights and guarantees.

2.3.6 The local agencies promoting the joint ventures selected the foreign partners assessed on a preset criteria and through close scrutiny of their technical capability, marketing experience and willingness to cooperate as full and equal partners. The interim agreements with selected companies enabled setting up a task force of equal members drawn from the two partners to finalise licenses, feedstock agreements, joint venture agreement etc. The formation of joint venture thereafter was only a formality as all the ground work was completed by the two partners before formation of the venture. The implementation of the project is taken up by the company under the policy guidelines of the Board of Directors and with leading participation of the foreign partner and his expertise. There has been a substantial change in the approach; whereas the first joint venture in petrochemicals in the region relied completely on the foreign partner with regard to the project construction and operation; the later ventures have the local partners involved in the entire process.

2.3.7 The technologically important joint ventures in the region are in the petrochemicals sector. These have demonstrated that a flexible and pragmatic approach has enabled some countries in the region to achieve what was considered by some as impossible. It has though taken a long time to enter into collaborative arrangements in most cases not less than seven years. This approach has permitted joint ventures to adopt newer concepts of modular designs for such large capacity plants successfully which enabled setting up the complexes within tight time schedules. The international companies faced and solved problems encountered for the first time at such a scale.

2.3.8 The petrochemical joint ventures have been a success so far. The experience of their operation is either just not available because the plants have gone into operation only recently or is rather short and limited. The joint ventures are now facing the issues of operation and marketing whichever a long term will determine the performance in totality of the joint ventures in the region.

2.4. Industrial Countries medium sized (Nordic countries):

The region has a developed petrochemicals industry both at the basic and downstream stages. The industry is planned to meet the local or the regional needs. The crude and gas from North-Sea has provided some countries with a unique opportunity for a sustained supply of hydrocarbon raw materials; some other countries have long term supply agreements with large producers such as USSR. Access to raw material availability appears to have strengthened the position of the corresponding companies to acquire and control the industry in the region. As the countries in this category are medium sized and have limited financial resources to offer, they are mainly interested in participating in equity of the joint ventures only and the main financing is covered through bilateral aid or suppliers credit as well as loans from developmental banks. These companies, however, enjoy very high credibility level because of their performance in home countries so far; their participation in joint ventures accordingly helps arrangements for the financing.

2.4.1 Such countries have come to acquire an important role in the joint venture arrangements for the petrochemicals industry. The process of restructuring taking place within the region has promoted new joint venture arrangements for the existing industry. The companies possessing know-how in the field of petrochemicals - this covers mainly the downstream conversion sector industries - have formed joint ventures in developing countries; their approach, intention and performance have made them quite popular. Major elements of the joint ventures in which companies from such countries are involved either in their region or in developing countries are presented under a pre designed matrix under tables II.4.

2.4.2 The foreign companies in joint venture from the region do not stipulate any restrictions in regard to the markets to be covered. The joint ventures within the region as well as those in developing countries cater to local

II. Profile of Joint Venture Companies in Developed Countries

	<u>Major Elements</u>	<u>Objectives Set</u>	<u>Inhibiting Factors</u>
II.4	Nordic Countries (Finland, Norway + Sweden)		
II.4.1	Basic Considerations: <ul style="list-style-type: none">- Within the region the joint ventures are promoted to have access to the demand in the different countries and only commercial considerations guide the decisions.- The markets of the region are quite open and there are no written preferential sources of supply but production by joint venture within the region with financial participation of a constituent country will be incentive enough for it to buy from the Joint Venture.- Joint Ventures in developing countries cover technology and raw materials availability as prime considerations.	<ul style="list-style-type: none">- Import substitution designed to meet the demand of the countries in the region.- New found hydrocarbon resources in the region are being planned for use as feedstocks for high valued chemicals by the respective countries.- Manufacture and sell products in the countries of the Joint Venture partners.- Offer technologies available from Nordic countries on competitive terms.	<ul style="list-style-type: none">- Demand of individual countries and that of the region is not large enough to permit setting up units of world scale capacities.- The regional joint ventures do not plan to compete on export markets.- Strong competition in the field of technology sale from other developed countries.
II.4.2	Pattern of Development: <ul style="list-style-type: none">- The joint ventures within the region cover basic petrochemicals industries as well as the downstream including secondary and tertiary processing sectors.- New industrial activity is mainly in countries with access to recent oil and gas finds. Similarly countries with long-term arrangements for supply of feedstocks with countries nearby are beginning to control joint ventures in the region.	<ul style="list-style-type: none">- Plan production programmes to meet the demand within the region. In cases of chemicals where the overseas demand is assured and the competition is not severe to upset projections, exports may be resorted to.- The joint ventures in developing countries foresee significant exports by taking advantage of raw material availability and pricing.	<ul style="list-style-type: none">- The capacity existing in the countries in the region in last decade is adequate for the local demand. It is only the countries with oil and gas production facilities that have possibilities of significant growth based on exports as well as local markets.

Major Elements

- The joint ventures in developing countries cover the downstream secondary or tertiary sectors.

Objectives Set

- Basic and downstream industries have matured and therefore technology exports are being pursued vigorously.

Inhibiting Factors

II.4.3 Internal Structure:

II.4.3.1 Ownership Pattern:

- The ownership of the companies in the region is held entirely by Government at the basic manufacture level but in some cases the private sector holds small equity in partnership with the Government. The downstream units have been mainly in the private sector however, Governments are now penetrating in the downstream operation with the intention of vertical integration and restricting main specialization and strength to one product.
- The joint ventures in developing countries correspond to the ownership rules in the host country e.g. Saudi Arabia, Mexico.

- Achieve vertical integration through joint venture arrangements.
- Lead partner or the foreign partner, as the case may be, provides technology, training, industrial property rights and management. Assistance in operations and marketing is also provided, the extent varies according to situation in host country.

- Most joint venture companies in the region and Middle East have minimum possible management set up and the main process units only. They depend on supply of utilities and infrastructure from the central facilities and contract out support jobs like maintenance, daily accounting, bookkeeping etc. Consequently dependance on the industrial environment and concern on its reliability.
- Most companies adopt flexible policies and therefore do not anticipate and have not so far encountered any problems in reconciliation of views into the joint venture partners on policies and programmes of the venture.

Major Elements

Objectives Set

Inhibiting Factors

II.4.3.2 Financial Structure:

- Most companies from the region belonging to small countries have limited resources and therefore prefer to participate in the equity only. The loans have in practically all cases been covered by bilateral aid arrangements, international lending organizations, development banks and the supplies credit. All these sources are sensitive to the credibility level of the host country in addition to the view on normal business risk.

- Secure loans under host country bilateral arrangements with donors.
- Secure maximum amount of soft and untied loans
- Secure commercial loans with the assistance of the lead partner if required.

- Mainly small countries and are unable to offer soft loan packages to make technology sale and equipment supply competitive. However reputation of the companies in the region is a very positive factor in arranging loans.

II.4.4 Government Framework:

- Government framework assumed greater importance in the region for the development initiated after spectacular finds of and access to oil and gas. Within the region the incentives offered are rather indirect e.g.
 - . Investment incentives in form of tax credits, exemption of R+D expenditure or attractive schemes on transportation etc. if the industries are located in specified regions or zones of the country.
 - . Basic rights and guarantees on repatriation of profits and capital are subject to approvals of the concerned Governments.
- In developing countries the framework of host countries apply as set out under respective region.

- Save foreign currency through production from local feedstocks of the materials being imported.
- Apply technologies and processes to facilitate backward or forward integration.
- Promote integrated use of materials and feedstocks available in the region for benefit of appropriate production programmes.

- There are no special direct incentives offered by the Government to promote joint venturing. Commercial considerations and the identity of interest of various partners in the region are the main driving forces.

Major Elements

- There are no specific legislations for joint ventures which have to be covered under the existing framework.

II.4.5 General Legal Framework:

- Joint venture formation is the outcome of the process of restructuring. Normal commercial laws of the country apply to such integrations. The fallouts of restructuring are in the form of
 - . Agreements covering research and development and technology back up.
 - . Agreements covering technical assistance.
 - . Management services agreement.
- The joint ventures in developing countries are governed by the legal framework of the host countries.

II.4.6 Implementation of Joint Ventures:

- The regional joint ventures do not require any significant implementation effort.
- The joint ventures in developing countries are implemented according to the procedures and the pattern adopted by those countries.
- The companies from the region emphasise their flexible approach in this regard aimed at mutual beneficial collaboration.

Objectives Set

- Commercial considerations of restructuring prevail. Regional level joint ventures encouraged because of better degree of understanding and confidence in the applicable legal framework of the neighbouring countries.
- In the developing countries appropriate legal coverage in various contractual commitments.

- Project services hired from the most competitive and experienced sources.
- No limitations on source for purchase of equipment.
- Project management services can be run by local partners with guidance from collaborators.

Inhibiting Factors

- The laws of the country in which Joint Venture is located apply.
- A proper understanding of the legal framework is a time consuming and expensive process for companies promoting joint ventures in the downstream sector.

- Assurance of quality and on timely completion of works if awarded to new entrants.
- Lack of adequate experience in project implementation in some developing countries.

Major Elements

Objectives Set

Inhibiting Factors

II.4.7 Operation of Joint Venture Firm:

II.4.7.1 Management:

- In the joint ventures within the region all top management positions continue to be occupied by the local nationals and professionals. The board of directors is nominated in proportion to the equity holdings. The board meets very often possibly once a month to review performance and decide on policy matters. The Managing Director called "daily manager" is responsible for day to day operations and performance budget.
- In the joint ventures in developing countries the approach is also to employ local staff if qualified and experienced personnel are available. Support is mainly given in technical fields.
- All joint ventures are pursued with the objective of using local human resources to the maximum extent. The policy clearly sets out the management development programme to enable senior local staff to step into management positions in due course of further experience and exposure is required.
- Preference at all levels is given to the local personnel in case qualified candidates are available.
- Participation by two partners requires well identified procedures, powers and responsibilities. Communication between the partners on all issues relating to performance and operation irrespective whose personnel occupy crucial position, is most important. In developing countries management capabilities of local staff have to be developed for the type of technologies to be employed, products to be handled and the management responsibilities for such complex operations.

II.4.7.2 Training:

- The joint ventures in developed countries only require short term orientation and training periodically. However the ventures in developing countries are covered by extensive training spread over long periods.
- Practically all joint ventures have in-plant training departments engaged with regular training programmes designed to meet the needs of different cadres in the plant.
- All joint ventures have formal contractual access to the expertise and facilities of the promoting partner.
- Training is an important input of the promoting partner. Areas cover operation, technical services and research and development; the precise scope varies with the infrastructure at the plant.
- All Nordic countries contacted emphasized their strong support for continuous back-up for training in all their joint venture arrangements.
- It is expensive to maintain training departments and facilities in most developed countries; these are being cut to minimum because of increased competition and resultant economies being enforced by a number of companies. Continuation of such facilities have to be supported by the sufficient needs of joint ventures.

Major Elements

Objectives Set

Inhibiting factors

II.4.7.3 Procurement of Consumables:

- Purchases for joint ventures are made by the purchase department in consultation and on advice of operations. There is no interference from the promoting partner but for the advice on purchase of critical and more sophisticated items.
- There is a practice in the nordic countries to depend upon an independent central organization which only stores and supplies items such as valves, instruments, pipes and other consumables which can be bulked for a number of plants up to a distance of say 400 kms.

- Independent purchase arrangements for the joint venture established with the guidance and help from the promoting partner.
- Ensure uninterrupted supply of the materials of specified quality.
- Devise strategy for storage and sequence of purchase.

- Technical support of the promoting partner may be necessary in procurement of specialised materials. The support could be considerably more in case of the ventures in developing countries compared to those in the developed ones.

II.4.7.4 Major Operational Problems:

- Joint venture in developed countries have improved the performance levels compared to prior records. In the new ventures in developing countries no specific operational shortcomings have been reported.

- Provide appropriate back up in operations, technical services and trouble shooting to the joint venture. In most case the joint venture have access to the expertise in the fields of safety; quality control and environmental control.

- The utilities supplied to joint ventures from independent producers have to be dependable. The infrastructure has to be adequate for the smooth operation of complex technological units.

II.4.7.5 Marketing arrangements:

- The joint ventures have in house marketing arrangements. Marketing services and product developments covering improvements and new products form a very important component.
- Some joint ventures in developing countries utilize the home office set up of the foreign partner.

- Improve competitive position in the market through well organised sales, after sales services and improved product quality and end uses.
- Meet the local demand in developing countries and explore export markets.

- The back up services are quite responsive to the needs of the customers in the region. However, in the developing countries the need for dependable market development set up is of utmost importance.

and regional demands as well as undertake exports. The joint venture companies in basic petrochemicals sector strictly restrict operations to operation of process plants and concentrate on import substitution by use of local raw materials. Their strategy is mainly aimed at local market unless international trade and export is not under cut-throat competition and provides good returns.

2.4.3 The companies from these countries principally want to sell technology and the product application know-how in their possession on competitive terms. The participation by these companies is more dictated by their desire to match competition and to assure continued technological back up. In more recent joint ventures the motivation has also been to obtain access to new markets.

2.4.4 Most companies in the downstream petrochemicals sector in these countries are private companies; the Government owned companies engaged mainly in the manufacture of basic petrochemicals have penetrated in downstream industries mainly to specialise in selected products entirely, in line with general trend all over. The vertical integration has brought about acquisition of concerned companies through joint ventures. Such companies are also now offering joint ventures in developing countries. In the joint ventures in developing countries the managements mainly rests in the hands of the locals.

2.4.5 The incentives offered to joint ventures with companies from the region participating are quite effective and cover those on applicable taxes, expenditure on research and development and cost of transportation on raw materials and products specially if the joint venture is located in specified regions of the country.

2.4.6 Training is emphasised by the companies from the region who invariably have a separate training department. In addition to short training for each employee there are orientation programmes undertaken periodically. In the highly competitive situation facing the industry when most international companies have considerably reduced staffing on training departments. This is an important facility offered to joint ventures by companies from this region.

2.4.7 The companies from the region have a very flexible but positive approach towards joint ventures which in their opinion is main reason of their success. The companies possess long experience of joint ventures both within the region

and in developing countries and are making important in roads in developing countries further in the downstream sector as well as in manufacture of intermediate chemicals.

2.5 Industrial countries - extensive multinational operations:

A number of companies in the industrialised countries with or without operating petrochemicals plants have the right to license and possess or have access to know-how, technology and experience for manufacture of a variety of petrochemicals. A representative sample survey of a few companies in USA, UK and Italy was undertaken to obtain their views on the joint ventures as a potential means of collaboration to set up petrochemicals plants. These views are indicative of the approach and outlook of a potential foreign partner from industrialised countries to the joint venture.

2.5.1 Most companies regard the equality of the two partners in the joint ventures in developing countries as fictitious as the developing countries have an unfair and indirect control over the profitability of the business. As an example feedstock pricing in most developing countries is the result of a political decision making which has a devastating deterioration on the prospects of generation of funds. These companies bring out the fact that since variable costs of energy and feedstock account for 80 percent of all the costs incurred in manufacture of basic petrochemicals; they are no longer willing to risk exposure to such important parameter of business equation as in sixties when feedstocks represented only 20 percent of the cost in the costs of manufacture. This uncertainty is not limited to developing countries only; the same happened to the ethylene plants planned in Alberta where with the change in political approach the policy on feedstock prices underwent a change and the plants were abandoned.

2.5.2 Some companies have mentioned cases of successful joint ventures with companies from other developed countries in identified specific fields; these joint ventures are aimed at combining the strengths of the two firms in production; research and development and marketing to acquire a dominating multinational role in the particular product.

However, they contend that divergence in industrial mentality of two groups of countries provides an additional source of problems. Moreover, a newly established joint venture petrochemical company in a typical developing country

faces a whole host of difficulties ranging from inadequacies in infrastructure and market absorption of products to the absence of skilled work force and vagaries of government regulations.

- 2.5.3 It has to be appreciated, according to one company, that a lot of effort and funds are absorbed in the development of new technologies and unless one could see reasonable prospects of satisfactory rewards one greatly diminishes the incentives for that company to make the most advanced technologies available. Bureaucratic limitations fixed on the quantum of royalty for the processes as well as short duration secrecy provisions in the agreements do not help elicit the best technologies. Unless the joint venture is assured of the opportunities to grow and enter new business and production capacities in due course, the fixed costs tend to escalate making the joint venture company uncompetitive.
- 2.5.4 Some companies are inclined to co-operate in joint ventures in the downstream and speciality products with developing countries. They, however, believe that relatively modest markets for these products in most developing countries preclude viable business opportunities.
- 2.5.5 Most companies are very cautious about setting up joint ventures in developing countries, they would prefer to license technology and provide services in all facets of setting up plants, operations, trouble shooting, training, safety, administrative support etc. They contend that the measure of commercial success are different in companies and the perception of the public entities. A government agency can put its capital as a sunk cost in a project and is under no compelling obligation to recover that investment which is governed by a host of policy considerations. On the other hand such an approach is inconceivable for a profit oriented company. It is because of these considerations that many projects whose basic economics do not satisfy the established criteria still get implemented.

A company with long experience in manufacture of petrochemicals around the world believes that in joint ventures, not only in those with developing countries, the initial unity of purpose and vision tends to weaken as borne out by their experience in Europe. The risks will be even greater where divergence in political, cultural, historic and geographic background is unknown.

- 2.5.6 Most companies suggest that at current prices of petrochemical products, they make more money on marketing the product in their own network than from a fully owned industrial plant. This activity they like to see expanded and would welcome the opportunity of entering into marketing agreements to surplus producers of developing countries.
- 2.5.7 The joint venture arrangements recently entered into in oil producing countries, according to the appreciation of these companies, are a multilayered approach somewhat different than conventional type joint ventures. It includes a number of additional agreements for supply of feedstocks, utilities, infrastructure facilities and obligations in respect to international marketing. The realistic opportunity cost related pricing of feedstocks as well as availability of working capital at attractive terms were major incentives.
- 2.5.8 An important factor according to some companies which inhibits their equity participation in developing countries relates to the complexities of overseas remittances and repatriation of funds that are normally subject to excessive regulations and restrictions. This is closely linked to company's perception of political stability affecting business environment with political changes usually causing irreparable disarray in the rules of the game.
- 2.5.9 The companies suggest that they can make real contribution to the development process in the third world petrochemicals through making them aware of the mistakes they committed in the past so that the newcomers can avoid them. If the newcomers use the information and knowledge that these companies have acquired over long period of successful operations in petrochemicals, they will save a lot of money. On the contrary they believe that if developing countries go about business the way engineering and consultancy companies suggest they should do, they inevitably run the serious risk of putting their money down the drain.
- 2.5.10 All companies adduce the argument that the successful joint venture should be based on demonstration of the commercial viability of the enterprise to be taken up jointly. They point out that in many instances the governments of developing countries for a variety of good and not so good reasons decide to go ahead with a particular project and decide to go

ahead with a particular project and then invite the international collaborations. Many of these projects, according to the companies, would not have been judged by the same companies as possessing sufficient economic prospects if they had been involved in the initial evaluation. In this connection the current debt crisis affecting many developing countries can be largely traced back to liberal lending practices by the banks to finance projects whose business soundness were often not conclusively established. In view of these lessons and consequential substantial reduction in credit flows, these companies contend, the multinational companies cannot be realistically expected to substitute for banks. Accordingly they admit that a potent form of incentive for the joint venture would be the provision of low interest bearing loans to the companies to facilitate the difficult task of arranging the financial package of the project.

Chapter 3 : Scope of Joint Ventures in Petrochemicals

3.0 Scope of Joint Ventures in Petrochemicals

The opinion of multinational petrochemical companies in industrial countries is predominantly in favour of supply of license, services and expatriate assistance to developing countries instead of a conventional joint venture collaborative arrangement. However, having regard to appropriate incentives and understanding as well as appreciation of the politico-economic situation in a country, the multinational companies would seriously consider an opportunity for entering into joint venture for projects which pass the accepted criteria of techno-economic viability. The developing countries by and large consider joint venture as an important vehicle to develop, build and operate petrochemical plants as this system has a proven record of helping to establish and consolidate the basic, intermediate as well as downstream petrochemical industries in developing countries in different regions.

The scope of joint ventures in petrochemicals sector is dependent upon a number of factors as well as on the degree of technological complexity of the plant covered by the collaboration. The external factors such as the level of industrial experience of the developing country as well as the policies of the governments of the countries of the partners have a profound influence on the scope of the joint venture as well. The diversity of this industry can necessitate the joint venture to take back-up assistance from the overseas partner if such services are not available indigenously; the illustration below will signify the extent of the wide range of assistance that an efficient operation of a petrochemical joint venture may require:

- a. research and development effort needed to sustain suitability of the product for end uses specific to the markets.
- b. performance evaluation of the processes employed to maintain and improve their economic levels of operations.
- c. technical back-up needed to support the needs of the conversion industry covering the diverse sectors of the industry - a service on continuing basis.

The structure of the petrochemicals industry and the indisputable need of the developing countries to depend upon the industrial countries for transfer of technology and continued technical support suggest joint venture as an important instrument of co-operation. Most companies in

industrial countries do realise that these collaborative agreements provide them an opportunity to maintain impetus of innovation and act as an important lifeline for survival of their manufacturing economies. The failure rate of the joint venture according to the studies available on this area of business understanding is abnormally high. In the more recent large petrochemical projects as well, the joint ventures which fall through in the very early stages of project formulation is higher than 50 per cent. This chapter accordingly looks into various factors applicable to petrochemicals industry which may help in the creation of a successful joint venture.

3.1 Major Elements of Existing Successful Joint Ventures:

The formation of a joint venture and implementation of the project undertaken by the venture normally follows the cycle indicated in fig. I. In the case of petrochemicals industry - mainly the basic and intermediate chemical sectors - the development requires significant support from inhouse, local or outside research and development set up and design, engineering and consultancy organizations. The project conception covering identification of opportunity, market survey as well as preliminary project studies aimed at looking at financial analysis as well as defining the project more precisely require experienced technical advise, facilities to be able to characterise and evaluate feedstocks and prepare estimates of capital costs. Quite often preliminary data on process and project from experienced licensors may be absolutely necessary to make any meaningful analysis. The selection of process technology as well as the type and forms of collaboration most suitable for the joint venture also require specialised experience.

There may be different ways of going about a joint venture project but the corporate partners to a joint venture in all cases should hold the same intentions as a couple planning to wed: each appreciating the contribution of the other as valuable. The new venture could join forces to penetrate markets, learn new technologies, share risks, take advantage of the concessions to maximise profits etc. But as in marriages difficulties serious enough to pull apart the collaborations often are encountered. The successful joint venture have therefore to go through basic exercises aimed at better understanding of the environment and of each others position such as:

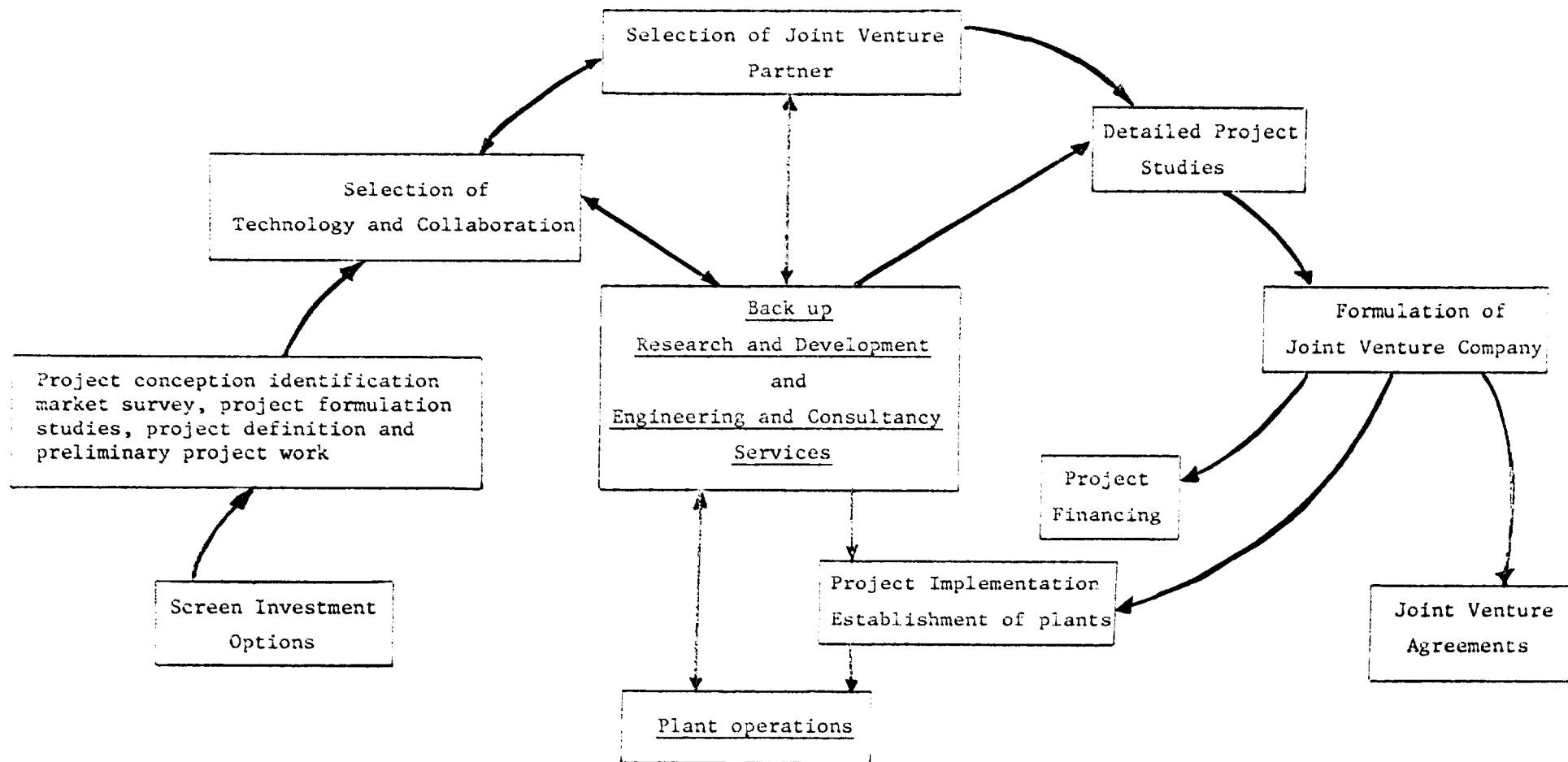


Fig. 1: Joint Venture Project Activity Cycle

a. Initial planning to prepare groundwork:

The basic principle for a good collaborative arrangement is to achieve complete understanding of the position of each other through free and frank disclosures on purpose, long-term goals and operating strategies of the parties. A significant observation during the regional surveys revealed that the most successful joint ventures were entered into by local firms which were representing their collaborator for a long time in promoting his commercial interests; the implication being that long association established the trust and confidence necessary for a joint venture partnership.

The planning for establishing a joint venture has not only to cover a joint evaluation of the project proposal, strategy for implementation and operation, application of skills, policies on pricing and costing etc. but also the examination of plethora of legal and governmental laws and rules that govern the business operations in the country of joint venture. The complementarity of immediate and long-term interest of the parties in the joint venture operations has to be well defined and accepted.

The cycle of major activities that a joint venture project may go through is depicted under fig. 1; it is emphasised by most companies from developed and developing countries that development of those activities by both partners to the joint venture at the earliest stage specially including scoping and feasibility studies would be most helpful in concluding a joint venture with a good long-term working relationship.

This phase of work received the highest consideration in recently implemented petrochemical joint ventures in which the joint venture partner was selected on consideration of technical capability, marketing experience and attitude on co-operation in joint venture as free and equal partner and interim agreements signed. An executive committee set up with equal members from each side undertook special tasks e.g. study of licensed technologies, feedstock agreement, joint venture agreement and commissioned feasibility studies. The committee was authorised to conduct all negotiations and choose most suitable license and successful contractor. To reconcile the objectives of

each partner and contributions each made the negotiations stretched our number of years resolving many complex issues. Sound foundation of joint venture like in marriage is based on complete understanding, confidence in and respect for each other.

b. Identification with objectives of Joint Venture:

Businessmen by making are suspicious and such feelings are aggravated by lack of communication or unilateral action by one partner even though it is in the best interest of the venture. A flexible and broadminded approach by both partners will further strengthen the business operations. The identification of the partner to the aspirations and expectations of the joint venture in line with the corporate plans and the evolving environment is most desirable. Schemes and plans of the joint venture though suitable from the national considerations should pass the test on profitability criteria specified under the joint venture; similarly foreign partner in the joint venture has to overcome the temptation of making the interests and aspirations of the joint venture subservient to those of his parent company.

c. Agreement on basic business policies:

The multinational petrochemical companies feel that the joint venture companies in developing countries are prone to government interference on the issues which directly affect the profitability of the venture. This concern though existing even earlier has assumed greater importance with changed situation of the industrial sector in the world in the last decade; processing margins or assurance on a minimum return on investment are no longer the satisfactory form of coverage. The negotiations culminating into final joint venture agreements must inter-alia therefore specify the mutually accepted approach in regard to

- . Corporate objectives setting out clearly the activities and investment policy.
- . Prices of raw materials and transfer prices.
- . Policy on capital increases - options on shares or other forms of ownership.

- . Policy on dividends and repatriation of the profits abroad.
- . Policy on financial disciplines e.g. borrowing.
- . Policy on marketing and pricing products.

A typical example revealed during the survey is of an agreement between the joint venture partners on supply of petrochemical raw materials at a rebate of 30% while the manufacturer joint venture was permitted to retain product prices at 20% above the international prices. Involvement by the government in such schemes in an indirect manner not only demonstrates the commitment of the governments to the development of this industry but also can help convince the foreign partner about the continuity of the present scheme.

3.2 Potential areas of conflict:

Most joint ventures in petrochemicals industry viewed from the aspirations of developing countries are centred around technology transfer. The developing countries expect the foreign partner to consider, the new plant as an extension of his original business activities and that his participation in the new plant will widen his markets. The joint ventures operating for a considerable period as well as those recently established do throw light on the aspects which brought up differences between the partners; certain reports about problems developing in the recently implemented joint ventures have been listed to enable partners to take appropriate measures while establishing the joint venture so that these conflicts can be reduced.

a. Expansions and Diversification Plans:

It appears that in more than one case of the joint venture surveyed the diversification plans proposed by the local partner faced reluctance on support or an outright rebuttal from the foreign partner on the promise that the proposed diversification falls outside the technological realm or market interest of the foreign partner. These real problems have been solved through negotiated buying out of the foreign partner as the local partner had acquired sufficient experience to run the company and to manage the technological requirements of the diversification scheme independently.

It has also been pointed out during the survey that due to restrictive policies adopted by some developing countries, the expansion as well as diversifications plans of the joint venture were held up unless the capital base was restructured according to more recent regulations. Such joint ventures virtually stagnated and could not

maintain the advantageous position in the country they attained when established.

b. Management and Administrative:

The disproportionate management rights and the financial benefits acquired by a partner because of his long valuable experience of the industry or a dominant status in local environment has created problems mainly in the majority foreign owned companies. The local or the foreign partner as the case may be must feel involved in the management of the venture as well as in activities such as marketing and purchase.

The valuation of the technical assistance provided by the foreign partner to the joint venture has been one of the minor irritants which could be easily removed by a more positive and accommodating attitude.

c. Technical and Technological aspects:

Differences between partners have been reported to be have developed over the interpretation of the access to joint venture of the improvements. This aspect is of significance mostly in the basic and intermediate chemicals manufacturing stage. Developing countries with extensive research and development supporting facilities are more likely to face this difficulty. A clear understanding on this could be reached in the early stages of formation of the joint venture.

d. Uncertainties on commercial disputes:

It is reported that in one of the potentially promising regions for establishment of joint venture petrochemical projects the requirements which would need to be met before a joint venture can now obtain a license to invest are undergoing profound change; the expected stipulations include

- i. local ownership to the extent of 51 percent
- ii. a minimum specified limit on capital
- iii. a minimum period (say 10 years) experience in relevant business sector.

These change tend to create a climate of suspicion which is unhealthy for the joint venture operations. It is not very material who has a percentage higher in ownership but what follows as a consequence could damage the

confidence created so far.

In other cases the responsibility of the foreign partner to the debt liability of the local partner is stated to be being judged with adverse impact on foreign partner. The examination of the local rules, regulations and legal instruments even as it is a long drawn procedure; the multinational companies may get exposed to commercial disputes which are judged contrary to the original appreciation of the laws of the land.

3.3 Motivations of the partners of existing arrangements:

The foregoing review of the situation clearly brings out the fact that the existing joint ventures pertaining to the periods before and after the seventies - signified by unexpected changes in crude oil prices and supply situation - are designed to combine the strengths of partners to enter new markets and maximise profits. The motivations can be grouped and presented as under:

- a. Host partner (mostly from developing countries)
 - i. Access to technology, know-how and experience of the foreign partner.
 - ii. Access to know how on product, product application and product development.
 - iii. Access to techniques for market development, market services and market research.
 - iv. Possibility of combining research and development to acquire a dominating role in world market in particular product. (Valid for joint venture between two companies in developed countries).
 - v. Producing high value added products thus diversifying output with high technology industries.
 - vi. Displacing imports and entering international export markets.
 - vii. Establishing industrial base, for further development of industries employing complex technologies while at the same time deriving substantial economic benefits from national angle by way of creating employment, skills and improvement in social environment.
 - viii. Reputation of foreign partner facilitates tieing up loans and financing package.

- b. Foreign partner: (mainly from developed countries)
- i. Access to new markets
 - ii. Access to low priced raw materials, low cost on operating personnel.
 - iii. Possibilities of attractive investment abroad during recession in home markets.
 - iv. Availability of attractive investment incentives as well as financing schemes.
 - v. Possibility of establishing the industrial base and its use as a springboard for further business activity on preferential basis.
 - vi. Acquiring advantageous position in selling technology as well as technical back-up services.
 - vii. Successful joint venture could be a reference for other developing countries.
 - viii. Complementarity of existing operations to acquire decisive competitive advantage in a product in multinational operations. (Valid for joint venture between two companies in developed countries).

The restructuring of the petrochemicals industry which commenced in seventies favoured the location of the industry closer to the sources of cheap and secured availability of feedstocks and energy. The last few years have witnessed further finds of large quantities of crude oil and/or gas in different parts of the world. The multinational joint venture partners have accordingly more options available now for manufacture of bulk petrochemicals. A clear indication is the growing trend of the multinational companies to (a) get away from bulk production of a variety of petrochemical products (b) concentrate their manufacturing programme and activities to selected few petrochemical products (c) restrict new activities to high value speciality products and (d) integrate current activities with selected downstream operations, establishing direct contact with the consumer.

It would appear that petrochemical industry is either following its traditional restrictive approach in terms of the new speciality high value products or is pursuing manufacture of bulk petrochemicals through joint ventures at or closer to the centres of feedstock availability.

3 4 Role of Government policies:

The appraisal of existing joint ventures in petrochemicals sector clearly bring out the significant impact that government policies have demonstrated

over the establishment and successful performance of the joint venture companies. In practically all cases the supply and pricing of petrochemicals raw materials is directly or indirectly controlled by the government; these have since in some cases even acquired a politically sensitive international status. However, in all cases - wherever applicable - the assurance from the government on uninhibited supply of feedstock and an attractive and stable price are the basic pre-requisites for any joint venture aimed at either domestic or export markets. It is by and large recognised that the government policies have a profound affect on joint ventures located both in developing or developed countries - however, in the case of the former it is more crucial as the governments in developing countries exercise a much greater role in creating a congenial industrial environment.

The rules, laws and legislations setting out the policy of governments are put out differently by most countries; specific decrees were issued for the petrochemicals industry in Middle East; an important multinational company laid down precondition that a specific legislation be issued covering concessions required by him for setting up the petrochemicals complex before finalising the deal - which ultimately fell through. In other countries provisions made in the prevalent legal instruments cover the needs of petrochemicals industry. Broadly most of the requirements are being covered in most countries under the following legislations in one form or other.

- i. Industrial Policy - a regulatory mechanism designed to provide the company a framework according to which governments expect the industrial development to take place.
- ii. Foreign Investment Legislation - sets out policy which governs the foreign economic participation in different forms of collaboration or exclusively foreign owned investment projects.
- iii. Restrictive trade practices regulations - provide the venture partners with the idea of degree of freedom that the business activity is expected to enjoy under such specific legal stipulations.
- iv. Financial rules: gamut of rules and regulations affecting the financial position of the business venture such as corporate taxes, excess profits tax, income tax etc.
- v. Policies on raising funds and loans - guidelines as well as specific instructions on raising funds for meeting the needs of capital for industrial ventures and the working capital.

- vi. Import Policy - a comprehensive statement on incentives provided on import of capital goods, machinery and spare parts as well as protection given to indigenous manufacturers of petrochemicals against import of similar products from world markets - a mechanism to help growth of industry in its infancy.
- vii. Export Policy - sets out government support in promoting exports of specified products, incentives offered and possibilities of preferential commercial dealings with certain countries.

Apart from the policies designed to encourage investments in industries framed by the governments, the appreciation and confidence of the business in these policies is essential to promote further investment activity. The prior participation of a foreign business house in the host country even in a small way greatly assists in involvement in large investment petrochemicals projects; the continuity of such policies over a long time instils greater confidence with the foreign business.

3.5 Future of Joint Ventures:

Complementarity of long term commercial interests: The developments in the petrochemicals industry during the last decade have introduced a new sense of uncertainty and suspicion in the petrochemicals companies. The new situation necessitated recasting their commercial strategies and as a consequence the joint ventures established so far had to be reassessed in the context of new situation. A number of multinationals deliberately decided to shed specific investments in some regions while in others acquisitions were made such as Du Ponts' acquisition of Conoco, Montedison joining forces with Hercules, ICI shedding its Polyethylene business, Dows' diversification aiming at predominant profits from speciality chemicals and corporate plans of Union Carbide to dispose of its polymer manufacturing plants in different parts of the world are just a few examples of the complex process which is taking a new unknown and an indefinite shape.

Some companies suggest that their corporate level appreciation is getting around to the view that the long term identity of the partners to a joint venture is virtually impossible. In most cases what started as a complimentary

role of the joint venture to that of the commercial interest of the foreign partner changed into a completely divergent business outlook. These views are supported in a way by the experience available from some developing countries where some respondents point out to the restrictive attitude of the foreign partners to giving improvements to the joint venture whereas the local partners' desire to provide in joint venture agreements a possibility of take over by the local partner after a specified period. Both approaches emanate from the desire of each of the partners to retain dominating position in certain markets independent of the other partner. The current situation has made the problem on identification of long term complementarity of commercial interests of joint venture partners even more difficult. The successful experience from Middle East however, suggests that given goodwill from both sides, it is possible to define and agree upon suitable basis. It is quite noticeable that the joint ventures formed by companies in developed countries are based on a clear long term strategy of both partners which demonstrates advantages in access to market and profits to both partners through joint efforts.

Invisible business risk: Joint ventures, according to some companies, in most developing countries represents a business risk which may not be commensurate with advantages that may accrue from the collaboration. These risks being those which originate from the practices and actions completely outside the control of the joint venture management. The degree of risk is again a measure based on the experience and appreciation by the concerned company of the cultural, economic, geographical and political environment in the country.

An appropriate mechanism which can adequately cover the foreign partner against such risks has to be devised. It is believed that most companies in the developed countries both engineering and consulting companies as well as manufacturing units are covered by suitable insurance cover against fault, defects and maloperation. It is possibly conceivable that such extraordinary business risks are also covered by a system of insurance up to an agreed amount; this or any other form of assurance will greatly create the needed confidence in the foreign partner.

It has been pointed out that the conventional joint venture concept may have outlived as an instrument of co-operation. But incorporation of such provision in a suitable form would rightly reflect the evolution that a joint venture has to go through.

Techno-legal aspects: The understanding of the legal instruments applicable to a joint venture is a time consuming exercise undertaken before the agreements are entered into. Despite such understanding it is only the actual case studies under the particular legal framework which could generate the necessary confidence in the foreign partner. In some recent cases of differences of opinion, the decisions of the courts have gone against the original perception of the foreign partner - in one case a court is reported to have ordered a foreign partner in a joint venture to accept responsibility for some of its local affiliates' debts though it was previously assumed that the limited liability vehicle protected the foreign shareholder from such action.

The two partners to the joint venture have to strive to jointly understand the implications and interpretation of the techno-legal aspects to promote the understanding and confidence for the successful joint venture.

Chapter 4 : Potential Areas of Joint Ventures in Petrochemicals

4. Potential Areas of Joint Ventures in Petrochemicals

The joint ventures in petrochemicals industry have a successful record of operations in the basic manufacture as well as in the downstream conversion sector. Most developing countries have, beginning with small capacities and relatively simpler processes, entered the petrochemical industry about 15 to 20 years back in a very modest way. The per capita consumption of these products in most developing countries is less than 5 per cent of the corresponding consumption levels in the industrial countries. The developing countries in general and those with large population more particularly represent a large growth potential. As brought out in the foregoing write-up the profile of development will vary widely in different regions and countries therein, however, there are interesting possibilities developing for a joint venture collaboration between North-South and between South-South. The potential areas of joint venture collaboration between North-North may continue to be confined to co-operation in research and development as well as achieving a stronger marketing position in the international operations - both situations not quite dependent on any governmental encouragement; however, the number of factors affecting the collaboration with the South are quite large and which mainly are outside the control of the promoters depending upon the governmental controls.

- 4.1 Government Policies aimed at encouraging joint ventures: In practically all developing countries the industrial development programmes are greatly influenced by the government policies. The unusual growth witnessed in the petrochemicals industry in some developing countries in Latin America is directly attributed to government policies designed specially for the petrochemicals industry; in most cases the manufacturing facilities were supported by local technical research institutes of high competence which helped assimilation of the technological aspects. Developments in Middle East are the direct result of government policies designed specially for the development of petrochemicals industry. The governmental encouragement at the regional level in identifying projects was responsible for the establishment of petrochemical conversion units in the ASEAN region, the co-operation is now being extended further.

The relevance of petrochemical materials in the areas of development directly related to priority sectors of growth in a country's economy such as industrial growth, food production, water management, health programmes, housing etc. have induced the promulgation of national policies by the

governments listing out petrochemicals manufacture under priority development programmes in many developing countries. The policy guidelines issued by the governments while recognising the development priority accorded to a particular sector does impose adherence to rules and regulations designed to suit the socio-economic fabric as well as the compatibility with cultural background. The applicable rules and regulations have to be interpreted by the joint venture parties in the context of the other favourable factors prevailing in a particular country which will have influence on the manufacturing programme proposed. This in fact is the situation as is evident from the state of joint venture proposals being mooted in countries such as China and India.

It is also to be recognised that the developing countries would be concerned about issues such as: (i) that technology employed is appropriate and the country is not being used as a dumping or experimental ground, (ii) that the foreign investment has only the well accepted commercial motives associated with manufacture as the objectives and that the collaboration will not be used to make the project dependent on some other industry or business interest owned by the collaborator, (iii) that know-how and technology will in due course be absorbed by the new company and that transfer of knowledge to local nationals is in its planned programme.

A noticeable change in the conventional joint venture package usually brought in by the foreign partner to the petrochemicals projects relates to the serious limitations on financial obligations of the foreign partner. The foreign partner would like to be an equal partner in the joint venture with the local partner but at the same time wish to keep the direct financial stake to the minimum - one of the important criteria adopted in all joint ventures entered into in Middle East. The reputation of the foreign partner could be used by the joint venture to raise loans. The usual policy considerations by the governments applicable to joint ventures relates to:

- i. rights and obligations of the parties
- ii. registration - scales and standards of registration fees
- iii. labour management
- iv. limitations on liability (restricted to capital contributions)
- v. autonomy (or degree of) in decision making in management and control of operations
- vi. transfer of profits and repatriation rights
- vii. wages and salary of local and non-local staff.

The governments of the developing countries generally consider joint ventures as an attractive form of collaboration as it brings with it the equity capital, advanced technology and management skills and can be an opportunity to establish a sound long lasting business relationship for the benefit of further industrialization schemes. The foreign partners in the petrochemicals industry joint ventures are proposing compensation trade or buy-back arrangements as a part of joint venture collaboration to undo the shortcoming on the financing front as well as generate greater confidence with the government of the developing country. Such arrangements more appropriately applied to large projects could involve a trading group in the financing scheme of the joint venture.

4.2 North-South Co-operation: Practically all joint venture projects in developing countries have been set up in collaboration with the established companies in the developed countries. The major areas of co-operation offering potential for joint venturing in petrochemicals are presented hereunder three heads: technical, commercial (market and raw materials) and of corporate nature. The joint ventures mostly cover all three types of co-operations but the relative importance of each could vary and hence the separate presentation of conceptual approach in each type which could ultimately influence attitudes and relationships in the joint ventures. In order to suit the requirements of the partners, joint ventures have been entered into for one of types of co-operation with the other two being so insignificant that these are covered by isolated clauses in the former agreement.

4.2.1 Technical Oriented Aspects: The technologies for most petrochemical products were developed by multinational companies in the industrial countries. The research and development as well as product applications development play a very important part in this industry. Some products though being marketed for over 20 years are still the exclusive preserve of a couple of companies who manufacture and market these themselves or through their subsidiaries around the world. The technology for the manufacture of petrochemicals are mostly licensed around the world by companies in the industrial countries. Availability of technology and its application in the environment and to meet the needs of the host country represent the most important elements of collaboration.

The long operating experience of the companies in the developed countries both in successful plant operations and maintenance as well as their access to proven and highly developed safety practices and environmental control techniques provide attractive opportunities for long term collaboration through joint ventures.

The more conventional petrochemical technologies have since matured and in some cases been adopted by the engineering companies for licensing, the technological improvements will continue to play an important role in competitiveness of the operations. The industry is already in grips with energy conservation and improvements in some processes have made even the recent technologies less attractive. The industry generally believes that there may not be any new bulk petrochemical products put into the market but the improvement in processes as well as in product characteristics may be very significant. The technological co-operation with the industrial countries will continue to occupy an important place in the joint ventures.

4.2.2 Market Oriented Aspects: The market research, market development and marketing of petrochemicals is expected to continue to remain the major factor on which the viability and the future growth of the industry is going to depend upon. A number of countries are in the process of building reliable basis and tools for demand forecasting and the capabilities for examination of different production models appropriate for the demand projections are being developed in few selected countries only.

The basic information on market response to various grades of materials for the area specific outlets is not readily available; the international companies who have well established market networks do have access to the basic market information based on their operations in these countries. The marketing activities accordingly provide an opportunity for combining the knowledge and strategies of the partners for the success of venture. In a number of countries covered by surveys in different regions the marketing within the country is done by joint venture relying greatly on the contacts and knowledge of the local conditions of the local partner. The concepts as well as the technical back-up is supported by the experience of the foreign partner. This area of co-operation will continue to assume greater attention as the consumption of petrochemicals increases in the developing countries. This is an aspect in which the partners may have the identical outlook of maximising market penetration, increasing extent of market, using cost effective products and the profit motive running through all these targets.

The raw materials, as already pointed out, represent a significant cost component in the manufacture of petrochemicals. It is therefore commercially a very powerful linkage between the partners. In the context of North-South co-operation the relevant raw materials could include:

- Hydrocarbons - both gases and liquids
- Building blocks e.g. ethylene, propylene
- Intermediate chemicals e.g. vinyl chloride, acetone cynohydrin, acrylonitrile

The transportation of ethylene or LNG over long distances in refrigerated tankers has been successfully handled and supplied on commercially attractive terms as feedstocks to petrochemical plants. Likewise a variety of intermediate chemicals or even crude chemicals (e.g. alcohols) transported over long distances by tankers have been found to be economically more attractive than production from existing plants in the developed countries. The developing countries with advantages on feedstock availability do have access to a powerful tool for co-operation with companies from developed countries which could lead to joint ventures similar to the ones witnessed recently in Middle East.

4.2.3 Corporate Oriented Aspects: During the initial stages of the petrochemical industry development programmes, the developing countries have usually relied heavily on the joint venture arrangements which provide the management participation by the foreign partner as well. Such arrangements included

- license: covering technology and know-how
- share in the capital
- management participation

Over a period of number of years the management passed into the hands of local nationals who acquired adequate skills to act as the nominees of the foreign partner. The petrochemicals companies recognise the need for co-operation at the corporate level but during the current period of financial strain that the industry is passing through, they are shy of undertaking any avoidable capital risks. It is to be appreciated that the policies and strategies of practically all large chemical companies in the world have undergone a major change at the corporate level. The future arrangements have to take into account the new situation. Practically all multinational petrochemical companies surveyed would be willing to take on the opportunity of providing

management services but draw a distinction that while oil producing companies work on large risk capital margins and can therefore operate even in disturbed areas, the situation is very different for the petrochemicals projects where profits are small and consequently protection of capital is a prerequisite for their economic survival.

There thus appears to be a need to follow an innovative approach in providing the needed protection to the partners from the developed countries - the developing countries could consider it hypothetical but the uncertainty surrounding his investment in addition to his normal business risk are the sources of prime concern of the companies who are today the most experienced as well as have the technology and know-how for manufacture of petrochemicals. Suggestions have been made that the large percentage (say 75 per cent) of the equity capital of the foreign partner may be covered by the insurance bond of the like amount endorsed by the government of the developing country - such unconventional solutions, it appears, may meet the misgivings of the investors from developed countries about likelihood of instability and the consequent risk posed to their investments in developing countries. Co-operation at corporate levels will require developing confidence between the partners about the security and stability surrounding the venture.

- 4.3 South-South Co-operation: Some developing countries set up petrochemical plants in late fifties and early sixties; a number of these units established as joint ventures have since been handed over to the local managements which have acquired skills associated with running these technologies. Apart from the R + D required for efficient plant operations, applied and basic research is also being undertaken in some advanced developing countries. Relatively simpler technologies such as those for manufacture of aniline, nitro chloro benzenes, acrylates, ABS polymers, are known to have been developed and used in some commercial plants. There is a distinct trend in some developing countries towards development of technologies more particularly in the sectors wherein the absorption and assimilation of technology was taken up since about a decade - this includes the manufacture of organic chemicals and the polymers. The potential areas of co-operation between developing countries through joint venture operations are also dealt with under the broad heads of: technical, commercial (market and raw materials) and of corporate nature.

4.3.1 **Technical Oriented Aspects:** There are isolated examples of joint ventures using technologies developed in the South; processing industry for conversion of petrochemicals products into usable products such as production of detergents, plastic products, rubber goods is more appropriately undertaken in developing countries using technologies and techniques employed in other developing countries where such manufacture has been established. The similarity of the socio-economic environment in most developing countries provides additional mutual benefits for South-South co-operation; this similarity in outlook will be manifest in aspects such as the design of units in a manner to withstand uncertainties of power or maximising employment instead of greater dependence on machines in loading raw materials or product handling; these could be typical social benefits that the developing countries may wish to derive from the industrialisation process.

The possibilities of joint ventures employing conventional technologies for manufacture of secondary petrochemical products developed in developing countries are also coming up in a modest way.

Apart from the process technology the other technical aspects holding out important potential for co-operation leading to collaboration in form of joint ventures are based on the wealth of operating experience existing within the developing countries and this includes:

- Training in plant operations
 - in maintenance practices
 - in quality control
 - in safety systems
- Technical services
- In plant R + D back-up
- Planning and project engineering

These activities form an important input for successful plant performance and could be obtained through collaboration with other developing countries; it is a common practice in the industry to take these services from acceptable developing countries even in some joint ventures between North-South since it is much cheaper and provides greater opportunities for learning.

4.3.2 **Commercial Oriented Aspects:** The co-operation in marketing and raw material supplies could present important avenues for collaboration. The basic hydrocarbon raw materials are available in the developing countries in large

quantities and the recent experience has demonstrated that the exploitation of these resources is economically viable according to the internationally accepted norms of profitability. The possibilities of co-operation could include equity participation by the developing countries co-operating in the marketing and raw material supply arrangements in the ventures for conversion of hydrocarbon raw materials into an intermediate stage or to semi-finished goods and in the venture downstream located in the other participating countries. Programmes of similar nature launched in ASEAN region have performed well in different industrial sectors including petrochemicals. The small demand in each participating country have even supported large world scale units to be established on a co-operative basis. In the current international situation pertaining to the petrochemicals industry, this type of South-South co-operation is a sound base for promoting manufacture of petrochemicals in the developing countries. The problems confronting developing countries which could inhibit such co-operation are usually traceable to (i) shortage of capital; (ii) lack of clear direction on growth of this sector; (iii) lack of appreciation of the impact that developments in this sector will have on their economy; and (iv) lack of prior experience on such collaborations. The surveys have brought out the fact that such co-operations in Latin America through ALALC-ALADI market preferential arrangements or the ANCOM common market approach as also the ASEAN region co-operative arrangements have been beneficial to the individual countries as well as to the regions. In a number of cases small countries were faced with uneconomic plant operations because of limited local market but could continue operations efficiently when the preferential access to the regional markets came about. The success of these arrangements is demonstrative of the possibility of success in other regions of the developing countries.

- 4.3.3 Corporate Oriented Aspects: In most developing countries the governments play an important role in setting down the guidelines on the pattern of development of industries - this is all the more relevant for capital intensive industries in which large public funds in the form of shares or loans are involved. The co-operation at corporate level is accordingly dependent greatly on the governmental policy guidelines. The companies from developing countries possessing the management experience of running petrochemicals business are well suited to have a management assistance oriented co-operation in the overall joint venture arrangements. It is known that such management assistance of a significant nature has been the subject of co-operation in industries such as

cement manufacture or production of simple items such as plastic pipes, films etc. but no significant management assistance co-operation between developing countries in the major petrochemical projects has been reported.

The potentialities of such co-operation do exist as successful examples of corporate level assistance in gas processing plants, petroleum refining industries are available between the developing countries. It is noticeable that a number of developing countries are encouraging their local companies to enter into joint ventures abroad; the corporate oriented co-operation could be more meaningful for other developing countries where these companies set up the ventures.

Chapter 5 : Promotion of Joint Ventures Among Developing Countries

5. Promotion of Joint Ventures among Developing Countries

The developing countries have, of date, been trying to accelerate their industrial development to utilise the resources available for the benefit of their economies while displacing imports and creating employment. The concepts of small and medium scale operations designed to create employment with minimum capital investment as well as adaptation of the industries to the environments in remote areas in the developing countries have since demonstrated their socio-economic viability. In the field of chemicals, polymers, dyes and even pesticides the small scale industries have started to play an important role; the entrepreneurship has acquired a wide base which augurs well for the future investment potential.

The last decade has also witnessed the developing countries putting forward their views to the international community to adopt measures and policies which will help in achieving the aspirations and claims of the developing countries in industrial development. A number of opportunity studies on the country and regional level industrial development schemes as well as those relating to intra-regional industrial projects underscore the fact that co-operation between developing countries can greatly help the pace of industrial activity in most developing countries.

The petrochemicals industries in the downstream sector are amenable to being set up in the small scale sector, the developing countries could take advantage of the experience existing in other developing countries in this field. Novel methods of injection moulding by hand operated machines, small extrudes or small capacity detergent manufacture using sulfonated alkylate have been used to create large employment potential. These experiences available mainly within the developing countries could be an important factor in the promotion of joint ventures among developing countries. The surveys conducted also bring out the fact that petrochemical materials which cannot be produced economically to meet the demand of one country, may be viable to manufacture if the requirements of a few countries in the region are covered by it like three countries producing tyres could set up, on a joint venture basis, the plants to produce tyre cord, carbon black and chemicals such as anti oxidants. The economic advantages derived through co-operation between developing countries in regions such as Latin America and ASEAN countries are beginning to be appreciated by other developing countries. The petrochemicals business in recent times has acquired a largely international character -

its requirements of raw materials, the target markets and economics of production are dependent on factors originating beyond the national boundaries. The co-operation between developing countries can to a large extent provide a greater degree of assurance on these aspects and help in creating a favourable investment climate. The past experience, though rather limited, of the petrochemical projects conceived on the basis of co-operation between developing countries has been encouraging and in some cases new projects of bigger magnitude and greater commitments are being formulated on the similar concepts.

In view of the large potentialities of promoting joint ventures arrangements among developing countries to establish petrochemical plants, the factors that emerge from the survey as fundamental requiring greater attention are briefly discussed herein.

- 5.1 Awareness of Capabilities: The developing countries which have acquired the capabilities in petrochemicals sector have been so involved with their own plans and projects as well as associated technology development programmes that they have not devoted any effort to bring it to the attention of other developing countries. This situation originates from the basic concept followed by these countries and that is of development of petrochemical industry maximising technology transfer and participation of local agencies.

The activities of petrochemical companies in the developing countries have also been mainly confined to local market, they have neither the opportunity nor financial standing to organise commercial operations on regional or international level. Some developing countries have enacted specific legislations to encourage local companies to set up joint ventures overseas; these efforts have yielded successful joint ventures even in projects employing complex technologies such as polyester and nylon filament yarns.

The fact remains that the companies in developing countries did not anticipate to compete in the international sphere of industrial collaborations; they cannot match their counterparts in industrial countries in technical and commercial experience. There has therefore been very little effort made to publicize the achievements of the developing countries in a manner to reach other developing countries who may need to follow similar development pattern.

The most spectacular development of capabilities developed in the developing countries and used both by the developed and developing countries has been of the engineering and consultancy services for hydrocarbon processing industries. This singular development has been central to absorption of technology, fabrication of equipment and creation of a cadre of skilled construction personnel. The developing countries which could create such services during the last decade are today on the threshold of developing their own technologies.

The main problem facing a new entrant from a developing country into the field of petrochemicals is to find out what capabilities exist within the developing countries in the particular product line of his interest. Technical literature on the subject would invariably list all the companies in the industrial countries who have experience and possess know-how for any particular product. However, a complete list of companies in the developing countries is not available and in some cases it is not possible to compile one on comparable basis to the ones from the industrial countries.

The capabilities of the developing countries may be presented under the following heads:

1. Process and Technology
2. Process Design
3. Engineering Design and Equipment Supply
4. Plant Operation, Maintenance and Corrosion Control
5. Plant Safety and Environmental Control
6. Research and Development
7. Product Design and Development

Some or all these services could be available to other developing countries for identified products as an example the complete range of these capabilities were made available for the South-South joint venture in synthetic yarn manufacture but the joint venture in production of PVC irrigation pipes required only a limited range of capabilities.

The main issue to be faced in promotion of the joint venture between developing countries is the availability of a data bank which could be used for investigating the possibilities of joint ventures with developing countries. There is thus a gap in information on the capabilities of the

of the developing countries this could possibly be fulfilled through the preparation of a directory of technological capabilities in developing countries, it being understood that such a directory will need to be updated regularly to reflect the regular improvements and new capabilities acquired or developed by the developing countries. It is a challenging task which could greatly assist in the fulfillment of internationally accepted objectives of South-South cooperation.

It is quite possible that the capabilities available in the developing countries are used not only by other developing but also by the developed countries for the projects undertaken by them in different parts of the world. This will be similar to the use of design and engineering services available in developing countries by the contractors in the industrial countries.

The task of bringing about awareness is tough and long-drawn and must be handled in a planned manner; the information updated regularly must include:

- i. Establish a data bank on services available in developing countries.
- ii. Directory of capabilities in developing countries.
- iii. A world supply and demand analysis including services offered on it by associations and regional bodies.
- iv. Market information.

The awareness of the developed and developing countries would also need to be increased through identification of possibilities relating to:

- i. Identification of commonality of interest of developed and developing countries.
- ii. Organization of meetings and seminars on regional and inter-regional basis with industries participating.
- iii. Formulation of realistic projects with the global criteria.
- iv. Exploratory presentations on technical assistance available from companies.

Awareness of capabilities forms the foundation of not only the South-South cooperation but also presents the possibilities of use of those capabilities by the North.

5.2 **Confidence Building:** Traditionally the technologies for entire petrochemicals sector have originated from the industrial countries. The machines used for conversion of these products into finished consumer goods are produced by renowned fabricators in the North and even the dies and moulds normally accompany the machines as well as the replacements or new supplies are obtained from the original suppliers for long periods thereafter. It is the long and proven performance of technologies, equipments and the acceptability of products in the market that has created the confidence in these companies and suppliers.

The developing countries suffer from the handicap of starting from a scratch only recently and with relatively very short experience at their back; they need a very aggressive approach. It is though equally essential that the developing countries concerned should develop confidence in the collaborative arrangements. The basic factors which will help in building confidence are:

- I. Qualifications and track record of the company from developing country offering collaboration.
- II. Experience and knowledge of the company offering collaboration about the local environment or of operations in other similar developing countries.
- III. Reliability of the company offering collaboration for meeting the commitments on supply, completion of work and back-up in operation and commercial performance.
- IV. Stability of the socio-economic factors operating on the company offering collaboration.

The proven industrial record of the company, from developing country offering collaboration, over a sufficiently long period and suitably supported by a research and development facility should be adequate for the developing country seeking partnership to assess the suitability and adaptability of the proposed collaboration for the local conditions.

5.3 **Inter-Company Arrangements:** The driving force behind the joint ventures among developing countries is the business promotion efforts of companies in these countries. The joint venture arrangements could include a variety of provisions which are more particularly relevant to South-South collaborative arrangements; these were mentioned in the previous chapter under the potential areas of

co-operation of joint ventures South-South. From the stand point of provision of joint ventures between developing countries, these are covered hereunder in a manner to avoid duplication except when it is necessary for completeness of a scenario.

- i. Technical considerations
- ii. Commercial considerations
- iii. Techno-legal considerations

5.3.1 **Technical Considerations:** The technical capabilities are central there to any efforts directed towards provision of joint ventures in petrochemicals industry. In most cases the concerned developing country would have purchased the technology to begin with but developed the technical competence and technological capabilities in due course through its own scientific and technological pursuits in the field. The major technical considerations and the difficulties encountered in these areas are presented as under.

- i. **Operation of plant:** The efficient plant operation is most crucial for stability of the petrochemical projects because of its impact on cost of production and consequently on the competitiveness. The main reason for low capacity utilisation of many plants in developing countries is the lack of adequate relevant operating experience or the inadequate utilities and infrastructure. A major element in keeping the cost of production low is to operate the plant at high utilisation rate. Experienced developing countries can by systematic identification remedy the cause of underutilization of capacity.
- ii. **Maintenance and spare parts:** Chemical plants can be corrosive and there could be the possibilities of erosion occurring due to inherent criteria of the process. This industry places a heavy demand on the maintenance services. These special needs of the industry are met through a comprehensive scheme of predictive and preventive maintenance which has to be instituted and applied rigorously. The experienced companies in developing countries have skilled personnel as well as latest facilities and methods used to cover the maintenance needs of the industry.

The maintenance plans go hand in hand with the systems adopted for provision and availability of spares of different categories e.g. the spare parts, quick changeable spares etc.

iii. **Technical services:** It constitutes the continuous technical support in production through trouble shooting, quality control of products and feedstocks and process analysis. The absence of skilled and experienced personnel is the major factor in most developing countries which restricts the operations of technical service functions. Experienced developing countries by including such services in the joint venture package could greatly promote the prospects of collaboration.

iv. The aspects relating to training, research and development and environmental considerations have been dealt with earlier under the potential areas of South-South co-operation. These, however, form an important component of the package offered by the experienced developing countries to the joint venture. The similarity of the economic environment could enable better understanding of the position of the parties in the joint venture on these matters.

5.3.2 **Commercial considerations:** There has been rather limited awareness on the potentialities of commercial understanding on bilateral or regional basis to develop the petrochemicals industry. The complementarity in production, the structuring of consumption and market development as well as the ability to respond to variety of demands of growing markets are best covered by joint venture collaborative arrangements. The inter-company arrangements on bilateral or regional basis to use available resources in optimum manner in meeting petrochemical requirements would benefit all parties concerned. The arrangements may provide a broad spectrum covering marketing and distribution in an appropriate manner to enable building expertise in the region for servicing the higher specialised fields of this industry.

5. **Marketing Services and Market Development:** The conventional arrangements that are normally concluded to serve the needs of market development involving the companies from the developed countries are in most cases inadequate. This is largely due to the peculiarities of the markets in the developing countries which require solutions specific to their environment and the application of know-how as such obtained from developed countries is not appropriate. Those developing countries which have successfully passed through various stages of acquiring experience in petrochemicals in their domestic environment are uniquely positioned to provide

specific services for market development. Similar services may not be available from alternative sources.

- ii. Exchange of Information: Information on processes, markets and products is a valuable input in building up the joint venture. Interscompany exchanges on such aspects including commercial details would help in building confidence between the partners and enable the joint venture to have access to the established sources of information which would otherwise take considerable time and cost to build.
- iii. Feedsacks: The basic raw material arrangements in most cases will be entered into with the agencies of governments, however, interscompany arrangements are quite common for the secondary petrochemicals manufacture and for the downstream industries. Assurance on supply of feedstock in these cases relieves the joint venture of participation in more capital intensive upstream production plant and promote optimum deployment of resources. Mutually advantageous supply agreements can be entered into taking into account the material requirements in the different developing countries. The requirements for market outlets and the needs of secure and competitive source of supply could be complementary aspects of the business.

5.3.3 Techno-Legal Considerations: There are no typical examples available of the techno-legal foundations pertaining to joint ventures between developing countries. The normal provisions made in the conventional agreements may need to be modified to reflect the basis of the collaborative arrangements.

The fact that the partners to the joint venture have the opportunity to create together an operating plant for extended period in order to build the confidence in the collaborative arrangements; could suitably be reflected in the clauses on guarantees, warranties and damages.

An accord relating attitude from partners could bring up the modifications suitable to all concerned parties. Provisions such as patents covered, patent infringement liability, applicable laws, arbitration etc. should reflect the desire of the partners to co-operate in a rather difficult task of South-South collaboration and need not follow the patterns available in many agreements.

5.4 External Environment: Having agreed upon the technical, commercial and legal framework for promotion of the joint venture; the factors outside the control of the parties exert great influence on the establishment of joint ventures. Mention of the government policies affecting the joint ventures have already been made under chapter 3.0 and 4.0 earlier. The situation in regard to South-South collaboration is presented hereunder.

5.4.1 Government policies at national level: The government policies establish ground rules under which all industries including petrochemicals operate; these have earlier been covered under para. 3.4 of chapter 3. The policies have to have to make provision for South-South co-operation since the regulatory measures are usually designed for collaborations with the developed countries at the back of the mind. The encouragement by the national policies to the schemes of international co-operation in the petrochemicals industry can take many varied forms of incentives and benefits. They may cover the financial support on attractive terms as well as equity participation to relieve the burden of capital formation.

The regulatory or fiscal incentives may be given to formulate such joint ventures from concessive environment in its formative period. The exemption of such ventures from different forms of taxation and even special consideration given in the form of development rebate on taxable profits have been included in various joint venture agreements entered into for this industry.

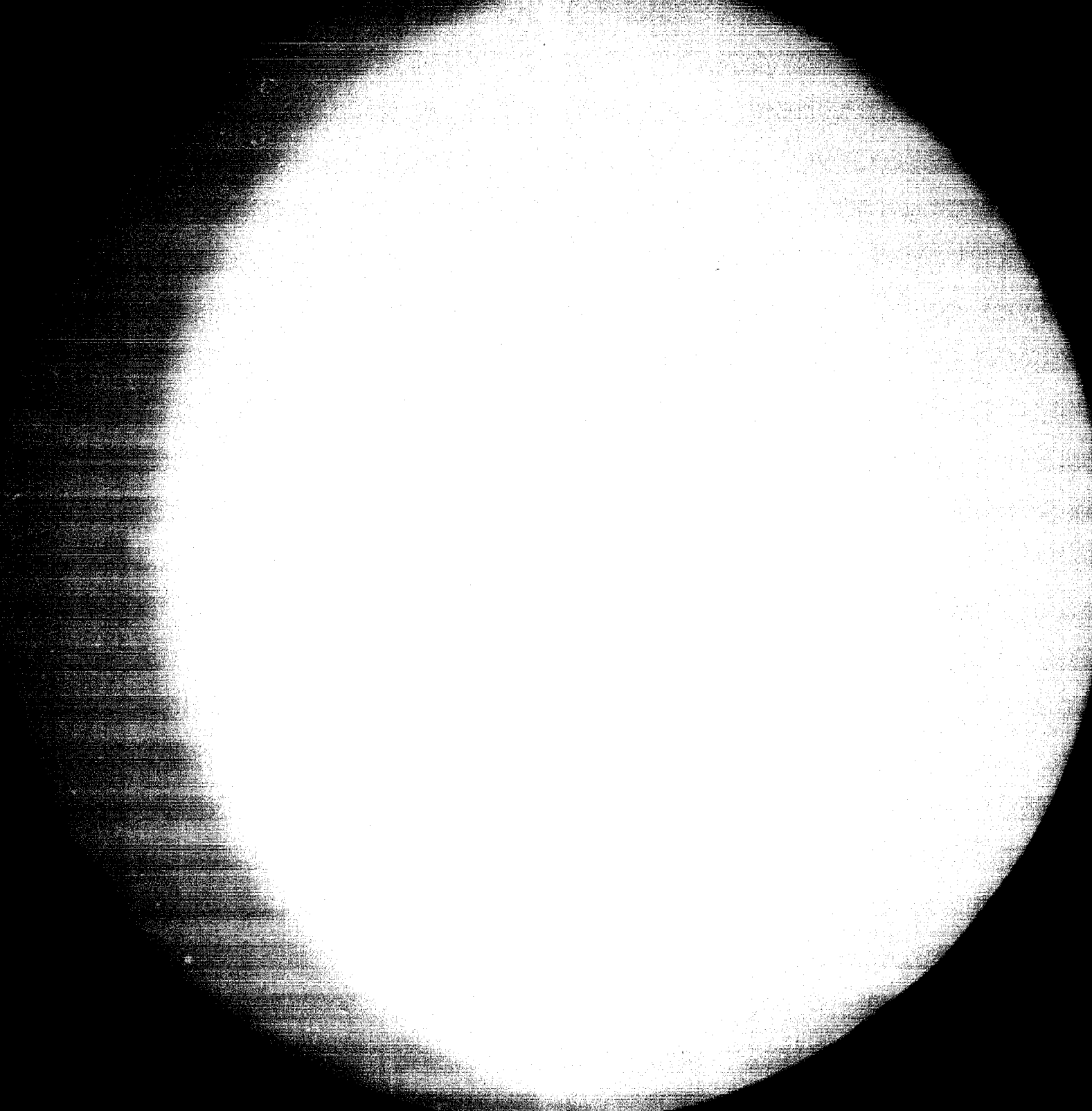
The attitude should be to encourage South-South co-operation over the other possibilities and the government policies should reflect this intention.

5.4.2 Regional agreements at government levels: An important ingredient for the success of the international schemes of co-operation in the industry is to take up a regional approach in planning the petrochemicals production programmes. In view of the complementarity of the needs often existing in different countries of a particular region, the economic rationale of such co-operation is self evident.

The preferential trade agreements between countries provide suitable incentives for establishment of industries on a regional basis. This approach coupled with an arrangement of regional planning which will help

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avoid duplication but assist in setting up industries in a complimentary manner on economically viable basis, will lay a sound basis for regional co-operation. The regional collaborations specially for setting up new plants or on policies and incentives have to be arranged at the level of the governments of the concerned countries. Such arrangements at governmental level require not only the economic and social aspects to be taken into account but also the political blessing. There is a trend towards regional co-operation as demonstrated in Latin America and Southeast Asia. In both cases, however, a satisfactory mechanism of planning, monitoring and control is a prerequisite for success of the system. These are important since regional preferential trade arrangement and location of specified projects in identified countries set up to meet the demand of products in the group of countries would also involve an agreement on corporate taxes, import duties, export incentive and a host of associated administrative measures which should be aimed at preventing abuse of these concessions. Such preventive measures must continue to enjoy the confidence and patronage from the concerned countries to enable the regional co-operative schemes to operate under the basis of stable commercial considerations.

The experience shows that once the regional co-operation plans function, they soon form the basis of a sound base for further growth since all information on the regional basis becomes available regularly and combined experience and knowledge of the countries is used to plan industries in most optimum manner.

- 4.3 International co-operation aimed at promoting industrialisation: The international petrochemicals industry is passing through a difficult period of stagnating demand, oversupply and pressure on profits. With this situation prevailing it is most essential that new capacities should be created with a very careful consideration of its impact on demand supply balance within the region and the forecasts on the international supply situation. The appreciation is rather difficult to make as some companies in the industrial countries still plan to establish new more efficient petrochemical plants. There are important developments taking place in the industrial countries aimed at restructuring their operations to make them economically more viable.

It could thus be desirable that global and regionwise demand supply situation should form a basis of striving to arrive at an understanding of the trends that future growth of this industry should take for the manufacture of

bulk products. The setting up of petrochemical complexes recently in middle east have clearly demonstrated that such manufacture holds potential for optimum use of the existing plants in developed countries. The developed and developing countries have to come together to help the industry so that the future plants do not face the problems faced by the existing industry because of creating capacities in seventies.

The international environment affects the profitability of new plants in the developing countries. While the prices of feedstocks have increased consistently after 1974, the prices of petrochemical products in the international market have dropped to lower than half. The new plants have a difficult task to justify their economic viability at current prices more so when the major cost component is raw materials and fuel costs. The last five years have demonstrated that current level of prices does not cover the costs of even the established producers in some products. The co-operation at the international level accordingly assumes the great importance at this juncture in the history of the petrochemicals industry.

Chapter 6 : Main Elements of Joint Venture Agreements

6. Major Elements of Joint Venture Agreement

The project concepts and investment opportunities considered suitable for developing into a joint venture have been initiated in different projects either by the potential local or foreign partner to a stage of evoking the positive and firm interest of parties for serious further investigations. Upon initial understanding of each others position and appreciation of the environment under which the project has to materialise, the "agreement of intent" is invariably entered into. As briefly mentioned in the foregoing chapters the feasibility reports form the detailed examination of all the aspects of the project namely; Process, Feedstocks and Fuels, Product Mix, Infrastructure, site and location, Implementation plans, Resources, Investment Costs, Profitability Analysis, Techno-economic evaluation, Cost Benefit analysis etc. The Organisation options including alternative scenario on ownership and financing packages are examined. While these and various other analysis form a basis for entering into a joint venture collaboration; it appears from the examination of joint venture agreements pertaining to petrochemicals industry that certain important industry specific provisions should meet the agreement and there should be a identity of understanding of the partners for a successful joint venture. A conceptional framework of these aspects listed below is presented herein which may serve as a guide for inclusion in a suitable manner in the contractual arrangements:

- i. Technology, access to improvements.
- ii. Market, market development and market services
- iii. Organisation, management and operation.
- iv. Provision of feedstocks and fuel
- v. Provision of infrastructure.
- vi. Planning and project implementation.
- vii. Technical assistance.
- viii. Training and personnel development
- ix. Research and Development
- x. Legal considerations.

These aspects are briefly dealt with below to bring out the relevant issues which may require specific attention.

- 6.1 **Technology, access to improvements:** The term technology could be an all inclusive concept meaning access to all information and know how applicable to design, engineering, procurement of equipment and construction of the plant based on the process technology being bought by the joint venture. The know how of the licensor on operation, maintenance, safety and environmental regulatory measures are transferred through manuals and procedures specifically prepared for the plant to be built by or for the joint venture.

The immediate task of a joint venture company is to build a plant based on the know-how from the licensor using the process technology selected by the joint venture while it is not uncommon to come across the concepts of suitable or appropriate technologies being suggested specially by the licensors for the developing countries, care should be exercised to guard against being dumped with outdated or internationally uncompetitive technology.

It is a good practice to plan for absorption and assimilation of technology by the company right at the beginning. A technologically intensive industry such as petrochemicals can not be operated without a proper technological back up. The learning curve is directly proportional to the knowledge and capability of personnel in the joint venture; the joint venture should accordingly organise a technological group immediately on its inception.

Most joint ventures do not have a full fledged developed research and development set up to undertake applied research on the processes employed in the petrochemicals industries. They have accordingly to depend upon the foreign collaborator for improvements in process, technology, equipment or such other aspects of the unit which result in improving its performance. Improvements have an important contribution in the petrochemical technologies; the licensors of the original know-how are therefore usually unwilling to undertake an open ended commitment - there are instances of classification of improvements under two categories namely one which could be made available under the collaboration arrangements already existing and the others for which separate agreements will be needed

Technology and improvements form the most important consideration in all joint venture petrochemical units in developing or developed countries. In case of the former the local partner looks upto the foreign partner, being more experinced, for maintaining upto date position in this regard; while in the later case the cooperation in technological status of each partner as well as joint efforts in the research and development set up give the joint venture a dominating position in the market.

It can be suitably included in the joint venture agreement or a separate license agreement could cover know how, access to patented and non patented information as well as improvements and technical services related to process.

- 6.2 Market, market development and market services: The basic motivation for all joint ventures is the possibility of gaining access to new markets. Marketing of petrochemicals is an imaginative technical activity requiring intimate knowledge of marketing techniques. Most mutlinalational petrochemicals companies have a well developed marketing network in different regions of the world with a comprehensive feedback system of analysising the market response and the data on market penetration with supporting marketing services. Some of these companies are the only source of market information relating to a number of developing countries.

An effective marketing arrangement by the joint venture needs not only access to local, regional and international market information but also must be able to undertake an aggressive market development compaign supported appropriately with technical marketing services and central products application facilities. In most cases the joint ventures will take time and must acquire its own experience before such extensive back-up is developed in an appropriate cost effective manner.

The nature, type and extent of market related support from the foreign collaborator in a joint venture will depend on the nature of petrochemicals industry covered e.g. in the case of a "down stream industry the scope may be limited to specific product formulations and utilisation while in a large complex producing basic petrochemicals the scope could be very extensive covering the advisory services on the

establishment of downstream industries in addition to the product related technical back-up. The assistance needed by the joint ventures in developing countries in this field would be more than that by the joint ventures in developed countries where established facilities are usually available already and the user of petrochemicals products have a long experience in processing these materials as well.

In the export markets the experience and the marketing channels of the foreign partner are very valuable to joint venture. Large petrochemicals complexes in middle east have been planned with the option to the joint venture to use the marketing channels of the foreign partner for large exports.

A suitable provision in the joint venture agreement can cover this aspect or a subsidiary agreement can be executed putting together all the services provided by the foreign partner.

6.3 Organisation, management and Operation: The joint ventures in developing countries are normally incorporated as a limited company with a board of directors as an apex body constituted in numbers representing the relative equity holding of the partners, the directors are nominated by the respective partner. In most cases the chairman of the board of directors is a local national while the positions in the management cadre are occupied on basis of competent personnel available locally supplemented to the extent considered necessary by the partners by the expatriates. Foreign partners usually desire to retain key technical and commercial positions during the initial period to make sure that the plant is set up and operated according to their concept and philosophy.

In relatively more developed developing countries the management positions are mainly held by the local nationals in a manner and style acceptable to both the partners. It has, however, taken a considerable time for these countries to reach this stage. Regular management development programmes are planned by the joint ventures to remain in tune with the management techniques of the foreign partner. In such countries the management pattern adopted is consistent with that generally prevailing in other industries

The joint ventures between companies from two developed countries normally maintain each others traditional management pattern, however, the organisational set up at corporate level and of the policy making bodies normally adopt the systems and practices brought in by the foreign (lead) partner.

In most developing countries the management systems are assimilated into the local patterns and practices and employed. Any type of system is ultimately structured to take complete advantage of the knowledge and experience that the foreign partner brings with him.

The general appreciation of the operations of joint venture from all the regions reveals very satisfactory working of the ventures. Most companies from industrial countries point out to the adverse impact of restrictive government policies enacted after the joint ventures went into operation and to which the ventures were expected to conform to if they wanted further diversification or expansions in the business. The multinational companies in petrochemicals do bring out the weakness of a joint venture cooperation as has been practised largely so far and would like it to be strengthened to protect their interests further probably on the patterns adopted recently in middle east. It is noteworthy that these companies have no other alternative forms of collaboration to suggest which will protect their interests better than a joint venture. In fact a large number of these companies are exploring investment possibilities in a number of developing countries e.g. China, South East Asia, India and Middle East. Understanding, mutual trust and confidence and flexibility in attitudes have greatly contributed to successful operations of the joint ventures. It is with this back ground that there has been a spate of joint ventures in China - around 200 joint ventures running into an investment of close to a billion US dollars over a period of 5 years - where a special law on joint ventures were promulgated in 1979 and conveys a flexible approach on the part of the government.

6.4 Provision of feedstocks and fuel: The principal feedstocks and fuel represent over 70% of the cost of manufacture in most petrochemical products. A clear understanding on their continued availability and prices duly approved by the agencies or governments that exercise control over these is necessary before undertaking negotiations on a joint venture.

The process of restructuring that the petrochemicals industry has been witnessing has brought out a distinct economically viable possibility of producing petrochemicals near the source of availability of hydrocarbon feedstocks. The availability of feedstock for petrochemicals plants not only requires extensive planning for collection of oil field gases but also their processing to produce the quality of feedstocks required by the petrochemicals industry. The locations in middle east where petrochemical plants have come up took a few years to install the facilities for production of feedstocks; at one of the location the facilities installed before setting up the petrochemicals complex have actually proved to be inadequate and new gas gathering facilities are being established. The local organisation promoting the petrochemicals complex has to ensure that adequate reliable and well designed facilities are installed in a manner that will have the confidence of the joint venture.

The pricing of hydrocarbons, feedstocks and fuels has been one of the issues which according to multinational petrochemical companies introduce an unequal partnership in joint ventures in most developing countries where the governments exercise absolute control over the prices and can change these without regard to the impact on profitability of joint venture. A number of models are available from the survey; in one region the concerned countries give the joint ventures a deliberate advantage by fixing the prices at a certain percentage lower than the international prices while in middle east where large quantities of gas were being flared low prices were specially offered to attract good foreign partners for joint venture collaborations. In still other developing countries the governments offer different package of export incentives including reduced price on the feedstocks and fuels to the extent and in quantities these are used to manufacture the products exported. Principle of opportunity cost as well as pricing based on heat value have also been used to fix the prices though the later is disputed as an arbitrary manner which does not reflect the desirable objective of development of the petrochemicals industry.

The agreements on supply of feedstocks and fuels as well the pricing formula applicable could be suitably incorporated in the main joint venture agreement or covered by a separate agreement. In most recent

agreements entered into for the complexes in middle east, separate feedstock and fuels agreements have been signed. The advantage of a separate agreement is mainly that all details on supply, conditions applicable, physical characteristics, and other criteria applicable can be covered in the main document without any limitations.

6.5 Provision of Infrastructure: Industries employing complex technologies do require a minimum level of infrastructure developed for their efficient operation. Petrochemicals even in the level of downstream industries, which are technologically less complicated, require interaction with an infrastructure suitable for its performance objectives; the requirement of developed infrastructure increases sharply to support a basic petrochemicals manufacture. Reports of plants not operating because of lack of infrastructure in some developing countries are known; it is interesting that the creation of infrastructure for the petrochemicals complex in middle east took more than 5 years to complete including facilities such as shopping centres, housing, entertainment, roads, port etc. These facilities assume greater importance when the industry is planned for international business operations. Most of the infrastructure facilities cater not only to basic petrochemicals complex but also to the expected growth of secondary and tertiary sector units that always tend to be established near large petrochemicals complexes.

A growing concern about the safety and environmental protection in most developing countries is placing the additional requirement on the agencies charged with infrastructural development to plan and provide facilities such as a developed fire fighting centre, hospitals, first aid facilities centres, a central effluent treatment and safe disposal system, laying down the guidelines to be followed for solid and air pollutants etc. Disaster planning is very much a part of the detailed planning to meet any emergencies. Petrochemicals industry requires a modern infrastructural support which needs to be available for a joint venture to operate without any strains and undue financial burdens to meet emergent situations. In most locations where petrochemicals complexes are established in developing countries, statutory bodies are constituted by the governments for planning and setting up the needed infrastructure.

Some developing countries prepare detail plans for providing facilities such as reliable construction power, roads, construction water supply, access to workshops, communication facilities etc. to prepare the proposed site for establishment of such industries. Most countries have focussed their attention on the environmental imbalance created by the petrochemicals industry; plans by the infrastructure developmental agencies to create a suitable green belt around the petrochemical complexes as proposed by environment conservation experts are being given serious consideration. Instances of some plants being threatened a closure for non-conformity with the environment protection legislations are available and accordingly steps should be taken in time to assure the joint venture partners of provision of an infrastructure developed in accordance with requirements and applicable legislations.

- 6.6 Planning and project implementation: Having identified an investment opportunity for manufacture of petrochemicals promoters from the country where the joint venture is to be located can either start looking for joint venture partners or in cases where the country has access to prior experience undertake initial identification of the plans itself. It is, however, a good practice that the joint venture partners together develop the final plans of the complex, review the techno economic studies available on the project, undertake preparation of feasibility studies, evaluation of technologies and finalise the schemes for process units, offsites as well as administrative and personnel needs of the proposed venture. This arrangement has been followed in middle east and is being adopted in China with success. The agreement of intent signed with the joint venture partner after selection and agreement on the profile of the project is the instrument which enables the partners to develop the project jointly until the signing of the joint venture agreements - this way the project is launched well and "well begun is half done". The planning stage in fact includes reaching agreement on all the elements such as feedstocks, infrastructure, pricing policies, procedures for project implementation, organisation, ownership structure, financing plans, marketing arrangements, training, technical assistance and so on: - it is therefore an important phase in which the foundation of joint venture is laid. In most ventures this has been the longest time consuming activity during which difficult issues are faced and resolved at highest levels of decision making.

The implementation of the project based on the technologies selected involves designs, engineering, procurement, construction and commissioning. The partners decide on the contracting methods to be adopted for the engineering and consultancy services and the method of procurement of equipment and materials as well as construction to enable completion of the project within the project schedules. The project management functions by the joint venture covering inter disciplinary actions namely process, project, scheduling, cost control and financing have to be responsive and effective. These are mainly technical activities requiring application of established procedures and methods to control cost and time as well as take decisions based on earlier experience to give the project the shape in line with the concept agreed to between the partners. The foreign partners invariably bring their proven systems for these functions which have to be adopted for the project. The partners jointly agree to the process of decision making on all financial aspects such as procurement of equipment, construction contracts which would otherwise follow the procurement and construction procedures as well as the schedules established already.

The procurement of equipment both purchased locally and from overseas is usually well defined in the agreement; separate supply agreements are also entered into in some cases. In case of lump sum supply arrangement all equipment is listed in the supply agreement otherwise the procedure for procurement, responsibility for placement of orders and its coordination for approval, inspection, certification, shipping and receipt is defined in details. Similarly procedures applicable for award of contracts and spelt out clearly.

The provisions covering the understandings reached on planning and project implementation can be incorporated in the joint venture agreement suitably. In cases where joint venture agreement comprises of a number of separate parts; a separate agreement on procurement services and supply of equipment is also possible.

6.7 Technical Assistance: Successful joint ventures take full advantage of the technological support in form of technical assistance from the foreign partner. Assistance of specialised nature is planned and taken during various phases of the project and commercial operations thereafter; such assistance being in addition to the regular manning of management and other positions in the organisation by the personnel from the foreign partner.

Special assistance from the foreign partner are usually sought under the categories of (1) Project implementation-project management assistance, (2) Plant operations, maintenance, technical services and quality control, (3) Marketing, market development and products application. Each of these categories is a specialised service and the foreign partner may not be in position to provide from his parent company all the expertise but may be in a position to assist in tapping the right sources. Most multinational companies have reduced their staffing to minimum necessary in the economy drive aimed at improving their performance; it is therefore helpful if the joint venture agreements list out the categories of expert technical assistance needed along with the duration and periods of assignment.

In addition to technical assignments of personnel, the corporate assistance provided by the foreign partner from the service departments of its parent company is very valuable. In some joint venture even after their successful operations extending over long periods, technical assistance agreement valid for specific period (say 5 years each time depending up local regulations) are always being operated upon to seek, on payment, technical services in operations, trouble shooting, product improvement and exchange of technical staff members to the facilities of the other partner as full time on job staff - which keeps the partners well informed of the activities of the joint venture in all fields as well as helps maintain understanding and confidence.

A number of developing countries may not find it possible to set up back-up technical support in fields such as corrosion control, preventive maintenance planning and scheduling, plant efficiency studies and trouble shooting etc. These process and engineering oriented technical analysis require a multidisciplinary approach and access to data bank on experience,

case studies, current practices etc. Such services in most cases may be more appropriately drawn from the set-up at home office of the foreign partner at least for such period until reliable and well equipped facilities are created by the joint venture.

Technical assistance from the foreign (or lead) partner is not restricted to the joint ventures in developing countries only. Most joint ventures between companies from industrial countries include technical assistance aimed at process modifications, improvements and product development.

The technical assistance usually forms part of the joint venture agreement with a separate supplementary agreement sometimes executed in pursuance of the main agreement setting out the detail of the assistance, obligatory and optional part of it, terms applicable, system of payment, etc.

- 6.8 Training and personnel development: Training of personnel who will ultimately run the joint venture is a complex activity requiring experienced persons to plan and execute the programme to the satisfaction of the concerned parties - dealing with people and making them acquire a desired level of knowledge, skills and industry specific culture is in itself a difficult task and in the petrochemicals industry it is not only the efficient and desirable levels of operation and management that is at stake but the safety and security aspects associated with it will make even an experienced industrial person to tread the path very carefully. Mistakes in operation of petrochemical plants can just not be made as these can lead to disastrous consequences like Flixborough (U.K.) in 1974 and now Bhopal (India) in 1984.

It is not only adequate to train personnel but implement regular rotational training programmes to keep the knowledge, experience and emergency responses of these personnel up-to-date.

The training function begins right at the conception of the project. It is not uncommon to come across special training schemes launched to train good welders, fitters, riggers and other skilled personnel required during the project implementation.

The operational training programmes usually drawn up with the assistance of the foreign partner are designed to train personnel in similar process industries on process control along with theoretical instructions on the chemical reactions, properties and characterisation, safety systems, hazards posed etc. The writing of the operation, maintenance and quality control manuals by the respective technicians themselves, based on the typical ones obtained from the foreign collaborator supplying the technology, provide a desirable exposure to understand the intricacies of the technology and process. The training of operators and supervisors on simulators is proving invaluable and is now being applied for most complex petrochemical technologies. The basic requirement of designing the training programmes for each category of personnel and implementation is drawn up with the assistance of foreign partner taking advantage of his experience and aiming at imparting thorough but job specific knowledge in the best manner. On job industrial management programmes for senior technical personnel are arranged at the plants of the foreign partner or his associates.

A number of multinational petrochemical companies are stated to have considerably reduced their outfit on training department which at one time were organized to accept batches of trainees from overseas and run well established training programmes. Limitations on this score are likely but on the other hand a number of developing countries have since acquired more than 10 years of successful operating experience for most of the petrochemical plants. Most joint ventures using complex petrochemical technologies will necessarily have an in-house training department which will be the nodal point for all activities in this field.

All joint ventures will need to give serious consideration to policy and programmes it would pursue for the personnel development. Invariably all developing or developed countries for different reasons do monitor employment offered to local personnel at various levels by capital intensive industries such as petrochemicals. The degree of reactions to these situations varies considerably at different places but it is more or less a common approach by all countries that the industries must follow a progressive personnel development policies which should be applied to

encourage the local talent. At the lower levels the unions and associations in due course insist on an acceptable personnel development policies.

The joint venture partners have to make provision for a carefully planned programme for training and personnel development in the agreement.

6.9 Research and Development: The unprecedented growth witnessed by the petrochemicals industry so far is the outcome of the research and development support that the industry received to meet the consumer needs better than the conventional materials. Improvements in the quality of products such as polymers, fibres etc. and their conversion into products with better performance and consumer appeal were the major strategies employed to develop a market which sustained a growth rate not encountered earlier by other industries.

However the brisk increase in prices of the feedstocks completely upset the advantage that petrochemical products enjoyed for decades. The industry established on a pattern of research and development found it rather difficult to provide immediate response. The development of thinner but equally strong plastic film as well as the appearance of better quality engineering plastics or stronger fibres usable in place of steel tyre cord even in radial tyres are some of the examples of the research and development effort being put in by the industry to adjust itself to the new situation.

The fact remains that research and development played an important role in the performance of petrochemicals so far and is being looked up to again for adjustment of the industry to the present environment. The research and development effort can be classified under three categories namely:

- i. Product oriented research including products application research.
- ii. Research back-up for efficient, safe and on-spec. operation of plants.
- iii. Research aimed at improvements in existing processes and basic research.

The operations of joint ventures have to be supported by research and development in either or all the three above-mentioned categories. In the initial stages the joint venture may heavily draw upon the facilities available with the parent company of the foreign partner to support its operations. Successful joint ventures have maintained technical exchange and continue to draw upon the R + D support from the foreign partners home country facilities even after a number of years of its own operating experience. The first two categories of R + D approach to a petrochemicals operation are normally required right from the time of commencement of commercial production. Creation of these facilities even in a small and modest way is dependent upon the tradition and availability of qualified and experienced personnel in the environment of the joint venture.

All joint venture agreements have to make an appropriate provision for research and development co-operation and back-up in accordance with the objectives and plans of the joint venture company. A collaboration in research and development would usually benefit joint venture more but in the long term the work at the joint venture could be organised in a manner complimentary to the research programmes and objectives of the foreign partner to the benefit of both partners as well as the joint venture. In case of unusual importance of the research and development collaborative programmes, separate agreements on it are also entered with in the overall provisions in the main joint venture agreement.

6.10 Legal Considerations: The joint venture agreements will make provisions for various clauses of the legal nature such as:

- Force Majeure
- Patent infringement
- Liability
- Arbitration
- Applicable laws
- Confidentiality
- Assignment
- Duration and Termination
- Effective date.

A number of alternative texts of these mainly legal clauses are available and can be examined for their suitability to a specific joint venture. These clauses though have reportedly been agreed upon in different joint ventures without any difficulty possibly because joint ventures are conceived on the premise of confidence and understanding between the partners which is possibly not necessary to that level in other types of collaborative arrangements. It is not the intention to discuss and elaborate these aspects in this document which may form the subject of a separate study on preparation of draft agreements applicable to joint ventures in petrochemicals.

Chapter 7 : Approach to Joint Venture Agreements

7. Approach to Joint Venture Agreements:

The important elements of collaboration for petrochemicals industry from the point of view of the host country partner are technology, marketing, technical assistance, training and research and development. The access to all these technical and commercial experiences is obtained from experienced manufacturing and marketing companies. Most well known technologies for production of major petrochemical products are licensed by producing companies with long experience or through their associated engineering-consulting companies. In cases when some well known engineering companies also license proven technologies independently by themselves, they usually are in a position to offer other services as well through specific arrangements with one of their earlier licensees who is a producing company with worldwide marketing operations; cases of joint venture companies taking a license from an engineering company (e.g. ethylene cracker technology) but taking the assistance from the foreign partner in joint venture for all other services are also working well. The joint ventures could accordingly have a variety of options open but these mainly get limited upon selection of the partner(s) in the joint venture.

- 7.1 Single and multiple agreements: The type and nature of agreements entered into for industrial collaborative arrangements depends largely on the regulatory mechanism applicable for setting up such industries in the host country. A number of countries are known to have specific rules governing joint ventures - in force mainly to encourage setting up industries through these collaborative guidelines. In such situations the joint venture agreement can be all inclusive self contained with supplementary agreements covering specific aspects e.g. training, technical assistance, research and development etc. defining the details of the intentions, inputs, type of assistance, duration, costs, responsibilities etc. On the other hand in a number of important regions there are no specific joint venture rules and regulations. In such situations the joint ventures are established within the framework of the industrial guidelines e.g. incorporation of the company within stipulations on equity and rules on corporate set-up, foreign participation in accordance with the respective rules, management structure in accordance with laws governing companies and so on. In such situations the joint venture arrangements are covered by a series of agreements covering well defined activities e.g. license and technology, technical assistance, etc. Both systems are working well in successful joint ventures in different regions.

The type of contractual arrangements are also known to vary with the kind of tax laws prevailing in the host country where the joint venture is located. The rate of tax applicable on license and know-how fees, income from design and engineering services, income derived by providing services such as training, expert technical assistance, research facilities can be assessed for taxation differently than when assessed under an integrated agreement providing all the elements under one umbrella. Although the joint venture company may wish to have a simple agreement covering the totality of the collaborative arrangements as a single coordinating and control document with less chances of any ambiguity and providing best protection, the financial benefits derived by separating the services because of financial laws, rules and regulations may ultimately prevail. The agreements normally entered into by joint ventures are as under:

- . Joint Venture Agreement (typical contents Annex 1)
- . License and Know-how Agreement (typical contents Annex 2)
- . Equipment Supply Agreement
- . Engineering and Services Agreement
- . Technical Assistance Agreement (typical contents Annex 3)
- . Training and Manpower Development Agreement
- . Research and Development Assistance Agreement
- . Marketing and Market Assistance Agreement
- . Management Services Agreement

The number and types of agreements to be entered can be modified by mutual understanding of the joint venture partners and it is possible to transfer the coverage of one of the above-mentioned agreement to another without reducing or adversely affecting the scope and content of the original version.

7.2 Model text of some typical provisions in joint venture agreements: All large petrochemical projects do require approvals of governments in developing countries in some form. The company laws require incorporation of the company; typical contents of basic documents of incorporation and by-laws are indicated in Annex 4 which broadly cover the type of information included; these do vary in different countries with their level of industrial activity and the industrial activity and the industrial framework. They, however, do include specific stipulations on ownership, management and transfer of stock and in a number of cases these govern the operations of the joint venture companies.

It is recognised that the preparation of draft model joint venture agreements could be the matter of a separate independent work. However, the major provisions in joint venture agreements which could be important for a long-term relationship among the joint venture partners is given in Annex 1. The articles on management generally define the voting rights and control over the company; they also provide stipulations on management of the production facilities by the technically knowledgeable partner, normally the foreign partner, for a specific period of time. The companies are set-up usually with limited liabilities and could also be managed by specified numbers of members from the partners in joint venture and can be appointed for an agreed period of time (number of years). The managing committee in this case an executive body is expected to carry out the decisions of the meeting of Boards of Directors and exercises the control over operative management within the limits of its delegated powers. A typical text could be as under:

"while (foreign partner) recognises the basic management principles set out in Articles; the (foreign partner) however deems it essential for the success of Project that, during the company's first (number) years of commercial operations, (foreign partner) shall be entrusted with the authority and the responsibility for plant management through a Plant Manager to be designated by (foreign partner) with the assistance of other(parent company of foreign partner) technicians as provided in (under) the Technical Assistance Agreement (provision) referred to in Article"

The laws relating to company affairs require specified procedure for appointment of auditors for checking on performance of the company and submission of their report to the shareholders. The partners agree upon the procedure within the limitations of the laws and make a suitable provision.

The roles and liabilities of the partners in joint venture are also usually well defined; typical provision on these could be as under:

"Major Role of Parties Hereto

During the continuance of this Joint Venture Agreement, the parties hereto shall carry out their respective roles as described hereunder:

. Role of Local Partner(s):

- a. To exercise best efforts on assisting the company to obtain necessary permits and licenses from the authorities concerned in the (host country) for the establishment and operation of the company.
- b. To provide the company with capable management personnel.
- c. To assist the company in the selection and acquisition of plant sites suitable for plant buildings, living quarters and other necessary facilities.
- d. To otherwise assist the company and to co-operate with(foreign partner) and the other parties for the success of the Project and the company.

. Role of Foreign Partner:

- a. To obtain for the company from(third party which could be the parent company of foreign partner) an exclusive license for the use of (third party's) technology in the production of(Product) under the most favourable terms and conditions possible upon the exercise of its best efforts, in relation to existing licenses as of the execution of this Agreement; and to unqualifiedly obtain such license under most favoured licensee arrangement with respect to all concurrent or future licenses or amendments of prior licenses;
- b. To provide assistance on technical matters and guarantee the process, plant capacity, unit consumption of raw materials, the quality of end products and during the period required for guarantee test runs to produce the guaranteed quantity and quality of the products envisioned by the Project, in accordance with the Technical Assistance Agreement to be entered into between the company and (foreign partner) as provided under Article;
- c. To dispatch to the company technical personnel who shall be responsible for the supervision of the plant construction of the company, in accordance with the Plant Construction Contract to be entered into between the company and(foreign partners).
- d. To provide, for a period of at least(number) years after plant start-up, technical advisory staff to assist the company in the operations and maintenance of the Plant in accordance with the Technical Assistance Agreement.

- e. To make available to the company advice on technical service for marketing of(product) and training for the company's personnel for such technical service in accordance with the Technical Assistance Agreement.
- f. To undertake the training of local personnel of the company on plant design and construction, operations and maintenance in accordance with the Technical Assistance Agreement.
- g. To co-operate with the Local Partners to make the company successful in its operations.
- h.(foreign partner) will exert his best efforts to undertake the marketing of the Company's products for exports.(foreign partner) will submit a marketing programme as may be required by(investment incentives regulating agency) to assist the company in the development of its export market."

It is quite common for joint ventures companies to enter into a separate Technical Assistance Agreement in addition to a joint venture Agreement. The main joint venture Agreement, however, usually provides general feature of the technical assistance in the following manner:

" Technical Assistance

- a. For the success of the operation of the Plant using (foreign partner') approved standards and quality controls,(foreign partner) agrees to render all the necessary technical assistance for the establishment and operation of the Plant of the Company under the terms, conditions and guarantees set forth in the Technical Assistance Agreement to be executed between(foreign partner) and the Company.
- b.(foreign partner) shall also make available to the company any and all information which(foreign partner) and/or the Company shall consider as necessary for the management of the Project in accordance with the said Technical Assistance Agreement.
- c. Within (number) months from the date of this Agreement, the Company shall execute the Technical Assistance Agreement with(foreign partner) under terms and

conditions mutually agreed upon between the company and(foreign partner); provided that the coming into effect of such Technical Assistance Agreement shall be subject, among others, to: (i) the performance by(foreign partner) of its obligations under this Agreement, including the remittance of its investment in the company, and the execution and performance by (third party) of a License Agreement acceptable to the Company, and (ii) the company's being able to procure the necessary financing for the purpose."

Arbitration clause is usually incorporated in the joint venture agreement including the language, place and rules governing the proceedings. In some cases the arbitration proceedings are to be conducted in the host country, however a more common provision stipulates proceedings in the host country if foreign partner initiates arbitration proceedings and in the country of foreign partner if local partner initiates. This scheme is designed not only to be more equitable to both parties but also encourages both parties to resolve matter without going to the arbitration. In still some other joint venture agreements the proceedings are to be conducted in a third country such as Switzerland. Most joint ventures are covered by arbitration in accordance with the Rules of Conciliation and Arbitration of the International Chamber of Commerce. A usual clause on it is as given below:

" Arbitration

- a. Any dispute, controversy, or difficulty which may arise out of, in relation to or in connection with this Agreement shall be settled amicably through mutual consultation between and among the parties hereto, and for which the parties hereto will exert utmost efforts.
- b. In the event that such dispute, controversy and/or difficulty cannot be settled through mutual consultations as provided herein, the following rules shall be applied.
 - i. All such disputes, controversies or difficulties shall be settled through arbitration.
 - ii. All arbitration proceedings shall be conducted in English language at(location) in accordance with the Rules of Conciliation and Arbitration of the International Chamber of Commerce, but one or more arbitrators appointed in accordance with the said Rules."

The duration of a joint venture agreement can be as long as the parties or their successors continue to hold any share of the stock; the termination apart from on account of the identified defaults by either party could also result because of government withholding approvals or new legislations not acceptable to the foreign partner. There may also be a deliberate provision in some agreements for fade-out of the foreign equity after a certain period in a defined gradual manner as well as the possible buy-out formulae by local partners. The duration as well as termination provisions vary greatly with the objectives set for the joint venture and the stipulations under the local laws and regulations, however, a typical clause is given below:

"

Duration and Termination

- a. This agreement shall continue in effect as long as all the parties hereto or their successors in interest hold any share of stock in the company, unless sooner terminated as provided for hereunder.
- b. Any party hereto shall have the right to terminate this Agreement by giving the other parties written notice to that effect upon the occurrence of any of the following events:
 - i. When the required(host country) government approvals mentioned in Article(number) shall not have been obtained within(number) months from the date of this Agreement.
 - ii. When the Technical Assistance Agreement is not signed within(number) months from the date of this Agreement.
 - iii. When the License Agreement with(owner of know-how and technology) is not signed within(number) months from the date of the Agreement.
 - iv. When the business is terminated by decision of the required majority of the shareholders of the company.
- c. Upon default of any party in the performance of any obligations to be performed by such party, the other party may give notice in writing to the party in default, specifying

the thing or matter in default. Unless such default is remedied within(number) months following the giving of such notice, or if such remedy cannot be completed within such six (6) months period, or if such action for the remedy thereof cannot be undertaken promptly upon receipt of such notice and diligently prosecuted thereafter, the party giving such notice may give further written notice to such other defaulting party, notifying termination of this Agreement, in which event this Agreement shall terminate on the date specified in such further notice. Such right of termination shall be exercised in addition to, and not in substitution of, any other remedies that may be available to the party serving such notice. Any termination in the exercise of such right shall not relieve any of the parties hereto from any obligation accrued to the date of such termination or relieve the party in default from liability and damages to the other parties for breach of this Agreement. Waiver by any party of a prior single default or succession of default shall not deprive such party of the right to terminate this Agreement or to have recourse to arbitration or from filing suit in the event of further default."

The governing laws of the joint venture Agreements could be the laws of the host country the host country. The other important articles include those on transfer of stock or subsequent share Assignment and Burden of Taxes. The transfer of stock usually specifies that existing shareholders are given the right of first refusal for a specified period of time say 60 days. This provision is also usually contained in the Articles of Incorporation. A typical stipulation is shown below, although the specified period wherein to grant the right of first refusal may not be contained in other agreements.

" Subsequent Share Assignment.

For a period of (number) years after the formation of the company, or upon public listing of the company, whichever ever occurs first, if any of the shareholders desires to sell, assign or transfer any or all of its shares in the company, such sale, assignment or transfer shall be effected subject to the provisions of the Articles of Incorporation of the Company prescribing that the other shareholders shall be given the right of first refusal with.....(number) days from receipt of written notice to acquire such shares to the extent set forth in said Articles".

The impact of taxes is normally taken up by the joint venture company even if the local laws and rules tend to tax the services supplied by the foreign partner. It usually states that the joint venture company shall bear all taxes, duties and levies imposed by the host country government in connection with any activity and business of the company.

All joint ventures Agreements will provide a typical clause covering the force majeure conditions which may excuse the involved party in non performance of its obligations as illustrated under:

"Force majeure

a. If the implementation of this Agreement and/or performance of any of the obligations of any and/or all of the parties herein is prevented, suspended, developed, restricted and for interferred with by reason of force majeure, such as but not limited to Acts of God, typhoon, storms, tidal waves, earthquakes, floods, fires, accidents, epidemics, strike, riots, civil commotions, sabotage, insurrection, rebellion, hostilities between nations, war, embargoes, actions by either or both of the (host country) and (country of foreign partner) governments, their subdivisions, instrumentalities, entities and/or agencies, (host country) and/or

.....(country of foreign partner) laws, decrees, orders, rules and/or regulations and such other similar contingencies beyond the reasonable control of the party of parties concerned, the party or parties so affected shall, upon prompt written notice to the other party or parties, be excused from the performance of its part or parts of this Agreement but only to the extent of such prevention, suspension, delay, restriction and/or interference.

b. In all such cases, the party so affected shall, however, exert its best efforts to avoid, remove and/or forestall such cause or causes of non-performance and to remedy and complete performance with utmost dispatch".

The grant of license for use of information and to practice the process covered by patents and know how is normally the subject of a separate agreement between the joint venture and the licensor who could be the foreign partner himself or a separate entity. The technical assistance agreed to be supplied by the foreign partner is the subject of a Technical Assistance Agreement. These agreements could be interconnected with cross references to ensure completeness. In event of the foreign partner bringing to the joint venture the industrial property rights through patents, know how, trade marks, the mechanism of transfer, training of personnel, technical assistance, rights and obligations of partners, maintenance of confidentiality, price and payment schedule of the technology transfer etc are provided for in license agreement (technology transfer agreement) between the joint venture company and the concerned partner. These agreements normally take effect simultaneously with the other documents constituting the joint venture company. The major contents of a typical license agreement and that of a typical Technical Assistance Agreement are given in Annexes 2 and 3 respectively.

"Major Contents of a Joint Venture Agreement"

1. Preamble
2. Formation of the Company
3. Primary Objectives of the Company
4. Initial Capital and Shares
5. Increase of Subscription and Issuance of Shares
6. Subsequent Share Assignment
7. Management
8. Board of Directors
9. Meeting of Shareholders
10. Major Roles of Parties Hereto
11. Technical Assistance
12. Procurement of Financing
13. Accounting and Financial Matters
14. Organisational Expenses
15. Burden of Taxes
16. Force Majeure
17. Maintenance of Secrecy
18. Assignment
19. Arbitration
20. Duration and Termination
21. Effective Date
22. Governing Law
23. Notice
24. Entire Agreement
25. Original Text

"Major Contents of License Agreement"

1. Definition
2. Description of the Plant and the Process
3. Obligations of the Licensor
 - 3.1 Grant of Patent Rights and License
 - 3.2 Improvements in the Process
 - 3.3 Supply of Technical Documentation and Related Services
 - 3.4 Additional Services to be provided against additional fee
 - 3.5 Performance Guarantees of the Process
 - 3.6 Penalties
 - 3.7 Expanding capacity of the Plant
 - 3.8 Liability Limitations
4. Obligations of the Licensee
 - 4.1 Provisions of Basic Design Date for the Plant
 - 4.2 Improvements in the Process
 - 4.3 Appointment of the Contractor
 - 4.4 Secrecy and Confidentiality
5. Co-ordination of the Work
 - 5.1 Process Design
 - 5.2 Detailed Engineering
 - 5.3 Procurement
 - 5.4 Construction of the Plant
 - 5.5 Start-up
 - 5.6 Licensor's Personnel
6. Training of Licensee's Personnel
7. Patent Infringement
8. Contract Price and Terms of Payment
9. Duration of the Agreement
 - 9.1 Effective Date
 - 9.2 Duration of the Agreement
 - 9.3 Rights on Wxpiry of the Agreement
 - 9.4 Obligations on Expiry of the Agreement
 - 9.4 Termination
10. General Conditions
 - 10.1 Bank Guarantees
 - 10.2 Insurance
 - 10.3 Taxes and Levies
 - 10.4 Arbitration
 - 10.5 Force Majeure

(Annex 2 continuation)

11. Miscellaneous Provisions

- 11.1 Assignment**
- 11.2 General Provisions**
- 11.3 Governing Law**
- 11.4 Language**
- 11.5 Standards and Codes**
- 11.6 Local Laws and Regulations**
- 11.7 Notices**
- 11.8 Approvals**
- 11.9 National Security**

Annex 3

"Major Contents of a Technical Assistance Agreement"

1. Preamble
2. Definitions
3. Licenses Covered
4. Supply of Information
5. Technical Assistance and Visits
 - 5.1 Home Office Support
 - Experts
 - Facilities
 - 5.2 Visits to Plant Site
 - 5.3 Loan of Facilities to Joint Venture
 - 5.4 Visits by Personnel of Joint Venture
 - 5.5 Unforeseen Situations:
 - Technical Matters
 - Emergencies
6. Expenses
7. Payments and Payment Terms
8. Secrecy
9. Patent Immunity and Trademarks
10. Term and Termination
11. Most Favoured Nation Clause
12. Arbitration
13. Use of Information
14. Force Majeure
15. Assignability
16. Notices
17. Effective Date

Major Contents of Articles of Incorporation and By-Laws

A. Articles of Incorporation

1. Name of the Corporation
2. Purposes
3. Domicile
4. Life of Corporation
5. Names, Nationalities and Residences of Incorporators
6. Number, Names and Residences of Directors
7. Capital Stock, Common and Preferred
 - dividends
 - dissolution
 - redemption
 - conversion
 - voting rights
 - consent to corporate acts
8. Subscribed Capital Stock
9. Paid-up Capital
10. Designation of Treasurer
11. Transfer of Stock

B. By-Laws

1. Office
2. Board of Directors
3. Officers
4. Certificates of Stock
5. Transfer of Shares of Stock
6. Fiscal Year, Dividends and Accounts
7. Stockholders Meeting
8. Corporation Seal
9. Amendments

