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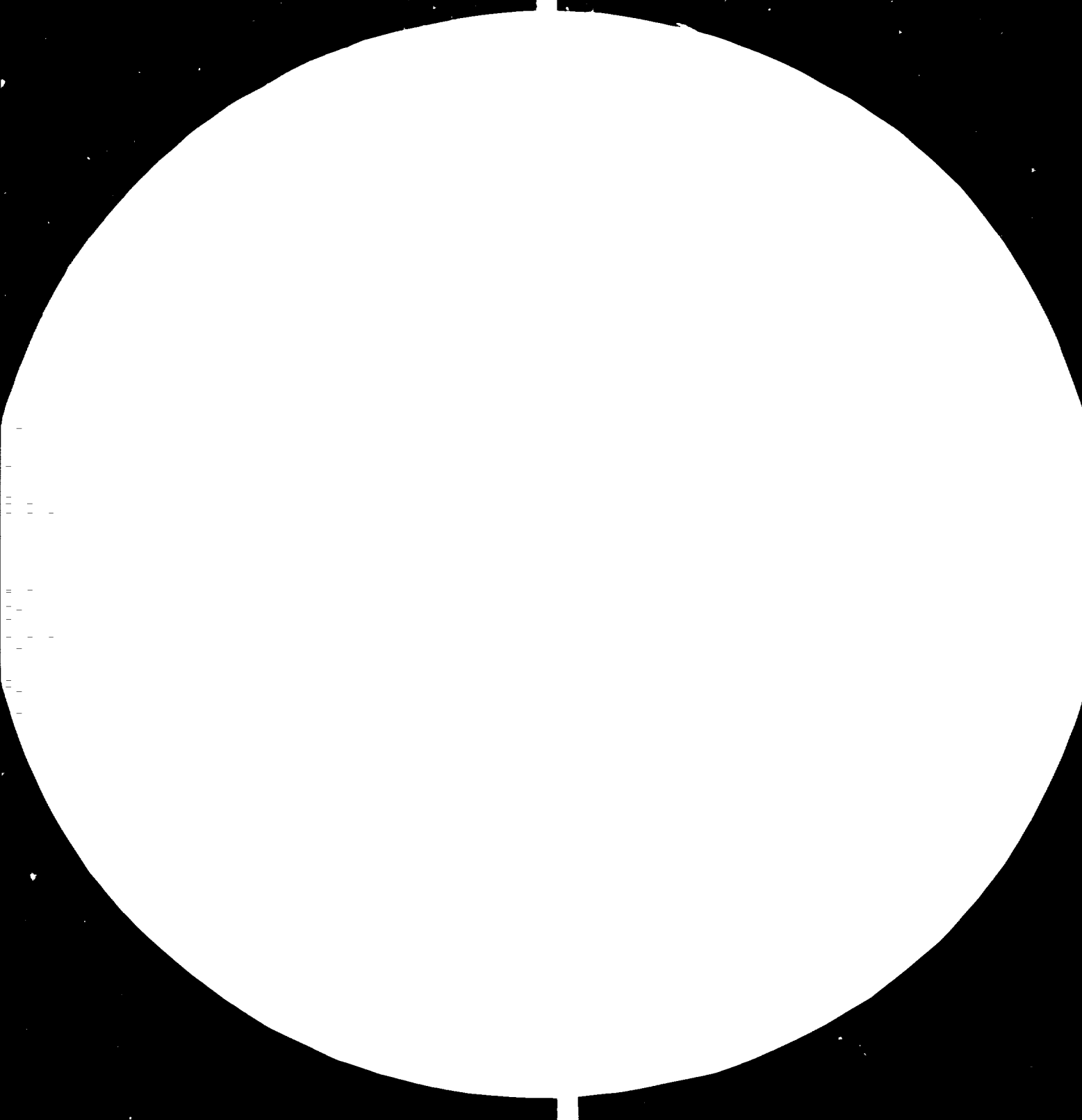

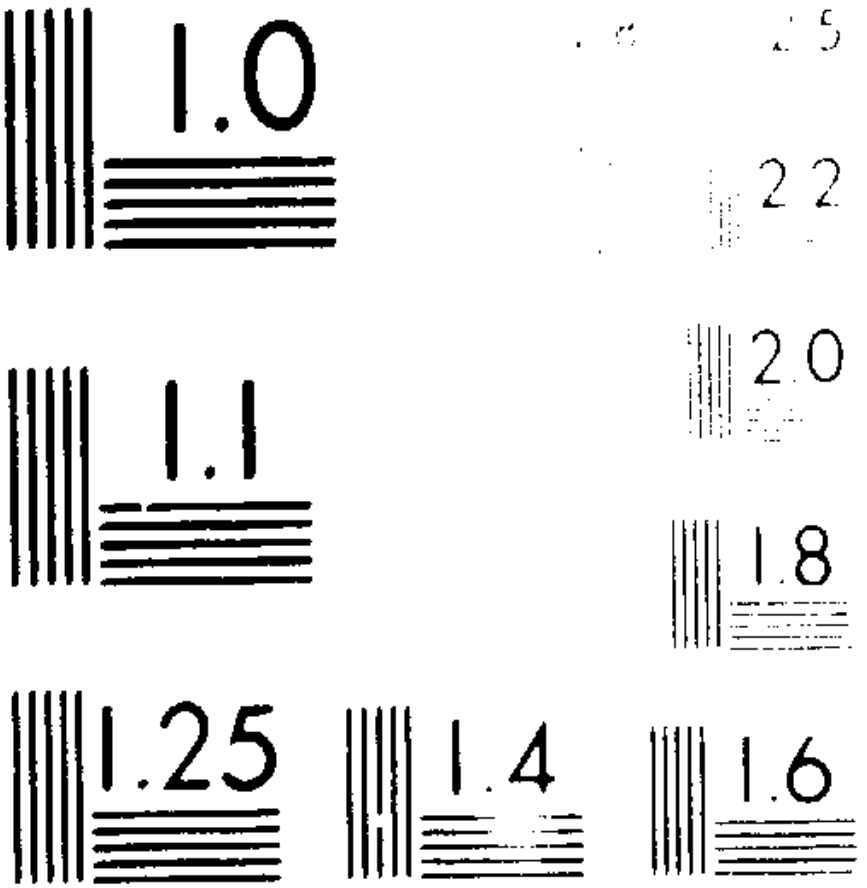
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ASEAN INDUSTRIAL CO-OPERATION: A LONG - TERM PERSPECTIVE

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STUDY OUTLINE :

"ASEAN INDUSTRIAL CO-OPERATION :
A LONG-TERM PERSPECTIVE".

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CHAPTER I : INTRODUCTION.

1.01. MAIN OBJECTIVES :

This study on "ASEAN Industrial Co-operation-A long term Perspective" has as its main objectives the following goals :

1. To present a general framework for a long-term view on industrial cooperation, up till the year of 2.000; the decades of the eighties and the nineties should be the time-frame of this study; each decade could be devided in a medium-term period of 5(five) years so that in total, it will cover for five years medium-term periods but however are still within the long - term view of 2(two) decades until the year 2.000.

2. The general framework should be based on two main assumptions :

   a. The objective factors within the region of ASEAN considering the natural resources, the human resources, the geographical location as part of the Continent of Asia on the one hand, of the Pacific Ocean on the other hand, and other historical or Objective factors that could be considered within the framework of industrial cooperation.

   b. The dynamic factors that are continuously changing because of growth and development, effect the important sectors, such as trade, industry, agriculture, mining, services, as well as influencing the structure of ASEAN because of political, social, cultural and economic considerations.

3. A scenario that should be aiming at the optimal result and the closest approximatetion of industrial cooperation among the ASEAN countries.

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1.02. PROBLEM AREAS.

The main clusters of problems are centered around the following areas :

1. Considering the natural endowment of this region, should the ASEAN countries develop its natural resources whether non-renewable or renewable to the maximum extend as to achieve a high rate of economic growth hereby taking the risk of depleted resources consequently redeployment of of certain branches of industry in the future, or should ASEAN follow a more cautious stand of maintaining a growth rate at a controled pace, conserving properly its non-renewable resources be developed and processed at a reasonable fast rate to meet the growing demand of its population through a rapid rate of industrial growth.

2. Should ASEAN captures the momentum of the present time and the decade of the Seventies to lay the firm foundation of an industrial structure that complement each other, enlarging the basis for an import-substitution strategy within the ASEAN region itself, but at the same time laying the foundation also for broadening and enlarging the export-base of its traditional export-pattern towards an outward-looking strategy of establishing export-industries on a competitive basis and be more interdependent of other nations of the world.

3. To industrialize the Region rapidly, an institutional framework is a prerequisite; for this reason the ASEAN has been established and is now a living mechanism of cooperation.
   As such should ASEAN has the political will to cooperate in long-term goals of a common policy of industrialization, of harmonizing development plans in each country concerned, take policy measures to guarantee foreign investment, to cooperate in the provision of physical infrastructure as to provide the necessary pre-conditions for industrial growth, and take steps towards a common policy on trade, transportation, communication, and on administrative and social infrastructure. This institutional framework of ASEAN ultimately will determine the faith of the people of this region and the will to industrialize the region within the scope of Asean Industrial Cooperation.

4. Another cluster of problems are the careful selection of industrial branches that should be identified first, then scrutinized and ultimately determined for establishing the main components of the industrial structure of the region:

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these industries should be based on its national objective first of each country, but at the same time be based on cooperating closely among each other nation to establish a strong and permanent basis for industrial cooperation within the ASEAN Region.

1.03. APPROACH OF THE STUDY.

This Study is a study on a long-Term perspective of ASEAN Industrial co-operation. It should be based on facts and figures of the past, at least of the decade of the Seventies to give us a basis for projections. Such facts are usually hard to find and there are serious limitations as to the correctness and relevance of such facts, to be used for future projections. With these limitations in mind, the Study has to rely on existing facts and figures, which may be questionable in terms of the time-frame, but also of its correctness as mentioned before.

When such quantitative figures are missing and consequently no quantitative analysis could be made, the Study rely heavily on qualitative statements and analysis to supplement a quantitative approach to the problems encountered.

Even when quantitative figures are available, since the Study is concerning a long-term perspeetive, it has the choice of so many alternatives, of so many options and even more possibilities, that at last the Study should make the best choice and the closest approximation of a scenario that is realistic, feasible but still optimistic in its future outlook.

ASEAN Industrial Cooperation is a must,a pre-requisite for a healthy economic growth in the region, and within a long-term perspective up till the year of 2.000 ASEAN should be able to sustain, develop and grow at a reasonable rate that secure the welfare and prosperity of its people in the Region.

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CHAPTER II : THE NEED FOR A LONG-TERM VIEW.

ASEAN has been established 14 years ago. Some of the common ideas have been materialized, others still have to be realized. It will need a relatively long period for ASEAN to achieve its common goals. Although significant progress has been made in the past, short-term gains achieved, only by giving ASEAN enough time to work out its plans and programmes, could one judge whether ASEAN has been successful and meet everybody expectation. There is a need for a long-term view, particularly in the field of industrial cooperation, furthermore a strong fundation should be laid down to give the forces at work a fair chance to build up an industrial structure, that can withstand an internal pressure, at the same time able to anticipate external development that requires quick response and practical actions.

But before making some projections of future industrial development in the region, it is desirable to review some of the common ideas, progress in the industrial projects and complementation scheme, while laying the general framework for future industrial development in the ASEAN region.

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2.01. ASEAN Common ideas on Industrialization.

ASEAN has not changed its common ideas on industrialization. Industrialization is still considered as one of the main forces towards rapid growth in the region, despite differences in endowment, especially natural resources, human resources and other objective factors that distinguished one country from the other. Indonesia, Malaysia, Thailand and the Phillipines put the emphasis upon the development of its natural resources, both non-renewable geographical location in the centre of ASEAN, as a service industry centre. The stage of industrial development in the five countries also differed; the classification of industrial branches are also different because of historical reasons; for instance within the Indonesian momenclature refining of petroleum, of non-ferrous metals are not included in the manufacturing industries; they are classified under mining activities. The same holds for the processing of sugar, rubber, palm-oil, and rice all belonging to agriculture, not to the manufacturing sector. This difference of classification might destort the picture of the shore of industrial sector towards GDP. Differences in per capita income, of number of population destort even more the marketing pattern with its inherent element of purchasing power and consumer's behaviour. The existence of physical infrastructure is another item of consideration, since the non-existence of such physical infrastructure as harbour, road, electrical power and watersupply might discourage industrial investment at certain site or location or required extra.investment cost that jeopardizes the competitive position and the viability of an industrial venture.
Despite all these differences mentioned above, the five member countries of ASEAN are of the opinion that industrialization should take place in the region and that cooperation in this field is required will the ASEAN countries reach its common objectives in the near future.

2.02. ASEAN .Industrial Projects (A.I.P).

The already established pattern of the AIP still remained the same. ASEAN Urea Project (Indonesia) that will be constructed by Toyo Engineering Corporation at an agreed lump sum fixed price of US$ 297 million, requires an additional loan of US$ 90 million, and will be completed in March 1984. A similar Urea Project in Malaysia which will be financed through a loan from Japan of 48 billion yen, will start production in 1985. ASEAN Copper Fabrication Project in the Phillipines is still under study by a British Company, Saltrust Engineering Co.Ltd, which submitted a feasibility Study in June 1981. The ASEAN Diesel Engine Project in Singapore was being implemented as a national project.

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The ASEAN Rock Salt-Soda Ash Project in Thailand is still under study and evaluation.
Although some progress has been made in the implementation of above mentioned ASEAN Industrial Projects, because of the time consuming pre-investment activities and long-delayed/construction time, the actual progress looks slow; besides of cost-overruns and the large initial investment cost, the cost of the projects is extremely high;
both factors : time, and cost are major facts to be considered seriously later when starting with new AIP.

Many questions arise out of the slow progress in implementing the AIP.
Should ASEAN rather select the most feasible project, cut pre-investment time and scale down investment cost ?

3. ASEAN Industrial Complementation Scheme.

When the ASEAN Foreign Ministers at their fourth meeting in Manila in March 1971 decided in a resolution to call for a Confederation of Chambers of Commerce and Industry in ASEAN to facilitate closer cooperation among the private sectors of ASEAN, the National Chambers of Commerce & Industry of the five ASEAN countries created the ASEAN-CCI in Jakarta on 19 April 1972.

In the field of Industrial cooperation, the ASEAN-CCI formulated guidelines on :

- The ASEAN Industrial Complementation scheme;
- The ASEAN Joint Venture Projects;

The organizational structure of ASEAN-CCI is structured on 4 layers : The Council with its Executive Committee, the Working Groups on Industrial Complementation, on Trade and the Working Group on Food, Agriculture & Forestry;
The next level are Regional Clubs (RICs)and the Regional Commodity Clubs (RCCs); the last layers are at the National level : The National Industry Clubs (NICs) and the National Commodity Clubs (NCCs) sponsored by the national Chambers.
There are at present 14 RICs and 4 RCCs.

Of our concern in this study is the Working Group on Industrial Complementation, with the 14 Regional Industry Clubs (RICs) and the National Industry Clubs (NICs).
Established in 1976, the (WGIC) was set up with the following objectives :

- To effect the coordination and cooperation by organised private sector in the promotion of industrial development through Industry Clubs;

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- To undertake or coordinate the undertaking of research and study for the identification of products and projects for complementation;
- To develop and propose guidelines and specific measures to the ASEAN Governments through the Committee on Industry, Minerals & Energy of the ASEAN Economic Ministers in order to facilitate and accelerate the implementation of ASEAN Industrial Complementation Projects;
- To establish and maintain harmonious relationships, through consultation with the Committee on Industry of ASEAN Economic Ministers and ASEAN-CCI Working Groups;
- To establish and maintain close relations and cooperation with regional and international organizations having similar airms and objectives as the WGIC.

The Regional Industry Clubs cover a wide range of manufacturing activities, among others :

1. Agricultural Machinery.
2. Automotive Federation;
3. Chemical Industries Club;
4. Federation of Electrical, Electronics & Allied Industries.
5. Federation of Food Processing Industries;
6. Federation of Furniture Manufacturers;
7. Federation of Textile Industries;
8. Iron & Steel Industry Federation;
9. Plywood Federation;
10. Pulp & Paper Industry Club;
11. Ceramics Industry Club;
12. Rubber Industries Association;
13. Federation of Glass Manufacturers;

These RICs are cooperating in various fields of activities, such as aspects of Trade, manufacturing, supply, research, development, joint approaches, endeavours, actions, information exchange, training, formulate programmes and projects, seeking outside markets, in intra-ASEAN regional cooperation as well as extra-ASEAN trade relations for promoting ASEAN industrial products in countries outside the ASEAN region; the RICs are also cooperating in the field of production and products, such as pulp, paper and paper products, raw materials related to iron and steel industry, including pig iron & reduced iron, raw & semi finished steel products, iron & steel castings and forgings, hot or cold rolling, processing and fabrication of finished steel products, battery, telecommunication equipment, electrical lamps, tubes & fittings, home appliances, cable and wires.
Both areas of activities and thoroughly explored for feasible programmes and projects that could be implemented under the ASEAN-Industrial Complementation Schemes.

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RECENT PROGRESS AND PROBLEMS.

Both schemes, the ASEAN Industrial Projects on the one hand, the ASEAN Industrial Complementation scheme on the other hand, the first projected and implemented by the Governments of the ASEAN countries whereas the ASEAN Industrial Complementation scheme formulated by the private sector, have not reached its momentum. There is indeed some progress feasible, but so slow that no tangible results are felt by the people of the countries concerned.

What is wrong with both approaches towards rapid industrialization in the ASEAN region ?
What are the problems encounteres and what measures have been taken to overcome those obstacles ?

1. ASEAN Industrial Projects.

The main problem encountered sofar is the identification of a feasible project. In the case of the Urea projects for Indonesia and Malaysia, the problem of feasibility and financing have been overcome and the projects are now implemented. In the case of Thailand with the Rock Salt-Soda Ash Project, the feasibility of this project constitutes still a problem; besides feasibility other problems such as environmental impact and problems of transportation are still problems to be overcome. Philippines has dropped the proposal on an integrated pulp & paper project and is proposing now a copper fabrication plant with a capital investment of US$ 180 - 200 million.

Other projects have been proposed for which feasibility studies are required before a final decision will be made. The USA proposed an "ASEAN Regional Pesticide Plant"; this proposal is now under consideration and a terms of reference for consultants will be drawn soon. A UNDP/UNIDO study on a "Minimum Economic Size for Various Steel Processes" is under serious consideration. Pre-feasibility studies on Magnesium Clinker Plant, Security Paper Mill and Mini-tractor project will be undertaken under the terms of reference as agreed by the ASEAN countries. The list of proposed ASEAN projects could be extended indefinetly; but before such a proposed project is really feasible and the funds are secured, a long way and thousands of problems have to be overcome.

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What measures should be taken to shorten the pre-investment period ?
The ASEAN Industrial Projects provided to be very expensive, ranging from US$ 200 to US$ 400 million; to find the necessary funding for such huge capital investment is not easy and the risk factor is relatively high in terms of the viability of the project for the long future.
Should ASEAN countries rather depart from this approach and look for moderate industrial projects that do not require such big amount of investment outlays ?

2. ASEAN Industrial Complementation Scheme.

Five years have been elapsed without any tangible result; many meetings and conferences have been held to establish the Industrial Clubs and to formulate plans, programmes and projects. The main obstacle for implementation seemed the absence of a legal framework to start implementing this Scheme. Only recently has the guidelines for implementing this Scheme been adopted under "Basic Agreement on ASEAN Industrial Complementation". The main provisions of this Basic Agreement constitute the following items :

- ASEAN Industrial Complementation (AIC) packages;
- The role of ASEAN-CCI to identify products for inclusion in AIC package;
- Enjoying the exclusivity privileges for a period of 4(four) years;
- Special preferences outside the PTA can be granted;
- Institutional arrangements where ASEAN-CCI, COIME, AEM are involved:
- Supervision and review of AIC Packages.

Under this scheme, the first AIC package has been granted for existing automotive components for Indonesia - Malaysia-Philippines-Singapore and Thailand.
This first step under the Industrial Complementation Scheme is significant since it will open the opportunity for more packages to follow. A period of trial and error is unavoidable; but only through experiences could the Scheme be tested whether it is a workable mechanism for rapid industrialization in the ASEAN region.

5. Need for a General Framework for Future Industrial Development of ASEAN.

Four of the ASEAN countries with the Exception of Singapore have an economic structure that is heavily based on the agricultural sector, in term of GDP contribution but also in terms of people engaged in that sector. Gradually however there is a shift away from agriculture and increasing the share of the industrial sector and the services sector towards GNP. Whereas Singapore relies mostly in the industrial sector and services, the countries with natural endowment such as Indonesia, Malaysia, Philipines and Thailand, are moving towards industrialization and urbanization and highly effected by technology they are undergoing the un - avoidable process of industrialization. Countries with large population, such as Indonesia 147 million and Thailand 48 million are heading towards a balanced growth among the 3(three) sectors of agriculture, industry relying on the domestic market and services; the Philipines and Malaysia with less of a population pressure might improve the productivity of the agricultural sector, while at the same time developing their industries and service-sector at a fast rate, be more export-oriented thus producing for markets abroad. Singapore is concentrating on high-technology industries, redeploying the processing industries towards the neighbouring Johor in Malaysia and Bantam in Indonesia, besides concentration the brain-industries centered around services, such as banking, medical services, computer technology and information.

Each country of ASEAN will industrialization according to its own plan, set its own pace, aiming at its own goals and national objectives, following its own set of priorities and serve its own national interest; while persuing this course, the ASEAN countries are well aware that they will go beyond these limits, searching for common goals, for common interest, for complimentary endeavors and for long-term common outlook. Politically they are committed to work together economically, culturally and socially; for security reasons they have to stick to each other, especially when facing a common enemy. What should be the general framework for future industrial development of the countries of ASEAN ?

The general framework should aim at a long-term objective of the region in sustaining economically its population that will reach easily 300 million, securing a minimum per capita income of US$ 1.000.- and a maximum of US$ 5.000.- per annum, keeping inflation rate below 10% annually, providing sufficient employment opportunities for the coming generation, improving its quality of life standards in terms of medical services, educational facilities, adequate housing, and proper diet; in obtaining the economic goals, social equity should not be sacrificed, neither political stability nor nationa sovegnity; the region of ASEAN should pros-per well and form a region of peace and neutrality, able to defend itself from outside interference.

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Within the general framework, the process of industrialization should take place by creating a favourable business climate, securing the pre-conditions of physical infrastructure, guaranteeing the steady stream of imports and exports, the flow of adequate financial resources, maintaining high productivity and the proper utilization of the skilled and and trained human resources, building up an industrial structure that is flexible to adjust to chaning conditions without sacrificing too much already committed resources; it should be able to capture the growing markets of the countries around the Pacific Ocean and the mainland of Asia, secured its external markets but also it external suppliers of goods and services, and be able to utiliza fully the transfer of technology and anticipate the rapid progress in sciences and its application.

06. Main Components/Elements of the framework.

There are a set of components that are indespensable for industrial development :
First is technology as one of the main element that constitutes the process of industrialization; rapid industrialization can not take place without technology; technology is necessary input to build factories, to produce goods, and improve productivity.

Second, is a growing market both domestic market and exports that guarantee the sales of the industrial products, keep the industrial machinery going and sustain industrial growth;

Third is a favourable business climate that provide the necessary administrative, legal and economic conditions for the promotion of new industrial enterprises expanding their production capabilities or producing new products that are required by the growing markets:

Fourth is available funds to be invested in industrial ventures viable and competitive, considering that building a modern industrial plant is very exoensive and a strain on a country's resources:

Fifth is access to the resources that constitute the raw materials or inputs of an industrial enterprise; resources can be available domestically, renewable and non-renewable resources, but resources can also be obtained from external resources, for which foreign exchnage is required to finance the imports of industrial raw materials:

Sixth is physical infrastructure that lower cost of production and reduce investment outlays considerably:

After considering certain components or elements which are very important in the context of industrial development, especially for the ASEAN region in the long-run, what should be the strategy and what are the approaches to be followed to project industrial development up to 1990/95 and possibly the year of 2.000 ?

The first strategy is entered around markets.
The 5(five) ASEAN countries are belonging to the market-economy model; markets determine the pace of development and the sectors of activity that are stimulated to grow. There are two approaches to be followed : first is a strategy of import-substitution an inward-looking strategy by concentrating on the domestic market seen from the national market of each member country as well as a regional market of ASEAN; second is a strategy of export-led, an outward looking strategy by developing export industries. Both strategy should be followed : import substitutions for consumers goods at the national level, where possible extending to industrial raw materials and capital goods industries or at at the ASEAN level, such as Industrial Projects of ASEAN Industrial Complimentation scheme: export-industries when domestic markets are limited while the scale of operation and the availability of industrial inputs are favourable for exporting the finished products.

The Second strategy is towards the development of endowments, both the natural resources and the human resources. Countries with rich natural resources such as Indonesia and Malaysia should develop their natural resources, whereas countries with limited human resources, such as Singapore should develop their human resources to the greatest extend, technologically and in terms of productivity: the cost of developing natural resources is ext mely high especially when dealing with non-renewable resources such as petroleum, natural gas, minerals; this requires the setting of priority scales.

The third strategy is controlling technology. Most of technology sofar has been imported from outside the ASEAN region; this can be acquired through trade as a pure commodity, or through loans and grants with certain limitations from the donor countries or through foreign investment, since this factor is highly dynamic, the proper control on technology is the crux of the problem. When there is enough financial resources, to acquire the required technology should not be an obstacle; it is becoming more difficult when loans and grants are involved or through direct foreign investment to acquire such a technological input that is not available in the country or in the region.
But since technology is such an important input in industrial development, some approaches should be followed to optimize the acquisition of technology from all corners of the world.

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The last and fourth strategy is acquiring the necessary funds for financing industrial development. Without adequate funds, a country can not build plants, factories and industrial instalations. To build up an industrial structure, to improve the capabilities to produce goods, funds are needed. These funds should be acquired through two sources : domestic and external sources. For the time being, the ASEAN countries are very lucky that this commodity is available in the region; capital in the short-run should not be a problem, but in the long-run there might be problems in acquiring the necessary funds for industrial development. As an open economy, at the same time a market economy, the magnitude of trade will ever increase, both exports and imports when proceeding with industrialization.
In order to secure the required funds domestically as well as from external sources one should pursued this problem seriously and rationally to avoid defaults and resource-gaps.

Having said about the 4 strategies that should be followed within the general framework of industrial development in the long-run, a set of hypothetis be guiding this study further.

1.07. Some Hypothesis.

The following hypothesis should be underlying the general framework of industrial development in the ASEAN countries;

1. If sufficient capital is available, natural resources and human resources could be developed and contribute to sustain population growth in the ASEAN region.
2. If natural and human resources will be developed properly and effectively, industrialization is a pre-requisite;
3. If the process of industriallization will be accelerated, co-operation among the ASEAN countries is a must and a pre-condition.
4. If the markets in the world are open for ASEAN Industrial products (extra-ASEAN) at the same trade barriers among ASEAN countries could be removed for intra-ASEAN regional trade, the prospect for industrial development for the region in the long-run is even more guaranteed.

Throughout this study, the above mentioned hypothesis will be developed further in the general framework of industrial development.

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CHAPTER III. PROJECTION : INDUSTRIAL DEVELOPMENT OF ASEAN REGION UP TO 1990/95 AND POSSIBLY THE YEAR 2.000.

1. PROJECTION OF INDUSTRIAL GROWTH IN THE ASEAN COUNTRIES.

1.1. The Actual Growth.

The actual growth rates for industrial production in ASEAN countries are summarized in table 1.1.

Table 1.1. : Actual Industrial growth rates in the ASEAN countries for the period 1970-1980.

Country.	Period	GDP growth rate (%)	Industrial growth Rate (%)

Source : Economic and Social Survey of Asia and Pacific (1979), p.102.

As the table shows the actual rates of industrial growth in all the ASEAN countries were higher than the actual rates of GDP growth. They could only have been achieved through active industrial policies of the governments during the period. Measures had been taken to overcome institutional obstacles and to achieve modern inputs as well as technical know-how for the industrial units. These targets had also been realized through major mobilization of domestic savings and active tax policies.

The question arises whether these rates of industrial growth could also be sustained as targets for industrial development for the next two decades (1980-2000). In order to find answers for the questions we first have to examine whether the actual rates of growth are consistent with the projections undertaken by the UN Headquarters for Economic and Social Council's Committee for Development Planning. The report concerning the projections was submitted at the ESCAP ad hoc Intergovernmental Meeting in September 1979.

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1.2 The UN projections for industrial growth.

The UN Headquarters for Economic and Social Council have worked out projections with four alternative scenarios for the ESCAP countries. The first scenario is based on a trend continuation method. The second scenario is based on the assumption that the per capita income whould be doubled by the year 2000. The third one is an accelerate growth scenario and the last projection is based on target scenario decided at the Lima Meeting. A summary of the UN industrial growth projections is given in the following table :

Table 1.2 : Projections of industrial growth in the ESCAP countries (to the year 2000).

Period	Industrial growth rates			
	Scenario I	Scenario II	Scenario III	Scenario IV
1970 - 1980	9,5	9,5	9,5	9,5
1980 - 1990	8,3	8,9	9,9	9,1
1990 - 2000	8,0	8,6	11,0	9,0
1980 - 2000	8,2	8,7	10,4	9,1

Source : *Economic and Social Survey of Asia and the Pacific* (1979), p. 98 - 99.

At the Intergovernmental Meeting in September 1979 it was accepted that the second scenario (doubling the per capita income by the year 2000) should be considered as a "minimum desirable goal". This option would inquire an acceleration of the GDP growth in these countries from 6.4% a year in the 1970's to 6,7% a year in the 1980's and 7% a year in the 1990's. As table 1.1. shows these targets for the GDP growth are consistent with the actual GDP growth rates in the ASEAN countries.

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he GDP growth rates recorded in these countries in the 1970's were in fact higher than the rates estimated according to the second scenario. Thus the achievement of the targets is possible in the ASEAN countries.

The following table summarizes the projections for the per capita income and the industrial growth to the year 2000, based on the second scenario (table 1.3.next page). As the table shows the required rate for industrial growth will be dcreasing from 12,3% in the 1970's to 8,9% in the 1990's while the per capita income will be increasing from 347,0 US$ in 1975 to 1,020 US$ in 2000 (measured at 1974 prices). It must, however, be stressed for the whole region. Whether these figures comply with the actual rates of growth in the individual countries, this can only be settled by examining the situation in the individual countries.

1.3.A. Projection of manufacturing production in the ASEAN countries.

A projection of manufacturing production in the ASEAN countries to the year 2000 will be developed here. Starting from the gross production in the manufacturing industry in the individual countries the growth of industrial production will be calculated according to an exponential growth function.

Table 1.3. : Projection of per capita GDP and industrial growth in the ASEAN countries (scenario II).

year	Per capita GDP (at 1974 prices in US$).	Industrial growth rates (in%).
1975	347.0	) 12.3
1980	459.3	
1985	562.4	) 9.9
1990	679.3	
1995	829.0	) 8.9.
2000	1,020.2	

Source : ibid., p.100.

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If "P_o" denotes the level of industrial production in the initial year, "P_t" the level of industrial production in the year t and "r" the annual rate of industrial growth, then the relation between these quantities be expressed as follows :

$$P_t = P_o (1+r)^t \quad \ldots,\ldots\ldots\ldots(1)$$

As the required growth rates, calculated in the base of the above mentione projections, are lower than the actual growth rates in the individual ASEAN countries (compare table 1.1 with table 1.3.), we shall use the required growth rates in formula (1), Foe the 1970-1980 period we assume that the industrial growth rate is 12,3%, for the 1980-1990 period the growth rate will be 9.9% and for the period 1990-2000 we assume a growth rate of 8.9% per year. We also suppose that these growth rates will be constant during the period in question. Consequently formula (1) is suitable for the calculation.

Table 1.4. shows manufacturing value added (in factor values) in the individual ASEAN countries. They are expressed in the currency of the country in question.

Table 1.4. : Manufacturing value added (in factor values) in the ASEAN Countries.

Country	Year	Value added	Currency
Indonesia	1976	648.66	Billion rupiahs
Thailand	1970	7,822	Million bahts
Philippines	1974	15,647	Million pesos
Malaysia	1974	2,758	Million M $
Singapore	1977	4,007	Million S $

Source : Statistical Yearbook for Asia and the Pacific 1979, United Nations.

In making the projection of industrial growth in the ASEAB Countries for the 1970-2000 period we use the figures in table 1.4. as the level of industrial production in the initial year (P_o). The growth rate for the 1970-1980 period is 12.3%, for the 1980-1990 period 9.9% and for the 1990-2000 period 8.9% per year.

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Appendix I shows the projection of industrial growth in the individual ASEAN countries to the year 2000 according to the calculation made with regard to the exponential growth function. Table 1.5. gives a summary of the calculation and presents the volume of industrial production at the end of each decade.

Table 1.5. : Volume of industrial production in the ASEAN countries.*)

Year	Indonesia (in billion Rupiahs)	Thailand (in million baths)	Philippines (in million pesos)	Malaysia (in thousand M$)	Singapore (in million S$).
1980	2,414.6	114,002.8	70,385.1	216,703.0	19,567.2
1990	6,206.3	293,016.8	180,907.9	556,982.9	50,292 7
2000	14,558.2	687,339.7	424,361.8	1306,533.9	117,973.3

*) for detailed figures see Appendix I.

The exponential growth curves for industrial production in each of the ASEAN countries is shown in diagram 1.4. - 1.5. Diagram 1.1. shows that the volume of industrial production in Indonesia in the year 1990 will be 2,6 times higher, and in the year 2000 6,0 times higher as compared with the level of industrial production in the year 1980.
Similar development is also found in the other ASEAN countries, as can be seen from diagram 1.2. - 1.5.

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Table 1.4. shows the gross production of manufacturing industry in the individual ASEAN countries. They are expressed in the currency of the country in question.

Table 1.4. : Gross production (value added in factor values) of manufacturing industries in the ASEAN countries.

Country	Year	Gross Production	Currency
Indonesia	1973	1,072.0	Billion Rp.
Thailand	1970	35,737.0	Million bahts
Philippines	1973	31,248.0	Million pesos
Malaysia	1973	96,207.0	Thousand M $
Singapore	1973	8,687.0	Million S $

Source : Statistical Yearbook for Asia and Pacific (1978), United Nations, p.204, 295,396,423 and 462.

Table 1.5. : Summary of Industrial growth Projection.

Year	Indonesia (in billion rupiahs).	Thailand (in million bahts).	Philippines (in Million pesos).	Malaysia (in million M$).	Singapore (in million S $).
1980	1,031.7	24,952.6	31,384.1	5,531.9	6,372.9
1985	1,654.0	40,004.0	50,315.1	8,868.7	10,217.1
1990	2,651.6	64,134.6	80,665.3	14,218.4	16,380.1
1995	4,061.2	98,227.2	123,545.2	21,776.6	25,087.3
2000	6,220.0	150,442.7	189,219.3	33,352.5	38,423.2

The figures mentioned in table 1.4. are used as the volume of industrial production in the initial year. Except for Thailand we started with the level of industrial production in the year 1973 and using formula (1), we calculated the level of industrial production in the succeeding years up to the year 2000. As the figure for the gross industrial production in Thailand was not available for the year 1973, we used the figure for 1970 as our starting point.

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By using formula (1) we are able to calculate the projection of industrial growth in the ASEAN countries. The projected figures can be seen in Appendix I. Diagram I.1. - I.5. show the growth curves of industrial production in the 1970 - 2000 period. Table I.5. summarizes the projected level of industrial production for the years 1980, 1985, 1990, 1995 and 2000.

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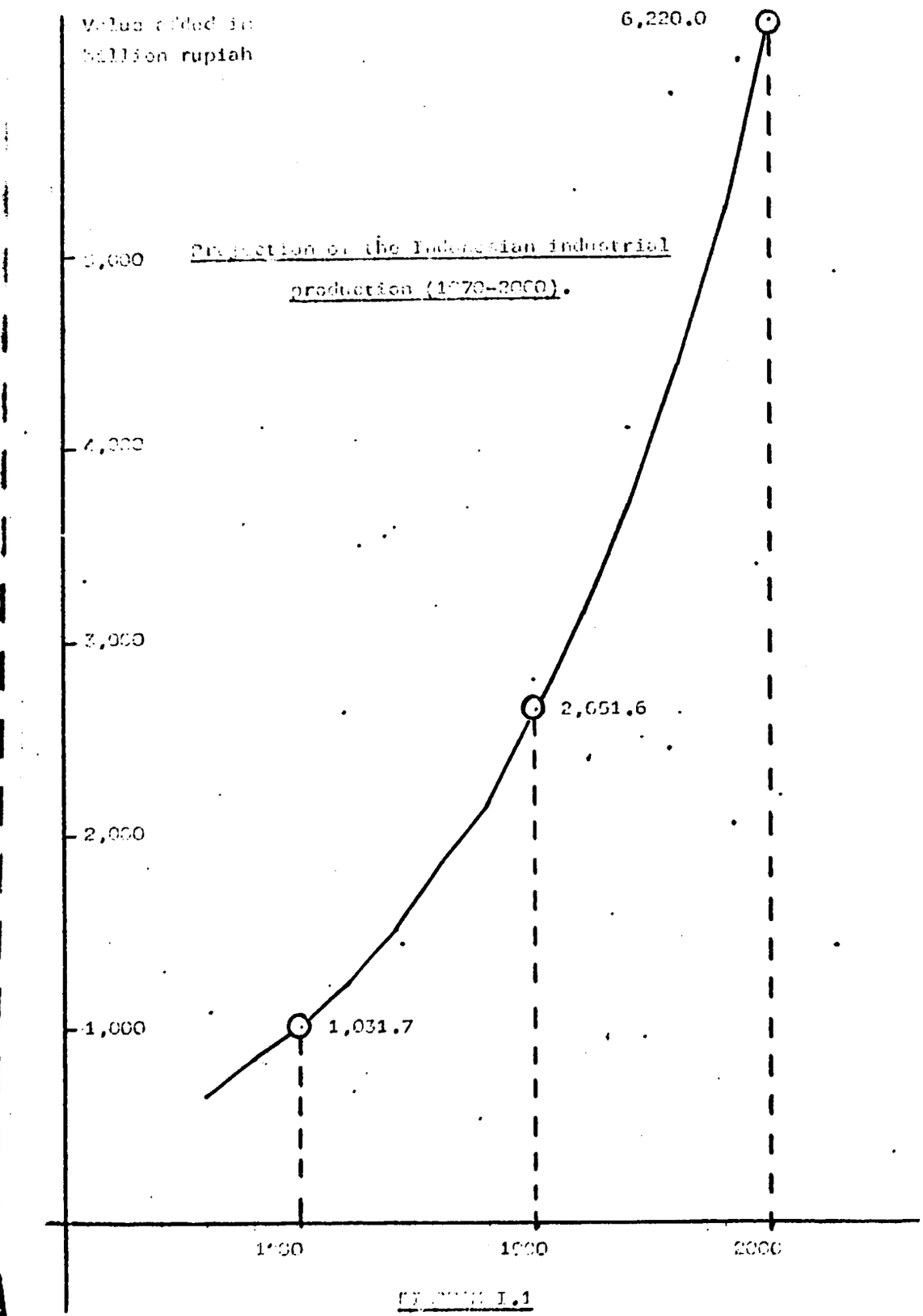

Projection of the Indonesian industrial production (1970-2000).

[illegible] I.1

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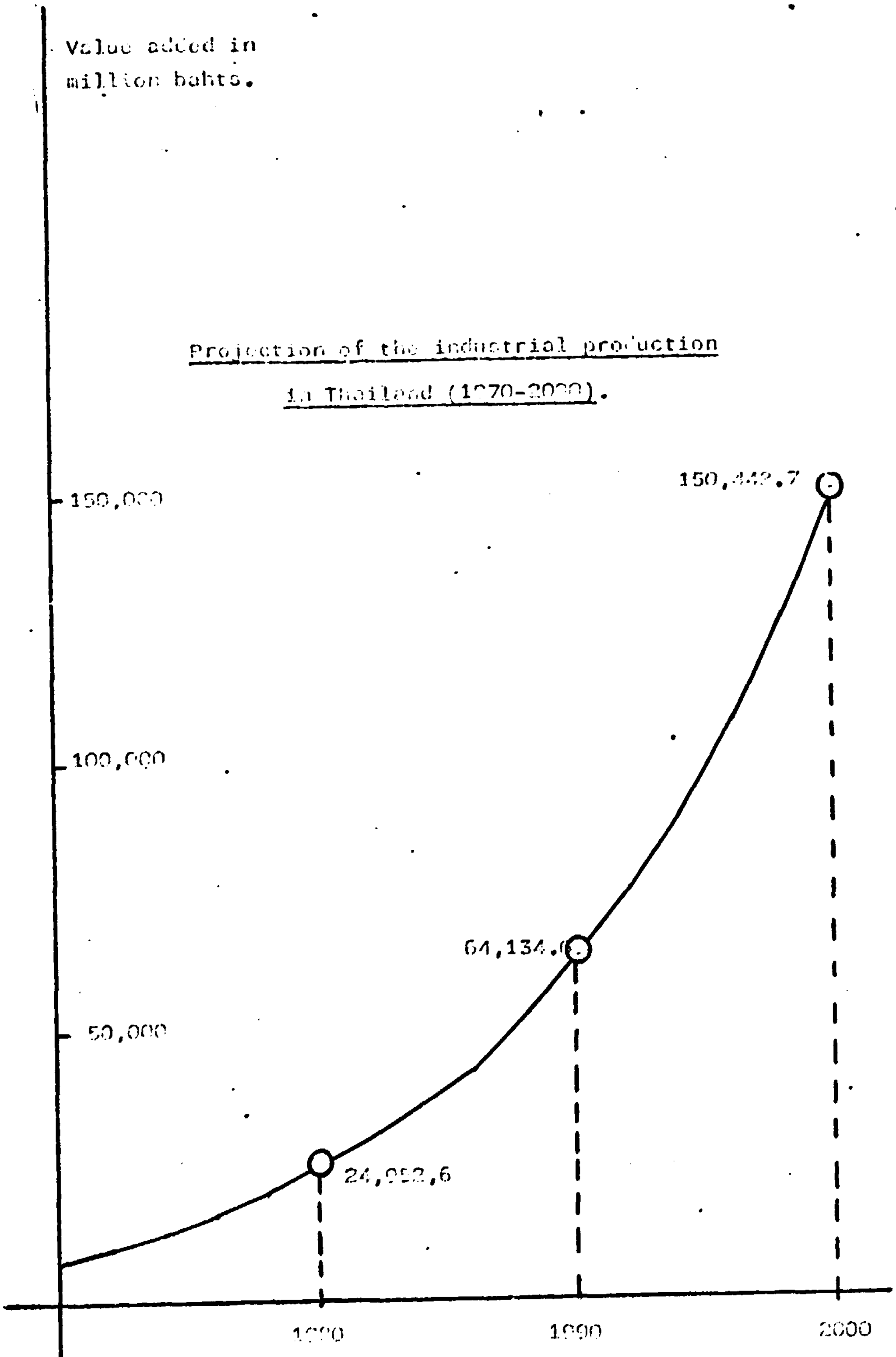
Value added in
million bahts.
Projection of the industrial production
in Thailand (1970-2000).
150,000
100,000
50,000
150,442.7
24,952,6
1990
2000

DIAGRAM I.2

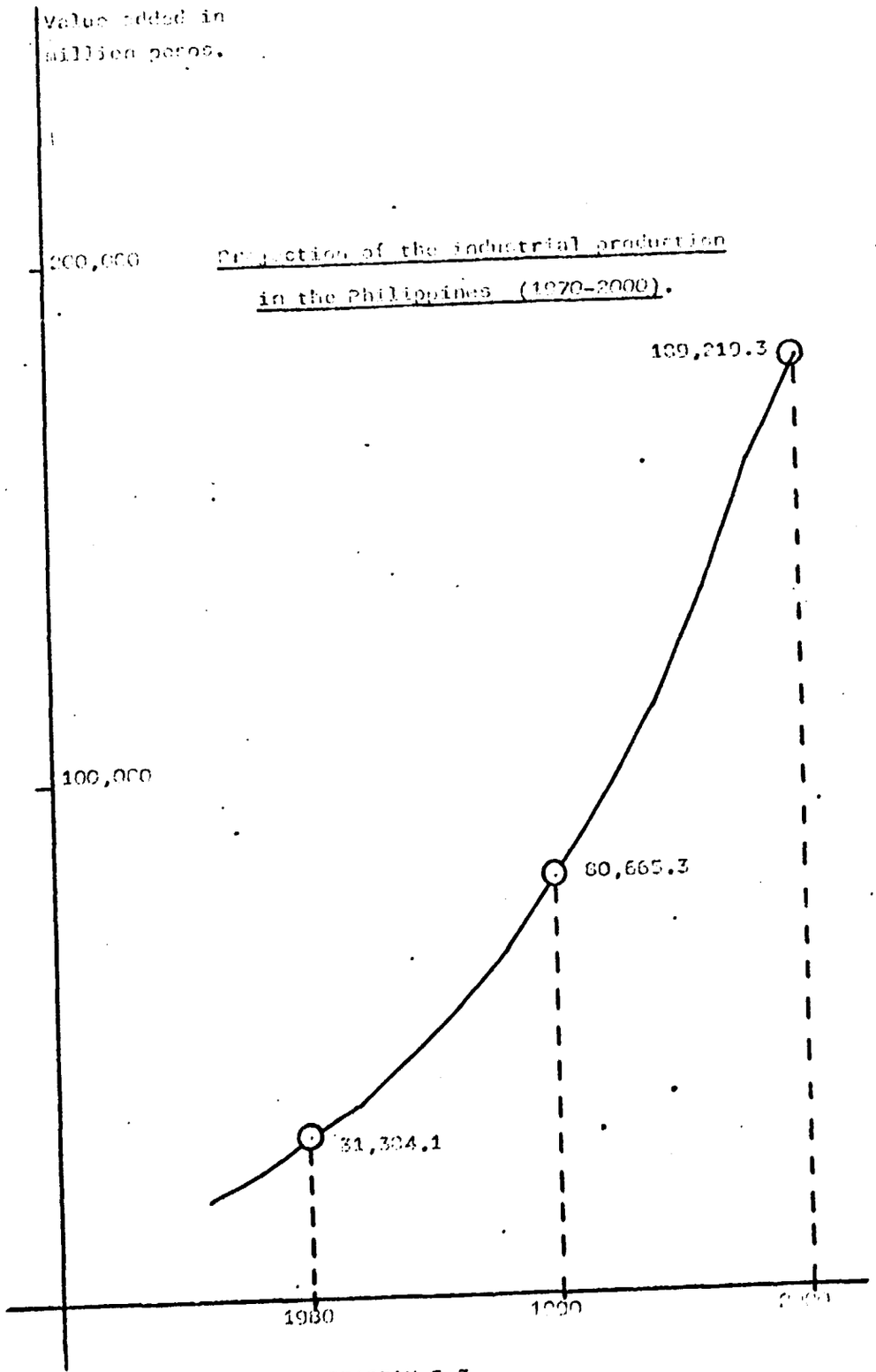

DIAGRAM I.3

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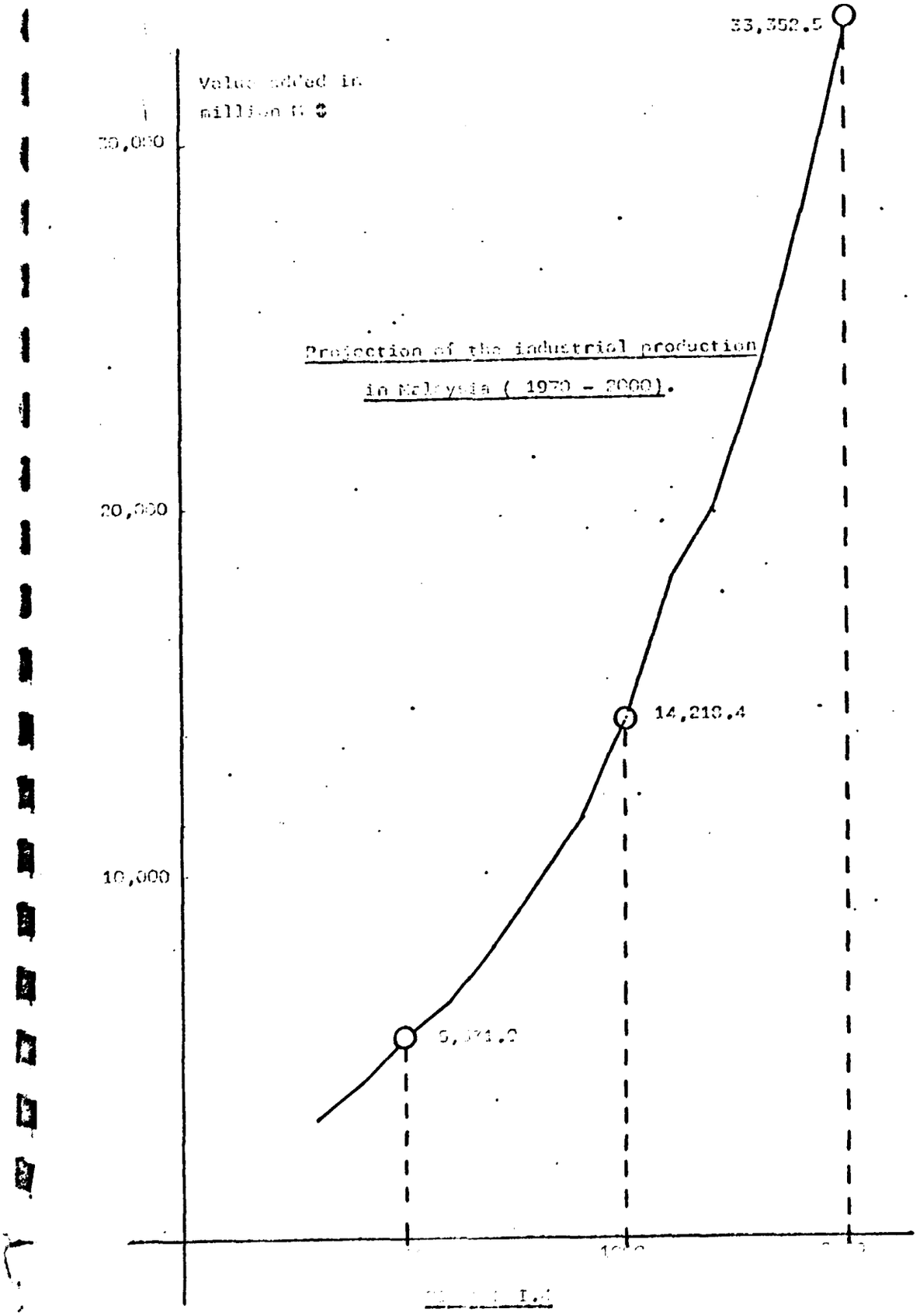

Projection of the industrial production in Malaysia (1970 - 2000).

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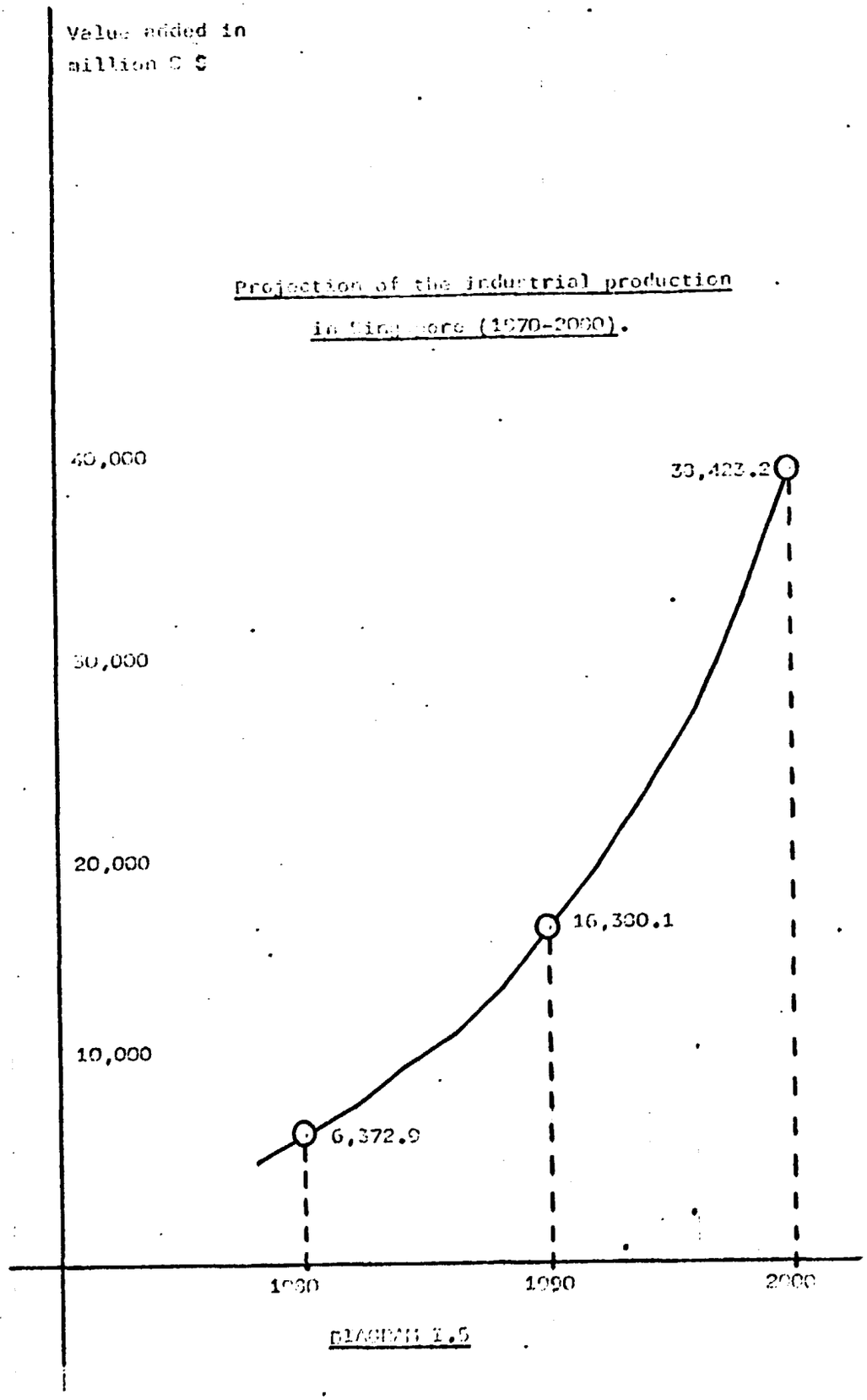

Projection of the industrial production in Sinaloa (1970-2000).

DIAGRAM I.5

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Appendix I.

Projection of industrial production in the Asean Countries to the year 2000.

Year.	Indonesia (in billion rupiahs)	Thailand (in million bahts)	Philipines (in million pesos)	Malaysia (in thousand Malaysia $)	Singapore (in million Singapore $)
1970		35,737.0			
1971		40,132.7			
1972		45,069.0			
1973	1,072.0	50,612.5	31,248.0	96,207.0	8,687.0
1974	1,203.9	56,837.8	35,091.5	108,040.5	9,755.5
1975	1,351.9	63,828.8	39,407.8	121,329.4	10,955.4
1976	1,518.2	71,679.8	44,254.9	136,252.9	12,302.9
1977	1,704.9	80,496.4	49,698.3	153,012.1	13,816.2
1978	1,914.6	90,397.4	55,881.2	171,832.6	15,515.6
1979	2,150.2	101,516.3	62,675.9	192,967.9	17,424.0
1980	2,414.6	114,002.8	70,385.0	216,703.0	19,567.2
1981	2,653.7	125,289.1	77,353.2	238,156.6	21,504.3
1982	2,916.4	137,692.7	85,011.2	261,734.1	23,633.3
1983	3,205.1	151,324.3	93,427.3	287,645.8	25,972.9
1984	3,522.4	166,305.4	102,676.6	316,122.7	28,544.3
1985	3,871.2	182,769.7	112,841.5	347,418.9	31,370.1
1986	4,254.4	200,863.9	124,021.8	381,813.4	34,475.8
1987	4,675.6	220,749.4	136,290.1	419,612.9	37,888.9
1988	5,138.5	242,603.6	149,782.8	461,154.6	41,639.9
1989	5,647.2	266,621.3	164,611.3	506,808.9	45,762.2
1990	6,206.3	293,016.8	180,907.9	556,982.9	50,292.7
1991	6,758.6	319,095.3	197,008.7	606,554.4	54,768.8
1992	7,360.1	347,494.8	214,542.4	660,537.8	59,643.2
1993	8,015.2	378,421.9	233,636.7	719,325.6	46,951.4
1994	8,728.5	412,101.4	254,430.4	783 345.6	70,732.1
1995	9,505.4	448,778.4	277,074.7	853,063.4	77,732.2
1996	10,351.4	488,778.7	301,734.3	928,985.9	83,882.7
1997	11,272.6	532,215.8	328,588.7	1,011,665.8	91,348.2
1998	12,275.9	579,582.9	357,833.1	1,101,704.0	99,478.2
1999	13,368.4	631,165.9	389 680.2	1,199,755.7	108,331.8
2000	14,558.2	687,339.7	424,361.8	1,306,533.9	117,973.3

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2. Structural Changes in the Industrial Sector.

2.1. Introduction.

In order to know whether the projected figures for the industrial production in the ASEAN countries will likely be realized by the year 2000, it is of great importance first to examine the conditions of the industrial sector in the ASEAN countries. We have to examine whether structural changes have been taking place which are conducive to industrial development. Then we have to pay attention to the structure of the manufacturing industry itself in order to find out the groups within the manufacturing industry which perform a strategic role in the industrial development since 1960.

Table 2.1. :Share of agriculture, industry and export sector in GDP. (in %).

Country.	Agriculture			Industry			Export		
	1960	1970	1976	1960	1970	1976	1960	1970	1975
Indonesia	45	41	29	17	22	34	7.8	11.8	22.7
Thailand	40	28	30	19	25	25.	16.3	11.4	17.3
Philippines	26	27	29	28	30	34	8.6	12.7	15.6
Malaysia	40	32	29	18	25	30	55.5	40.8	45.4
Singapore	4	3	2	19	33	35	10.4	33.3	62.4

Source : Economic and Social Survey of Asia and the Pacific 1978, United Nations, p.24.

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2.2. Structural Changes in the Industrial Sector.

Structural changes in the industrial sector can be observes if we compare the share of the industrial sector in the GDP with that of agriculture and the export sector. Table 2.1.(page 1) shows that during the 1960-1976 period there have been taking place changes in the relative importance of the sectors indeed. In 1960 the share of agriculture in the GDE was 45% and the share of the industrial sector was 17%. The contribution of the export sector to the GDP was quite small (7.8%). But in 1976 significant changes have been realized in the structure of the economy. The share of agriculture has declined to 29%, while the contribution of the industrial sector has increased to 34%. These figures concern the transformations which have been taking place in Indonesia. The more important role of the industrial sector has been made possible by the considerable increase of the production in the mining sector (crude oil, natural gas, bauxite, copper, etc.) and in the manufacturing sector. The table also shows that the export sector has been performing a more important role in the Indonesia economy since 1960.

Although the contribution of agriculture to the GDP has been declining in Thailand since 1960, it was not considerable. Therefore the share of the industrial sector was quite stable during the 1970-1976 period; it remained at the 25% level.

The Philippines, Malaysia and Singapore have also undergone structural changes since 1960 which are apparent from the figures of the share of the industrial sector for the year 1970 and 1976. The changes concerning the share of the export sector in Malaysia and Singapore were also conspicuous. In Malaysia the share of the export sector in the GDP was 45.4% (1975) and in Singapore the share of the export sector was 62.4%.

It can be concluded now that during the 1960-1976 period significant changes have been taking place in Indonesia in favour of the Industrial and the export sector. In the Philippines, Malaysia and Singapore similar structural changes have also been taking place, although to a minor degree as conpared to those occuring in Indonesia. It must also be streesed that in Malaysia and Singapore the export sector has played a more important role in the economy.

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2.3. Structural changes in the mining industry.

Structural changes have also been taking place in the mining industry of the ASEAN countries. Certain groups within the mining industry have shown a tremendous expansion.

In Indonesia the production of crude oil and natural gas have increased considerably. Following table shows the expansion of the monthly average production of crude oil and natural gas in Indonesia and Malaysia.

Table 2.2. : Monthly average production of crude oil and natural gas.

Year	Indonesia		Malaysia	
	Crude oil *)	natural gas **)	Crude oil *)	Natural gas **)
1974	5,625	867	323	61
1975	5,345	2,067	390	62
1976	6,183	2,283	669	70
1977	6,911	3,224	728	71
1978	6,704	7,035	860	75
1979	6,511	8,554	1.127	76

*) in thousands of metric tons
**) in kcal - m^3

Source: Monthly Bulletin of Statistics, June 1981, vol. XXXV. No.6, UNO, p.35-38.

In the 1974-1979 period the monthly capacity of the crude oil industry in Indonesia has increased 1.15 times, and the monthly capacity of the natural gas industry has grown 9.9 times. It can also be observed that the monthly average crude oil production in Indonesia is much higher that of Malaysia. A similar position is also apparent from the figures concerning the monthly average production of natural gas.

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Coal is found in Indonesia and the Philippines. The development of the coal production in both countries is shown in table 2.3. The monthly average production of coal in both countries has been nearly the same. However the increase of the monthly average production in the Philippines has been larger than in Indonesia.. During the 1974 - 1979 period the increase was nearly 100%, but in the Philippiness the growth of the monthly average production was 4.5 times. The figures also show that during the period there has been taking place a sustained growth of coal production in Indonesia and Malaysia.

Table 2.3 : Coal production in Indonesia and the Philippines*)

Year	Indonesia	Philippines
1974	13	4
1975	17	9
1976	16	10
1977	19	24
1978	22	21
1979	23	22
1980	25	..

*) Monthly average production - in thousands metric tons
Source : Monthly Bulletin of Statistics, June 1981, Vol. XXXV, No. 6, UNO, p. 32 - 33.

It must, however, be stressed that the level of production is very low as compared with that in the other coal producing countries in the world. Therefore coal must be imported to the ASEAN countries, if basic industries will be developed in the region.

Thailand is the only country in the ASEAN region where brown coal is produced. It has increased its monthly average production from 40 thousand metric ton in 1974 to 113 thousand metric ton in 1979. This means an increase of about 2.8 times.

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Indonesia, Malaysia and Thailand are the countries in the Asean region where iron ore can be found. Table 2.4 shows the growth of iron ore production in these countries.

Table 2.4 : Iron ore production in Indonesia, Malaysia and Thailand. *)

Year	Indonesia	Malaysia	Thailand
1974	30	40	3
1975	29	29	3
1976	24	26	2
1977	26	27	5
1978	28	27	7
1979	18	29	8
1980	7	31	...

*) in thousand metric ton - monthly average production
Source : ibid, p.40 - 41

The table shows that Malaysia has the highest level of monthly average production, whereas Thailand the lowest. Indonesia has secured a position between the extremes. But the level of monthly average production in Indonesia does not differ very much from that in Malaysia. It is also apparent that the level of monthly average production in Indonesia has declined considerably during the 1974 - 1980 period. The level of production in Malaysia has also decreased, but not to the same degree as in Indonesia.

Indonesia and Malaysia are the main bauxite producing countries in the ASEAN region. The course of production change is shown in the following table.

...../ 32.-

Table 2.5. : Monthly average production of bauxite in Indonesia and Malaysia.*)

Year	Indonesia	Malaysia
1974	108	79.0
1975	83	58.6
1976	78	55.0
1977	108	51.4
1978	84	51.3
1979	88.2	32.2
1980	104.1	76.7

*) in thousands metric ton
Source : ibid, p.42.

The table shows that the level of monthly average production of bauxite in Indonesia is higher than that in Malaysia. However the level of production in Indonesia has shown a larger fluctuation than that in Malaysia.

Indonesia and the Philippines are the copper producing countries in the ASEAN region. The level of monthly average production of copper during the 1974 - 1980 period is exhibited in the following table.

...../33.-

Table 2.6. : Monthly average production of copper in Indonesia and the Philippines.*)

Year	Indonesia	Philippines
1974	17.72	18.80
1975	17.08	18.20
1976	18.61	19.80
1977	15.68	22.20
1978	15.76	21.95
1979	15.08	21.75
1980	15.51	...

*) in thousands metric ton
Source : ibid, p.43.

The level of monthly average production of copper in Indonesia has declined from 17.72 thousand metric ton in 1974 to 15.51 thousand metric ton in 1980. However the level of production in the Philippines has increased during the same period by 31.6%. The Philippines has a higher capacity of production than Indonesia, but the difference in the level of monthly average production is not so great.

Lead ore can be found in Thailand, but the production capacity during the 1974-1979 period has hardly reached one thousand metric ton per month. It must however be stressed that the level of monthly average production has increased considerably in 1980. Following table shows the production level in 1980.

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Table 2.7. : Monthly average production of lead ore in Thailand, 1980.*)

Month	Production (in thousand metric ton)
January	1.51
February	1.17
March	1.03
April	4.76
May	3.07
June	0.69
July	1.45
August	1.67
September	1.51
October	2.07

Source : ibid, p.44

Only in this year the level of monthly average production has been increased to a level which is higher than the level of the 1974-1979 period. Great fluctuation has, however, characterized the level of production.

Indonesia, Malaysia and Thailand are the countries in the ASEAN region where tin concentrates are produced.They belong to the countries where the level of production has reached its highest point as compared with the other countries outside the ASEAN region. Although the level of monthly average production in Thailand was originally the lowest, it had double its production volume in the 1974-1979 period (see table II.8). In 1979 Thailand had a higher production level than Indonesia. Malaysia has the highest production level not only in the ASEAN region, but also in the world. Moreover, it does not fluctuates significantly. The production level is higher than 5,000 metric ton per month. The production level in Indonesia is only 40% of that in Malaysia. Thailand has reached its highest production level for the first time in 1979, namely 3,320 metric ton per month. But it is apparent that the production level fluctuates considerably.

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Table 2.8. : Monthly average production of tin.
(in metric ton).

Year	Indonesia	Malaysia	Thailand
1974	2,142	5,670	1,695
1975	2,111	5,364	1,367
1976	2,038	5,283	1,705
1977	2,160	4,892	2,017
1978	2,286	5,221	2,516
1979	2,453	5,250	3,320
1980	2,657	...	...

Source : ibid, p.45

The production of tin in Indonesia has increased steadily in the 1974-1980 period, but the increase is slow. It has grown only by 24.0% in the 1974-1980 period.

Zinc ore can be found in the Philippines, but the production level is very slow. Its highest level of monthly average production was reached in 1976 and 1977, namely 1.03 thousand metric ton. The production level in the following years declined and in 1980 it was only about 75% of the highest level in 1976 and 1977.

Following table gives a summary of the mining industry in the ASEAN countries. It also shows the endowments of natural resources existing in that region.

Table 2.9. : Mining Industry in the ASEAN region.

Sector of mining.	Indonesia.	Philippines.	Thailand.	Malaysia.
Crude oil	X			X
Natural gas	X			X
Coal	X	X		
Brown coal			X	
Iron ore	X		X	X
Bauxite	X			X
Copper	X	X		
Lead ore			X	
Tin concentrates	X		X	X
Zinc ore		X		

X means : highest level of production.

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It is obvious that the countries of the ASEAN region are endowed with natural resources necessary for the development of basic industries. Indonesia has the highest level of crude oil, natural gas and bauxite production in the ASEAN region. Malaysia is endowed with iron ore and tin resources. Morover, the production level of tin in Malaysia is the highest in the world. Rich resources of copper can be found in the Philippines.

The existence of these resources in the ASEAN region means that the countries of the ASEAN region are potentially in a position to develop basic industries in the future. It certainly depends on the other conditions which must be fulfilled in order to utilize the natural resources completely. One of these conditions is the existence of manufacturing industries which can support the mining industries. A growing sector of manufacturing industries in the ASEAN region is necessary for the development of the mining industry. Otherwise the products of the mining industries in the ASEAN countries must be exported, which is still happening to a large extent.

In this section only the existing mining industries have been mentioned. But in the ASEAN region there are other natural resources which are not developed yet : uranium, nickel, silver,gold, etc. We do not include them in our analysis, because there are not enough statistical information available concerning these products.

2.4. Structural changes in the manufacturing industry.

Since 1960 the manufacturing industry in the ASEAN region have been performing an important role in the economy. On average manufacturing output accounts for about three quarter of the total contribution of the industrial sector to GDP. The share is even larger in Indonesia, if the petroleum sector is included in the manufacturing industry.

Cinsiderable progress have also been made in the diversification and modernization of the economies of the ASEAN countries through industrialization. As table 2.10 shows the growth performance of the countries in the ASEAN region recorded a more than 10% rate of expansion in manufacturing output in the 1970-1975 period.

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Except for the Philippines the countries of the ASEAN region was able to achieve a high rate of growth for manufacturing production in spite of the difficult world economic situation during that period.

Sustained high rate of growth in manufacturing have been supported by the expansion in related activities in mining, construction and electricity generation. The results have been a substantial transformation of the structure of output in that region, sufficient to reduce the predominance of agriculture in the total pattern. Thus roughly a third of the GDP originates in the industrial sector in Indonesia, Malaysia and the Philippines. The production structure of Thailand shows that 20-25% of the GDP originates in the industrial sector (see table 2.1.).

Structural changes within the manufacturing sector have also been taking place in the ASEAN region since 1960. The share of manufacturing value added in GDP is observed to have increased in Indonesia, Malaysia, Thailand and Singapore (see table 2.11.). Marked changes have also appeared in the relative importance of the individual industry groups within the manufacturing sector.

The growth of the food, berverage and tobacco products group in the ASEAN countries has shown a diverse pattern. In Indonesia the relative importance of the food, bererage and tobacco products group has increased Significantly, whereas the share of the same group in Thailand, the Philippines and Singapore has decreased. The same group in Malaysia was stagnant during the 1963-1972 period.

The textile and garmants group has also increased its share of total manufacturing value added. The most general reason has clearly been the marked increase of export. However the group of wood and paper products has declined its relative importance in most of the ASEAN countries. Only in Malaysia the group has increased its relative importance within the manufacturing industry, but the increase has not been significant : from 13.9% in 1963 to 19.2% in 1972. A Similar development can also be observed in the group for non-metallic minerals and rubber products.

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In Indonesia the share of this group in the total value added of manufacturing industry has decreased significantly, namely from 9.3% in 1960 to 3.3% in 1973. In Malaysia the share of this group has increased from 9.6% in 1963 to 12.1% in 1972.

The group of chemicals and petroleum products has shown a diverce development in the ASEAN region. In Indonesia the role of this industrial group has declined considerably. In Malaysia the role of the group has also declined, whereas in the other ASEAN countries the share of the industrial group has increased. The largest increase has been reached in Thailand : an increase from 6.6% in 1963 to 13.7% in 1973.

The group of metals and metal products has increased its share of manufacturing value added in the GDP. Similar development can also be observed in Thailand and the Philippines. In Malaysia and Singapore the share has decreased. In Singpaore the decrease of the share in total manufacturing value added has been considerable : from 11.8% in 1974 to 7.0% in 1973.

With regard to the group of machinery and transport equipments, however, a tremendous development can be observed in Singapore. The share of this industrial group in the total manufacturing value added has increased from 12.5% in 1964 to 36.0% in 1973. In Indonesia and the Philippines the share of this industrial group has decreased, whereas in Malaysia and Thailand the relative importance of the industrial group has increased, but not to the same extent as in Singapore.

Table 2.12 gives a summary of the structure of the manufacturing sector in the ASEAN countries. The Roman ciphers denote the relative importance of the group within the manufacturing sector. Number"I" denotes that the industrial group in question has the largest share in the total manufacturing value added, number "I" the second best position of the group within the manufacturing sector etc.

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Table 2.11.

STRUCTURE OF MANUFACTURING INDUSTRY IN THE ASEAN COUNTRIES.

Country	Year	Manufacturing share in GDP.	Share in total manufacturing value added (in %).							
			1. Food, beverage and tobacco products.	2. Textile, garments and leather products	3. Wood, paper products and publishing.	4. Non-metallic mineral and rubber products.	5. Chemicals and petroleum products.	6.Metals and metal products.	7. Machinery and transport equipments.	8. Miscellaneous products.
Indonesia	1960	8.4	45.4	13.9	7.9	9.3	8.9	1.9	10.8	1.9
	1973	8.8	52.3	21.8	5.6	3.3	4.2	3.4	8.7	0.7
Thailand	1963	11.7	55.9	8.6	9.8	9.0	6.6	1.8	5.6	2.7
	1973	17.0	34.8	18.5	6.6	7.1	13.7	5.0	12.4	1.9
Philippines	1962	18.1	38.9	9.2	10.2	8.0	16.9	5.9	10.0	0.9
	1974	17.4	37.5	9.9	10.0	7.6	19.2	8.4	6.9	0.5
Malaysia	1963	9.2	21.2	1.5	13.9	9.6	14.8	9.2	6.7	23.1
	1972	16.7	21.5	5.1	19.2	12.1	11.9	7.5	10.5	12.2
Singapore	1964	12.2	24.1	3.8	19.8	8.8	14.8	11.8	12.5	4.4
	1973	24.8	7.7	8.4	10.8	7.8	19.3	7.0	36.0	3.0

Source: Economic and social survey of Asia and the Pacific 1978, United Nations, p.

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Table 2.12 : Relative importance of industrial groups within the manufacturing sector.

Industrial group.	Indonesia	Thailand	Philippines	Malaysia	Singapore.
Food, beverage and tobacco products.	I	I	I		
Textiles, garments and leather products	II	II			IV
Wood, paper products and publishing	IV		III	II	III
Chemicals and petroleum products		III	II	III	II
Metals and metal products			IV		
Machinery and transport equipments	III	IV		IV	I

The table shows that two groups of industrial products within the manufacturing sector don't perform a significant function: the group for non-metallic mineral and rubber products and the group for miscellaneous products. Only the four industrial groups mentioned in the table above give considerable contribution to the total value added of the manufacturing sector. Only in the Philippines the group for metals and metal products is of any significance within the industrial sector. The group"food, beverage and tobacco products" has secured the most important position within the manufacturing sector in Indonesia, Thailand, the Philippines and Malaysia, whereas in Singapore the group is not important. It can also be observed that in Indonesia,Thailand, Malaysia and Singapore the group for machinery and transport equipments perform a significant function within the manufacturing factor. However in Singapore the group gives the largest contribution to the total manufacturing value added. Therefore we can conclude that in Singapore the group for machinery and transport equipment is the most important industrial branch, whereas in the other countries of the ASEAN region the group for"food , beverage and tobacco products" has the greatest contribution to the total manufacturing value added.

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3. The Export-oriented industries.

For some kinds of manufacturing products there exists no domestic market in the ASEAN region. These products are exported to Japan, Europe and USA. It must, however, be stressed that the export of mining and manufacturing products is not only a consequence of the non-existence of domestic market, but also a result of economic policy of the government. This is the case with the export of crude oil from Indonesia. Indonesia exports crude oil with low sulphuric content and imports crude oil with higher sulphuric content from the Middle East. The main consideration that can be given for this kind of policy is that there exists no refinery industry and petro chemical industry of some importance in Indonesia, so that crude oil must be exported to Japan or USA. Another reason for such a policy decision is the price difference that exists between several qualities of crude oil.

3.1. The Export-oriented industries.

The main industrial commodities that are exported from the ASEAN countries originate in the following industrial groups within the manufacturing sector :

a) Food, beverage and tobacco products (SITC 0 + 1)
b) Mineral fuels and related materials (SITC 3)
c) Crude materials, oils and fats (SITC 5)
d) Machinery and transport equipments (SITC 7)
e) Textile yarn and fabrics (SITC 65)
f) Iron and steel (SITC 67)
g) Non-ferous metals (SITC 68)

The share of food, beverage and tobacco products export in the total export value of the ASEAN countries is relatively high. Although the share has been declining in the 1970-1976 period, the share is still high : 16.2% in 1972. The share of mineral fuels and relates materials export is inreasing tremendously, namely from 5.8% in 1970 to 16.7% in 1972. The export of crude materials, oils and fats has also a highs share in the total value of export, but it has been decreasing during the period : from 25.9% to 15.0% in 1976. The export of chemicals has been stagnant during the 1970-1976 period. The share in 1970 was 2.4% and remained at the same level in 1976.

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The share of machinery and transport equipments export from the ASEAN countries has also been increasing from 6.0% in 1970 to 10.4% in 1976. However, the share of the export of textile yarn and fabrics, of iron and steel and non-ferous metals are decreasing.

Export performance does not solely depend on the development in external demand and international prices. In the short and medium term during significant structural change in production can hardly occur, at least equally important is the ability to sustain production level so that whatever opportunities the market may offer can be fully exploited.

In the long run the countries of the ASEAN region have to make concious efforts to modernize the industry in order to remain comtitive in the world market. It is necessary to apply high-technology methods and to development manufacturing industries which perform an important role for the export industry like petrochemicals, machineries and shipbuildings. Singapore has been an outstanding proponent of this idea. Measures to modernize the export-oriented manufacturing industries must also be taken by Malaysia as the foreign trade sector has been performing a more important role in whole economy of the country (see table 2.1) since 1976.

Export of manufactured products from the countries of the ASEAN region hes increased rapidly since 1970, thereby winning a larger share of an expanding market (see table 3.1.).

Table 3.1. : Rates of growth of manufacturing output and manufactures export (1970-1977).

Country	Manufacturing		Manufactures export.
	Value added	Output.	
Malaysia	12.2	11.3	21.6
Thailand	11.9	..	22.8
Singapore	10.1	11.3	28.3
Philippines	6.9	5.9.	23.7

Source : Economic and Social Survey of Asia and the Pacific 1978, United Nations, p.42.

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These countries have probably benefited from the Dillon and Kennedy Round tariff cuts and partly also from off-share assembly provisions.

If the cpuntries of the ASEAN region want to increase their export of manufactured products, it is necessary that they apply more sophisticated production methods related with high levels with education and technical training. To expand chemical, petrochemical, engineering and metal industries there must be enough skilled labour and technicians available. Exporters must be able to design marketing plan and strategis in order to diversify the range of their exports.

On the other hand there are still possibilities to expand labour-intensive manufacturing industry producing textiles, clothing, foot-wear and electronic components. These products can still compete on the world market, if the countries in the ASEAN region would fully exploit the low wage levels existing in their countries and if the governments would encourage the exporters intensively. The governments of the ASEAN countries must ensures favourable access to credit, assist in the marketing of the manufactured products, establish export zones and simplify licensing procedures. It must,however, be stressed that many of these activities in the labour-intensive industries have few linkages with other domestics production so that the impetus to growth of manufacturing sector has often be negligable.

If strong impetus to growth of the manufacturing industry will be achieved, vigourous efforts must be made to develop the more capital-intensive basic industries like the chemical, petrochemical, machinery and transport equipments industry. Moreover, the countries of the ASEAN region must move towards the production of the more skill-intensive and sophisticated finished products like the capital equipments and consumers goods. It can, indeed, be observed that the relatively capital intensive exports have grown gradually as the export of steel products, transport equipments, chemicals and ptrochemicals from the ASEAN countries has shown. Following table shows the export growth of these manufactured products in Malaysia during the 1970-1977 period.

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Table 3.2 : Export of manufactured products in Malaysia.
(Index numbers, 1975 = 100).

	1970	1971	1972	1973	1974	1975	1976	1977
Chemicals	77.4	70.1	67.4	66.4	92.6	100	95.7	102.7
Manufactured goods	69.0	66.2	66.0	71.2	112.6	100	119.0	160.2
Machinery and transport equipments	78.1	93.2	84.9	89.7	99.5	100	114.7	114.5

Source : Statistical Yearbook for Asia and the Pacific, 1978, United Nations, p.303.

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The import substitution industries.

1. The relative importance of commodity groups.

The following table shows the relative importance of the commodity groups with regard to the total value of import of the ASEAN countries.

Table 4.1. : Share of commodity groups in the total value of import of the ASEAN countries.

Country/ year	Food	Raw material	Mineral fuels	Chemicals	Manufact.	Machines/trans. equip.
			(in percentage).			
Indonesia.						
1970	5	2	2	13	31	38
1973	20	3	2	12	25	39
1975	12	3	5	17	23	39
1977	16	4	12	10	20	39
Thailand.						
1970	5	5	8	13	24	40
1973	4	8	11	16	21	38
1975	4	6	21	14	16	38
1977	4	8	22	14	16	34
Philippines.						
1970	10	6	11	12	22	39
1973	13	6	12	14	19	32
1975	10	4	22	11	13	34
1977	9	5	25	11	14	29
Malaysia.						
1970	21	8	12	7	18	33
1973	20	7	7	9	21	35
1975	18	7	12	8	16	38
1977	16	6	13	10	16	39
Singapore.						
1970	14	13	14	5	22	30
1973	11	13	13	6	20	36
1975	9	8	25	6	18	33
1977	9	11	26	5	14	33

Source : Economic and Social Survey of Asia and the Pacific 1978, United Nations, p.63-64.

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The table shows that Thailand, the Philippines and Singapore successful in their efforts to decease the share of food in total value of their imports. In 1975 only less than 100% of import bill was spent for the food import. In Indonesia and aysia the share of food in the total value of imports was more 15%. Compared with the position of Malaysia in 1970 the rela- importance of food imports had decreased from 21% to 16%, where- the share of food in the total of value of imports of Indonesia increased considerably, from 15% to 16%. It can now be conclu- that for Indonesia and Malaysia food imports make up a conside- le part of the total import bill of both countries.

The share of mineral fuels in the total import bill of the ASEAN ntries has increased sharply during the 1970-1977 period. Only Malaysia the increase was not considerable. Given the inelas- demand for mineral fuels and the limited possibilities for subs- tution of other sources of energy even in the long run, it can be reseen that his share will increase continuously in the future. cept for Indonesia where there are sufficient reserves of mineral el for the near future, the other ASEAN countries have to make rious efforts to reduce the import of the other categories of modity in order to meet the increasing requirements of mineral els in the near future.

The case of Indonesia is exceptional. Althouth the import of niral fuels had increased sharply during the 1970-1977 period, was not s consequence of scarcity, but of a conscious policy of Indonesia Government. Indonesia is an oil producing country. de oil of higher quality is exported and the share of this export more than 50% with regard the total value of the Indonesian export. stead of this Indonesia imports miniral fuel of lower quality from Middle East. This policy is adopted bacause there are not enough finery plants in the country. If oil refinery and petrochemical ustries have been developed in Indonesia, the policy will probably changed.

A similar situation is not found in the other ASEAN countries. refore the other ASEAN countries have to seek opportunities to rease the import of the other categories of commodity in order to t the increasing imports of miniral fuels in the near future.

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In this case attention has to be paid to the following categories of industrial products : chemicals, manufactures, machineries and transport equipments. The governments of the ASEAN countries have to consider the possibilities of developing these industries in order to find substitution for the import of these products.

4.2. The main import of industrial products.

In the last section we have concluded that attention must be paid to the following catefories of industrial products : chemicals, manufactures, machineries and transport equipments, if the governments of the ASEAN countries would be considering the possibilities to find substitution for the import of the products belonging to those categories. However, we have to make further inquiries in order to specify the products which have to be substituted. We have to look at the data concerning the import of the ASEAN countries.

The main commodities within the chemical group imported by Indonesia are pharmaceutical products and fertilizers. In the 1968-1978 period the import of pharmaceutical products increased from 19.9 million US$ (1968) to 272.5 million US $ (1978). The import of fertilizers increased from 31.3 million US$ (1968) to 57.1 million US$ (1978). It was an increase by 82.4%.
Within the group of manufactures iron or steel pipes and prime movers play an important role. The import of iron and steel pipes increased from 10.4 million US$ (1968) to 129.7 million US$ (1978). There was also a sharp increase of the import of prime movers: from 7.6 million US$ (1968) to 169.6 million US$ (1978). Within the group of machineries and transport equipments following commodities have to be mentioned : machines for industry and commerce, diesel engines, motor cars, buses and trucks. The import of machines for industry and commerce increased from 48.3 million US$ (1968) to 868.0 million US$ (1978). The import of motor cars also showed a sharp increase : from 9.4 million US$ (1968) to 99.9 million US$ (1978). The import of buses and trucks increased from 11.7 million US$ (1968) to 30.1 million US$ (1978).

Malaysia shows a different composition of import. Within the group of mineral fuels petroleum and destillate fuels or residual fuel oils have to greatest share.

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The import of fuels increased from 125.7 million Malysian $ (1968) to 910.5 million Malaysian $ (1976). The import of distillate fuels and residual fuels showed a sharper increase: from 39.9 million Malaysian $ (1968) to 179.2 million Malaysian $(1976).
Within the group of chemicals the import of fertilizers plays an important role. It increased from 26.1 million Malaysian $ (1968) to 120.7 million Malaysian $ (1976).
The import of passenger cars (excluding buses) had also a large share in the total value of imports. It increased from 105.0 million Malaysian $ (1968) to 363.5 million Malaysian $ (1976).

The import of petroleum in the Philippines increased sharply during the 1968-1977 period : from 90.4 million US$ (1968) to 658.75 million US$ (1977). The import of fertilizers also increased in the same period : from 8.78 million US$ (1968) to 42.31 million US$ (1977). Although the import of iron and steel bars did not have a large share in the total value of imports, the increase doubled during this perios : from 10.98 million US$ (1968) to 20.90 million US$ (1977). The group of universals, iron or steel plates and sheets also increased :from 28.08 million US$ (1968) to 65.00 million US$ (1977). The import of iron and steel wire increased from 2.00 million US$ (1968) to 6.39 million US$ (1977). The Phillippines also import iron or steel tubes, pipes and fittings and the import increased from 9.25 million US$ (1968) to 19.81 million US$ (1977). The import of passenger cars showed an increase from 24.90 million US$ (1968) to 59.80 million US$ (1977). There was also import growth for lorries, trucks and buses : from 37.46 million US$ (1968) to 38.32 million US$ (1977).

Singapore shows a unique import composition within the ASEAN region. The import of crude petroleum increased tremendously during the 1968-1978 period : from 357.9 million Singapore $ (1968) to 6,258.3 million S $ (1978).

The main commodities belonging to the group "mineral fuels" imported by Thailand are:petroleum, motor spirit, lamp oil or white spirit, diesel and fuel oils.

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The raw materials imported for the textile industry are : raw cotton, cotton yarn, cotton fabrics, textile fabrics (other than cotton). In addition to that Thailand also imports a large number of articles belonging to the group "machineries and transport equipment" : passenger motor vehicles, motor cycles, buses, trucks and chassis. Fertilizers, rubber tyres, newsprint, printing and writing papers are also imported by Thailand.

The import of petroleum increased sharply during the 1968-1977 period: from 995 million baht (1968) to 16,448 million baht (1977). The import of motor spirit, diesel and fuel oils also increased considerably, whereas the import of lamp oil and white spirit didn't increase significantly.

Raw cotton was imported in growing quantities. The import value in 1968 amounted to 225.4 million bath, and in 1977 it reached an amount of 2,880.6 million bath. The import of cotton fabrics and other textile fabrics increased slightly during the period, but the import of cotton yarn decreased tremendously : from 65.02 million bath (1968) to 8.35 million bath (1977). The import of fertilizers increased from 443.1 million bath (1968) to 2,085.3 million bath (1977).

Rubber tyres were imported in decreasing quantities. The import value in 1968 amounted to 284.21 million bath, whereas in 1977 it decreased to 136.32 million bath. The import of newsprint increased significantly : from 116.97 million bath (1968) to 432.43 million bath (1977). During the same period the import of printing and writing paper had doubled: from 40.35 million bath (1968) to 87.38 million bath (1977).

It is worth to mention that the import of passenger cars decreased from 902.44 million bath (1968) to 462.51 million bath (1977), whereas the import of motor cycles increased sharply : from 259.93 million bath (1968) to 695.98 million bath (1977).

The import of buses, trucks and lorries increased from 876.6 million bath (1968) to 1,886.9 million bath (1977). Furthermore, the import of chassis fitted with engines for motor vehicles increased tremendously : from 356.5 million bath (1968) to 3,800.3 million bath (1977).

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Now it can be concluded that the most imported industrial ...dities imported by the ASEAN countries are: mineral fuels, pas...ger motor vehicles, buses and trucks. Within the group of chemi...l products pharmaceutical articles play an important role. Printed ...d coloured cotton and synthetic fabrics are the main commodities ...longing to the textile group. Within the group "paper products, new...rints and printing or writing papers are the main import commodi...es. Iron or steel pipes, universals, iron or steel plates and ...eets, iron and steel wire are the main import commodities belonging ... the group of metal products. Machineries for industry and com...rce, lorries and chassis are the import articles belonging to the ...oup "machineries and transport equipment".

If the countries of the ASEAN region are trying to find out ...ssibilities of substituting imports, in order to meet the increa...ng import requirements of crude oil in the near future, then atten...on must be paid to the import of those commodities mentioned above. ...ese are:

Textile group :
1. Printed or coloured cotton fabrics.
2. Printed or coloured synthetic fabrics.

Chemical group :
1. Fertilizers.
2. Pharmaceutical products.

Paper products :
1. Printing or writing paper.
2. Newsprint.

Metal products :
1. Iron or steel pipes.
2. Iron or steel plates and sheets.
3. Iron or steel wires.
4. Universals.

Machineries and transport equipments:
1. Machines for industry and commerce.
2. Chassis.
3. Lorries.
4. Passenger motor vehicles.

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5. The Selection of Projects.

5.1. The criteria for project selection.

In the last chapter we came to conclusions regarding the need for import substitution, if the countries of the ASEAN region are trying to take serious efforts in order to meet the requirements of miniral fuel imports in the near future. Otherwise the ASEAN countries would certainly face serious difficalties which whould arise from the deficits in their balances of payments.

In drawing the above mentioned conclusions we have not considered the conditions which must be fulfilled, if the countries of the ASEAN region are really trying to develop the industries needed to perform the function of import substitution. It goes whitout saying that there are large number of conditions to be considered in order to assess the viability of the industrial projects. However, in this analysis we will mention only two important conditions which can be considered as criteria for the selection of industrial projects. These two conditions are :

(1) the minimum efficient plant size
(2) the availability of raw materials

It is clear that our conclusions only give indications of the possibilities to develop industrial projects in the ASEAN region. Efforts must be made to carry out additional inquiries regarding the other conditions. But some of our conclusions are not different from the project proposals which have been previously agreed at the ministrial meetings as ASEAN Industrial Projects.

5.2. The minimum efficient plant size.

Table 5.1. gives a comparison of the minimum efficient plant size for several industrial projects with the size of the ASEAN market and that of the largest consuming ASEAN country. Whit regard to the projects for fertilizers plants the table gives a specification of the kind of fertilizers.

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of projects.

Industrial Project.	Annual Output of a Plant of minimum Efficient Size.	Total ASEAN Consumption.			Largest Consumption in one ASEAN Country.		
		1970	1980*)	1990*)	1970	1980*)	1990*)
1	2	3	4	5	6	7	8
1. Soda Ash (10^3 tons)	360	116	310	504	44	104	164
2. Nitrogenous Fertilizers (10^3 tons)	360-400	312	1,067	1,822	120	559	998
3. Phosphatic Fertilizers (10^3 tons)	250-300	130	416	702	37	153	269
4. Newsprint (10^3 tons)	over 500	175	534	893	71	225	379
5. Steel billets (10^3 tons)	2,000-3,000	3,200	7,700	12,200	1,000	2,000	3,000
6. Passenger cars (10^3 units)	500-1,000	108	284	460	34	80	126
7. Small diesel engines (10^3 units)	250- 300	62	225	388	48	90	132
8. Ordinary Sheet Glass (10^3 tons)	over 100	64	157	250	21	47	73
9. Carbon black (10^3 tons)	50-80	25	53	81	8	11	14
10. Typewriters (10^3 tons)	100-200	117	330	543	24	45	66
11. Transformers (10^3 tons)	5-10	28	33	88	11	11	30
12. Power cables (10^3 Al conductor tons)	1-5	9	28	73	4	9	22

*) Estimated values; Sources : ASEAN Cooperation in Industrial Projects. Edited by : Mohamed Ariff, Fong Chan Onn and R.Thillainathan, Malaysian Economic Association in Co-operation with the Institute of Southeast-Asian Studies, Kuala-lumpur (1977), p.17-18.

Table 5.2. : Availability of raw materials for projects.

Industrial project	main raw materials required.	Asean countries:				
		Indonesia	Philippines	Thailand	Malaysia	Singapore
1. Soda ash	salt & limestone or salt, ammonia and carbon dioxide	yes	yes	yes	yes	no
2. Nitrogenous fertilizers	ammonia and sulphur or ammonia and process water (urea)	yes	yes	yes	yes	no
3. Newsprint	commercial pine, chlorine	yes	yes	not sufficient	yes	no
4. Steel billets	Iron ore & coal	not sufficient	not sufficient	not sufficient	not sufficient	no
5. Ordinary glass sheet	Silica sand, soda, limestone, aluminium oxide and sodium sulphate	yes	yes	yes	yes	no
6. Carbon black	coal	yes	yes	yes	no	no
7. Petrochemical	crude oil & natural gas	yes	potential	potential	yes	no
8. Small diesel engines	components	import	import	import	import	import
9. Typewriters	"	"	"	"	"	"
10. Transformers	"	"	"	"	"	"

Source: Asean Cooperation in Industrial Projects, op. cit., p. 19-20.

It must be mentioned that some for the industries mentioned in the last chapter are not considered here, since the raw materials required for the industries are not available in the ASEAN region and the realization of such projects are considered as not viable for the time being. The table also include other projects which are not mentioned before. These are projects which are considered as feasible for the ASEAN countries, but whose products do not have a large share in the total import value of the ASEAN countries.

According to the table following projects have a minimum efficient plant size which is smaller than the estimated market size in the ASEAN region in 1990 : soda, nitrogenous and phosphatic fertilizers, newsprint, steel billets, small diesel engines, ordinary sheet glass, carbon black, typewriters, transformers and power region. Among these projects there are also ones whose minimum efficient plant size is less than the largest demand in the year 1990 in one single country. These projects are : nitrogenous and phosphatic fertilizers, steel billets, transformers and power cables. Foe these projects there can be found one single country whose total demand in 1990 will exceed the minimum efficient plant size of the projects. Therefore these projects can be located in the country with the maximal demand. The remaining projects belong to those plant whose products must be absorbed by the ASEAN market as a whole.

Only one single project is considered as not viable in the ASEAN region, and that is the project for automobile industry. The minimum efficient plant size for passenger automobile industry is 500,000-1000,000 units per year, whereas the estimated demand in 1990 will only reach a level of 460,000 units for the whole ASEAN market. However, we should not consider this conclusion as final. Further inquiries have to be carried out to explore the possibilities of exporting the products to the ASEAN countries outside the ASEAN region. If export of the products is possible, then the project of establishing an automobile plant in the ASEAN region could be considered as a viable project.

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5.3. Availability of raw materials.

We have to find out whether there are sufficient resources of raw materials for the projects which are considered viable for the ASEAN market. Table V.2 shows the availability of the main raw materials needed for establishing such projects.

The table indicates that for the following projects there are sufficient raw materials available in the ASEAN market as a whole : soda ash, nitrogenous fertilizers, newsprint, ordinary sheet glass and carbon black. Raw materials needed for steel billet plant are not sufficiently available in the ASEAN region, and therefore part of the raw materials requirement has to be imported. Raw materials for petrochemical industry, although in the Philippines and Thailand there are indications that raw material resources for petrochemical industry are also existing and could be explored in the near future.

With regard to the small diesel engines, typewriters and transformers plant we are facing another kind of problems, since questions of availability of raw materials as such are not actual.
The main problem of establishing these projects in the ASEAN countries is closely connected with the existence of supporting industry of components. This is a question of policy : how to develop supporting component industries in the ASEAN region which are condusive to the development of small diesel engines, typewriters and transformers industry. The main opinion prevailing in the ASEAN region tends to the idea of promoting small-scale industries producing components for such manufacturing industries.

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CHAP. IV. : IDENTIFICATION OF INDUSTRIAL BRANCHES / PROJECTS :

ASEAN structure of industry in its future development will be based upon some rather favourable objective factors :

First are the domestic resources consisting of natural resources, both renewable and non-renewable and human resources once developed into a higly skilled & productive labour forces;

Second, access to external resources including capital and technology since ASEAN countries basically are open and market economies;

Third easy access to strong and expanding markets in the Pacific Basin (including Asian countries and USA) on the one hand, and a growing domestic market on the other hand.

These 3 favourable fators when combined through the process of industrialization under a politically stable umbrella, could accelerate economic growth in the Region.

What are the potential branches of industries that ultimately will make up the future structure of industry in the 5 ASEAN countries ?

1. Energy-oriented Industries.

ASEAN can rely on some energy sources : petroleum & natural gas in Thailand, Malaysia and Indonesia; but also coal resources besides hydro-electric power potentials; on a limited basis geo-thermo power plants could be developed, also bio-mass and bio-gas, both renewable resources to save the use of the non-renewable energy sources.
The entire chain of processing the crude oil into refined products, making the natural gas LNG, is one brauch of industry that has a big potential; combined with imported oil from the Middle-East, ASEAN position in refininf and supplying LNG will be strong at least until the year 2.000 unless present exploration activities will prove an increased yield in off- and on-shore oil fields.
Still closely tied to petroleum and natural gas is the development of petro-chemicals : Indonesia is certainly heading towards the establishment of various centres :
The Olefin centre for plastics in Aceh, the petro-chemical complex in Surabaya, the Aromatic centre in Palembang for textiles;
Singapore is still setting up petrochemical centres that will be in operation in 1982/83.
Attemps in Thailand sofar has not been succeeded in concrete projects, but Thailand is potentially in a good position for petrochemical industries.

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The ASEAN Industrial Project has laid the foundation with the Urea projects in Indonesia and Malaysia, potential locations for a group of other petrochemical industries. Fertilizer production will still be the most important industry for supporting agriculture. Industries consuming electric power are now classified under energy-oriented industries; within this catagory fall two main industrial branches : cement production and refining beauxite into alumina and aluminium. The cost of electric power is more then 50% of total production cost and this will limit the growth of energy-oriented industries in countries where energy resources are not available. Thailand and Philippines are already in this position with their cement-industries; on the other hand, Indonesia is overtaking both countries in cement production due to the availability of oil and coal. Again, Indonesia with its potential hydro-electric power generation is accomodating the redeployment process of Japan aluminium smelters to the Asahan Project location in North Sumatera. Another high power consuming industries are the Glass and Ceramics industries, but since small scale operation is possible, there will only a limited number of the large-scale plants be affected.

The summ up the Energy-oriented industrial branches :

1. Refining petroleum and natural gas products;
2. Petrochemical industries: urea, olefin, aromatic, methanol and carbon black.
3. Aluminium smelters.

2. Chemical Industries :

A wide variety of industrial minerals are available in the Region; not enough industries have been established based on the industrial minerals. Cement, glass & ceramics already mentioned under energy-oriented industries, should actually belong under this catagory. Caoline is another industrial mineral that could be processed further for many uses in the paper manufacturing. Sulfur is available in the mountainous areas, also as by product of refining petroleum; sulfur as a basic material is necessary for the production of various chemical products, such as sulfuracid. Salt is available in abundance; also rock salt as in Thailand. Salt is used for Soda-ash is heading in the right direction of using indigenous raw material for chemical production, Phosphate is another raw material for producing phosphate fertilizers. The disadvantage of these industrial minerals for the ASEAN countries, is their diversity. But limited quantities for large scale production. The rubber-based industry cover a wide range of rubber products and can be very important for the ASEAN countries.

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Summing up possible chemical industrial branches :

1. Manufacturing of Cement & goods made of cement.
2. Glass, glass ware and sheet glass industries.
3. Non-metallic mineral products.
4. Basic chemicals :
   - Sulfur based.
   - Salt based.
   - Phosphate based.
   - Fertilizers.
   - Insecticides.
   - Others.
5. Rubber-based industries :
   - Crumb rubber.
   - Remilled rubber.
   - Smoked sheet rubber.
   - Tyres & tubes.
   - Rubber products.

3. Processing Industries :

The processing industries should be up-graded and carry out further by stepping up technologically and process the raw materials derived from the primary industries as far as possible.

3.01. Agriculture-based industries :

Under this catagory falls many branches of industry, but basically it could be devided in three main groups :

i. Food-processing industries ranging from fruit & vegetables to beverages & tobacco industries;
ii. Forest-based industries, including pulp & paper, paper products, plywood, veneer, furniture & fixtures; saw milling, etc;
iii. Estate industries, including sugar factories, tea processing, rice mills, palm oil;

Most of primary agriculture commodities should be processed to semi and finished goods, marketed domestically or export abroad.

3.02. Mineral-based industries :

For the ASEAN countries there seems great potentials for the non-ferrous industries :

- Tin smelting & processing to fabrication; incl.tin-plate;
- Copper smelting & copper products, including copper wires;
- Nickel smelting, ferro-nickel and nickel products.
- Aluminium smelting, fabricating and aluminium products;

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Here again, instead of exporting ores or processed metals, such metals should be refined and then be further processed to semi-finished and finished manufactured goods. The back-ward and for-ward integration process should take place in several countries and should not necessarily be concentrated in one country as the producer of such a commodity. Tin can be smelted in Indonesia, Malaysia and Thailand, but the further fabrication of tin in other related products could be done in Singapore or the Philippines; the same integration counts for aluminium production: aluminium ingots could be produced in Indonesia, but aluminium processing and fabrication can be done in any other ASEAN country: also copper is not only produced in the Philippines and Indonesia, but further processing of copper could be integrated forward in Singapore or Thailand.

By processing the primary commodities to semi-finished and finished manufactured goods, a whole chain of new industries could be triggered off; if this integration process could take place in all the 5 ASEAN countries, the markets will be widened domestically as well as expanded for exports.

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4. High Value-added Industries.

The added-value in industries is caused by several factors, usually favourable for the country; this also has to face constraints.

4.01. Factors determining value-added industries are among others:

a. availability of labour or skills, related to human resources;
b. technology that varies from high-technology to intermediate or appropriate technological content;
c. favourable industrial climate determined by the availability of physical infrastructure, a set of favourable laws and regulations, the presence of a capital market or growing domestic market besides potential exports;
d. other factors, such as foreign-exchange savings devices.

4.02. The constraints are :

a. a high import-content of industrial materials, semi-manufactured goods, mineral fuels, capital goods, especially machinery & equipment for expanding industrial capacities;
b. a secured level of imports sustained by sufficient foreign exchange made available for the importation of said products;
c. the cost of technology which can be extremely high for the payments of the various technological inputs, such as patents, licences, expertise and the cost for research & development usually linked with transfer - prices of imported industrial raw materials, and the cost of marketing including trade-marks.
d. a highly competitive atmosphere due to availability of finished import or products manufactured by other countries;
e. trade barriers consisting of quotas, tarrifs or non-tarrifs practices;
f. a high level of productivity.

4.03. In a countries where natural resources are poor or inadequate, such as Singapore, the establishment of high value-added industries is the only way to expand its industrial base; the industrial-pattern of this country represents a model of high-value added industries. The import and export pattern is almost the same consisting of consumer's goods industries, chemicals, capital goods industries and industrial raw materials or semi manufactured goods.

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4.04. Singapore is moving towards high technology and highly skilled -oriented industries and creating a favourable industrial climate; countries with abundance of labour are still basing the establishment of their value-added industries on the comparative advantage of its labour content such as Indonesia, Thailand and the Phillipines. Textiles, printing & publishing, electronics, ship-repairs, metal working and machineries, assembling operations (transportation equipment) are some of those industries, however they have a high import content; a combination of highly skilled technology and labour content of high-value added industries, such as chemicals, basic industries: basic metals, iron & steel, electronics & electrical industries is another batch of potential value-added industries within the Avan Region.

4.05. Some of the value-added industries are overlapping the resource based industries, the energy-oriented industries, chemical industries or the processing industries, in various degrees. Nevertheless it is still usefull to classify the high-value added industries as a seperate category and they should be treated also seperately with special attention. The high value-added industries are very sensitive to any change of the favourable factors mentioned above and can easily be off-set by any of the constraining factors. This category of value-added industries is therefore considered as the last item of industrial categories after mentioning the energy-oriented industries, the chemical industries and the processing industries. Each of the ASEAN countries will have to determine for itself what branches of high value-added industry is favourable for its own country's interest; but it will also seek industrial cooperation in those branches of high-value-added if there is a common need and an industries common interest in view of ASEAN export potentials and expanding external markets; a combined effort of a series of high-value added industrial branches with forward or backward integration processes could be considered as possible and feasible ASEAN high-value-added industries.

4.06. We may conclude that high value-added industries for possible ASEAN industrial cooperation include :

1. Metal and Engineering Industries;
2. Electronics & Electrical industries;
3. Machinery & equipment (capital goods);
4. Transportation & Communication equipment;
5. Miscellaneous manufactures and manufactured goods, especially Technology-oriented Industries.

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5. Import - substitutes :

Industrial growth in the ASEAN countries in the last 2 decades were primarily based on import-substitutes.
The natural growth of Industry is an extension of imports of almost everything, from consumer's goods to industrial raw materials and capital goods. The growing domestic markets were the stimulus towards rapid industrialization. After 2 decades a common pattern emmerged : the 5 ASEAN countries have reached the stage that most of the consumer's goods previously imported, are now domestically produced through various ways : by national companies, by joint-ventures and through direct Foreign investment. This shift brought however a shift in the pattern of imports : consumer's goods are less imported while the import for industrial raw materials rose substantially; the import-substitution formula didn't work along the import-savings formula per unit cost, rather towards a substantial increasing demand for consumer's goods that were imported before. The propensity to consume for such consumer's goods as subtitutes of imports is increasing, putting a heavy pressure on the balance of payments and the availability of foreign exchange for import payments.

What should be the best strategy towards import-substitution for the ASEAN countries ?

5.01. Complimentary to domestic industries of each country.

Improved standard of living and increase in population in the ASEAN countries requires not only increasing quantities of goods and service, but a wider variety of goods and an improved quality as well. This trend stimulates industries to expand their production capacities on the one hand, but also promote the establishment of new industries producing different kinds of goods in each industrial branchs, or promote the diversification of producing new goods and of better quality on the other hand.
The free market system provides the consumers with more goods and more choices of the diversified goods. This trend is visible in the food-industries, in the textile industries and building materials industries for housing, the tree branches of industries that are meeting the basic needs of the people :

a. In the consumer's goods industries, the strategy for the ASEAN countries is leaving the further growth of this sector of industry to the individual country, in terms of deciding whether each country wants to produce themselves consumer's goods or to import from the neighbouring countries.
No incentives for common schemes should be encouraged.

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b. Common scheme for the ASEAN countries should be focused on the production of industrial raw materials, either semi-finished goods or finished manufactured goods but not for final consumption. The industrial branches under this catagory are among others :

- Petrochemical products for supplying industrial raw materials for the textile industries (artificial fibres and dyes), for the pharmaceutical industries. for the plastic goods industries, for the packaging industries, for the paint industries, for building materials industries, for consumer's household industries, insecticides formulation plants;
- Industry mineral-based industries for refractories serving the cement, glass and ceramics industries, the refining units and smelters, the estates-industries, such as sugar mills; for industrial raw materials serving the pulp & papermills, glass & ceramics industries, chemical industries;
- Wood-based industries supplying industrial raw materials for building materials industries, for furniture, for fixtures, for paper-products, for household articles, sports goods, educational equipment, parts and components for the textiles industries;
- Agro-based industries for the food & beverage industries, for supplying industrial raw materials for ropes. bags, for the textile industries , using natural fibres, for garments, for handicrafts and home industries.

c. Besides industrial raw materials, common ASEAN schemes should be covering the capital goods industries in such branches as

- Machineries & industrial equipment;
- Components & parts;
- Tools and dyes;
- Machine tools of all kinds;
- Transportation equipment for land, sea and air-transport;
- Complete factories and modern plants;
- Heavy equipment for earthmoving and landclearing purpose, road building and construction;
- Electrical equipment and goods;

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5.02. Regional Self-reliance.

This idea of regional self-reliance is a strong urge for independence on the one hand, of pride and confidence on the other hand; if each country of the region is unable to achieve a considerable degree of independence, the substitute is regional self-reliance by pooling together all resources available. The A.I.Projects, such as the Urea plants are the right choice in this direction of regional self-reliance in terms of production capability utilizing ASEAN's own resources and for supporting the agriculture sector to be self-supporting in food production. As a region, ASEAN wants to be self-reliance into main fields :

a. Food.
b. Energy.

In order to achievo self-reliance in food and energy, the industry should be able to support fully these 2 sectors: industries supporting agriculture should be tackled together. such as the following industrial branches :

- Agriculture machineries and equipment for agricultural input through the mechanization process;
- Fertilizers, pesticides and other chemicals for agricultural inputs through intensification programmes;
- Complete factories for agro-based industries, such as factories for palmoil, sugar factories, vegetable oils, tea processing, and the further processing for agricultural primary commodities;
- Complete plants for food-processinf industries;
- Machineries and heavy equipment for landclearing, for irrigation, for preparing and conservation of soil for agriculture production;
- Post-harvesting equipment, refrigeration and preserving equipment;

Self reliance in energy for the ASEAN region are covering the following industrial branches :

- Service equipment for own-shore and of-shore drilling of petroleum and natural gas;
- Heavy equipment for mining of coal, transporting and distribution facilities;
- Electrical equipment for small hydro-electric power plants;
- Machineries and equipment for production and generating of biogass and biomass;
- Equipment instruments and tools for exploration and intensive surveys including systemic and airphotography;

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5.03. Social Needs :

With rapid economic growth in the ASEAN countries, the social needs will be increasing in fields such as education, formal and non-formal education, in field of medical services, in field of arts and culture, in recreational activities, in worships to God. in the need for better housing, buildings for social services, in travel and mobility of the population and many more social activities the national, regional and local level. To meet the demand of such social services, the various industrial interprises should be able to produce the goods and services that are required to meet the social demands. Most of the industries engaged in supplying social needs are domestically oriented; few will serve the neighbouring ASEAN countries or are exporting abroad. Such industrial branch are as follows :

- Printing and publishing of printed material for educational and training purposes;
- Educational & training equipment and aids;
- Medical equipment, instruments and tools for hospitals and other medical centres, usually highly specialized services;
- Recreational facilities, such as sport equipment, sport goods and assessories; designing swimming pools, golf courts, sport halls and stadium;

Within ASEAN industrial co-operation, technical assistance programmes among the ASEAN countries should be encouraged; by exchanging experts and fellowships, transfer of knowledge, of know-how and skills could be acquired that in turn could improve the existing domestic industries as mentioned above. serving several fields of social needs.

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5.04. Development Goods.

The import components for development goods and equipment is increasing at a rapid rate as long as economic development takes place in the ASEAN region. Many of the industries mentioned under paragraph no.1, fall also under this catagory. The development of natural resources, the development in the field of agriculture, of fishery, of forestry, of animal husbandry, require industrial products· the development of physical infrastructure, such as roads, harbours, airports, bridges, of electrical power generation and distribution, of watersupply and irrigation, of land-clearing, of human settlements, of town and city planning, urban renewal, sewages, waste disposals and many more of such activities require also developmental goods, heavy equipment, tools, instruments and many other capital goods.
Such industries are already identified under paragraph no.1 and need only some additional list of relevant industrial branches that produce developmental goods.
Although one can not expect that all the required development goods will be produced in the ASEAN countries, at least the principle of increasing the local -·content should be accepted, besides the principle of progressive of manufacturing.
License agreements can play a very important rule, since through manufacturing by licenses, the domestic and national industries could improve their productive capacities.

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Chapter V : MEASURES.

This chapter will consider various measures of institutional and promotional nature to enhance ASEAN industrial cooperation. It will deal primarily with policy measures that should be taken in various fields; these policy measures reflect the intention of the respective Governments in the 5 countries of ASEAN on the one hand, common policy measures that should be formulated within the scope of ASEAN itself by the competent bodies on the other hand, policy measures are covering the following activities :

A. Policy measures of a general nature :

1. Common Investment Policies.
2. Tariff Preferences : intra-and extra regional trade.
3. Administrative Infrastructure
4. Physical Infrastructure :
   - Transportation & Communication.
   - Public utilities : power, water, gas, etc.
   - Location of industries.
5. Social Infrastructure dealing with human settlements (housing), educational facilities, medi - cal centres, etc.
6. Co-operation in Technology acquisition, application & generation.

B. Policy measures of a specific nature :

1. Harmonization of Industrial Plans
2. Common policy on Industrialization, including utilization of specific natural resources.
3. Obtaining Financial Resources for Industrial Financing.
4. Access to export-markets for ASEAN Industrial goods.
5. Dialogues and joint-negotiation, in the industrial field.
6. New forms of industrial cooperation.

Policy measures of a general nature is important, not only for industrial development but also for other other development activities related to agriculture, energy, minerals but also related to transportation & communication, and trade matters. Policy measures of a specific nature are dealing exclusively with matters related to industrial development, but still in close connection with the policy measures of a general nature; both policy measures are actually intertwined and some cases even difficult to seperate one from the other. It is within this general frame work that these policy measures are considered very important to be taken in order to enhance industrial cooperation.

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Ad.A.Sub.1. Common Investment Policies.

The 5 ASEAN countries have their own investment laws and regulations covering both domestic and foreign investment. Especially when dealing with foreign investment, the respective institutions dealing with investment eq.Board of Investment should have its regular meeting to coordinate policies which might affect each of the country, but that requires also common policy to deal collectively with matters related to investments, such as taxation, incentive schemes, location of investment projects, tariffs, transfers, licenses, royalties, repatriation of capital, joint-venture arrangements and the like. The institutionalization of the various Board of Investments within ASEAN is recommendable, besides taking common stands-with regard to specific issues, especially related to ASEAN Industrial Projects, ASEAN Industrial complementation Scheme, and other arrangements for closer industrial cooperation.
Special attention should also be given to the problem of technology transfer and the financing of industrial projects through foreign investment, and investment made by one ASEAN or more countries in another ASEAN country.
ASEAN as a region should attract foreign investors in new ventures in one of the ASEAN countries, leaving the option to choose which country to the investor himself.
The case of Singapore is an example of re-deployment of industries ordiverting interest from Singapore to Malaysia or Indonesia.
Specific scheme of tackling the investment problems collectively is desirable at this junction, making ASEAN as a region still attractive to foreign investors.

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Sub.2. Tarif Preferences : Intra- and Extra- Regional Trade Aspects.

2.01. The process of industrialization in the ASEAN countries will follow the existing trade pattern which has changed overnight. Considering the market outlets for industrial products, one can not escape from the present trade pattern of the region. There is a very close relationship between trade and industry.

When thinking about cooperation in the field of industry among the ASEAN countries, it is assumed that industrial projects should find their markets :

1. within the respective country itself;
2. inter-regional trade within the ASEAN countries as an economic region;
3. through extra-regional trade, outside the ASEAN region such as with the EEC, USA, Japan, Australia and New-Zealand.

When mentioning import-substitutes, it should also include import substitutions for the region as such and not be limited to one particular country; when referring to edport-industries, both inter-regional and extra-regional trade should be covered.
The products of import-substitution industries and the export-industries should be traded within and outside the ASEAN region. When dealing with trade within the ASEAN region, the ASEAN Prefential Trading Arrangements should be taken into consideration; but when dealing with trade outside the ASEAN region, we have to consider aspects of GATT, of UNCTAD and the General System of Preferences(GSP).

2.02. ASEAN Preferential Trading Arrangements.

The declaration of ASEAN Concord signed in Bali on 24 February 1976, provides that ASEAN member countries shall cooperates in the field of trade in order to promote development, and the growth of new production; to improve the trade structure of individual states and among countries of ASEAN; to increase their foreign exchange earnings.

The preferential trading arrangements will act as a stimulus to the strengthening of national and ASEAN economic recilience, and the development of the national economies of the member states by expanding investment and production opportunities, trade and foreign exchange earnings.

Within this contact on February 24, 1977, the Governments of the Philippines, Malaysia, Singapore, Indonesia and Thailand signed the agreement on ASEAN Preferential Trading Arrangements, where trade preferences will be extended to each other through the adoption of instruments, as may be appropriate, for ASEAN trade expansion.

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2.03. The Preferential Trading Arrangements shall be applied to basic commodities, particularly rice and crude oil; products of the ASEAN industrial projects; products for the expansion of intra ASEAN trade; and other products of interests to ASEAN Member States.

It was agreed that the instruments to be employed in facilitating the expansion of trade among ASEAN member countries would include :

1. Long-term quantity contracts.
2. Purchase finance support at preferential rate.
3. Preference in procurement by Government entities.
4. Extension of tariff preferencies.
5. Liberalization of Non-tariff measures on a preferential basis.
6. Other measures.

Long-term quantity contracts shall apply to selected products subject to specific agreements negotiated among the Contracting States or their nominated agencies. The time frame may be three years to five years, depending on the products and quantities to be agreed upon, subject to annual review.

Purchase finance support at preferential interest rates may be applied to either exports to or imports from Contracting States of selected products of ASEAN domestic origin. Preference is also granted for each transaction net exceeding US $ 2.5. Million; before the ceiling was US $ 500.000.

An effective ASEAN margin of tariff preference should be accorded on a product by-product basis.

Where tariff preference have been negotiated on multilateral or bilateral basis, the concessions so agreed should be extended to all contracting States on an ASEAN most - favoured nation basis, except where special treatment is accorded to products of ASEAN industrial projects. Tariff preference of upto 10% are not extended to 20-25%.

2.04. The first batch of tariff concessions covering 71 items have been already implemented with effect from January 1, 1978 and negotiations for further exchanges of concessions are being undertaken regularly.

To date (1981) about 6500 items have been implemented, while on the whole 8.529 items Fall under this scheme.

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2.05. In respect of products of ASEAN Industrial Projects, the ASEAN Member States shall establis special preferential trading arrangements which shall be embodied in supplementary arrangements.

Such supplementary agreements shall include the provision that trade preferences shall be extended exclusively to the products of the ASEAN industrial projects within agreed time frames and subject to such other conditions as may be set forth in the supplementary agreements.

The ASEAN Preferential Trading Arrangement gives provision for emergency measures. If, as a result of the implementation of the agreement, imports of a particular product eligible for preferential trading arrangements are increasing in such a manner as to cause or threaten to cause serious injury to sectors producing like or similar products in the importing Contracting States, the importing Contracting States may suspend provisionally and without discrimination, the preference included in the agreement.

Since none of the projected ASEAN Industrial Projects at present is operative, this clause on PTA has not been worked out in detail and has not been implemented yet; nonetheless, it will be useful once the ASEAN Industrial Projects are starting to produce and the products will be traded within the ASEAN countries. At a recent meeting of ASEAN Economic Minister in Kuala Lumpur, Philippines prepared project on and Thailand's project on - and have been agreed upon for further implementation.

2.06. As regard to products of the ASEAN Industrial Complementation scheme (AIC), the Basic Agreement provides for some accomodation;

(5) The products in a AIC package shall qualify for preferences, in accordance with the Agreement on ASEAN PTA.

(6) During the period of exclusivity, special preferences outside the Agreement on ASEAN Preferential Trading Arrangements (PTA) can be granted such as mandatory sourcing and recognition of local content, applicable only to specific countries.

2.07. General System of Preferences (GSP).

When dealing with extra-regional trade of ASEAN t: al products, we have to consider the applicability the GSP to ASEAN conditions. The export markets for ASE . industrial products will be centered around the industrialized countries : EEC, USA, Japan, Canada, Australia & New Zealand. Would the GSP be able to improve ASEAN exports to these countries ?

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2.08. The main objective of the GSP scheme is to assist the developing countries in increasing their exports, promoting industrialization and accelerating their economic growth and development. The preferences given are non-reciprocal, non-discriminatory and generalized. The GSP benificiaries are all developing country members of the Group of 77, including the ASEAN countries. The basic principles of the GSP scheme are : product coverage, including industrial products, depth of tariff cuts, rules of origin, and safeguard mechanism. In reviewing progress made during the last decade of the GSP scheme, both the developing and the developed countries are of the opinion that GSP is a meaningful exercise; there are however still many problems facing the implementation of the GSP, such as an increasing trend towards protectionim of donor countries and the descriminatory measures against the various developing countries. Only a few developing countries have had the advantage to be able to make considerable use of GSP, whereas the majority of the beneficiary countries have not yet been able to take sufficient advantage from the scheme. The expectations had sofar not been fulfilled, due to of the rigidity of many rules related to product coverage, rules of origin, uncertainty, insufficient information for collection, evaluation and dissemination of GSP regulations.

2.09. If the ASEAN countries are really starting exporting their industrial products to the developed countries, they should make use of any opportunity given by the GSP scheme to improve their export proceeds. The GSP scheme is an international acceptable scheme, the advantages should be explored thoroughly and.ASEAN countries may make full use of this scheme to boost their industrial exports in the near future.

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Sub.3. Administrative Infrastructure.

Although each of the ASEAN countries has its own bureaucratic problems to overcome, in the long-run administrative barriers should be removed, standardized procedures adopted, closer cooperation among public administration institutions encouraged, common approaches adopted to the various law systems , acceptance of common nomenclafures in the administration of tariffs, of finance, of mobility of people, of goods and other services, that should gradually be straightened out heading for a common language for each specific field in the ASEAN countries; during this period of transition, the common use of the English language is already one big advantage and should be reflected in other aspects of public administration touching sensitive areas such as laws, customs, sovereignty, human rights, and a whole body of laws regulating economic and trade activities. This administrative infrastructure is a precondition for smoothening cooperation among the various official agencies, non-governmental organizations and other private associations, the various meetings among Head of States, of Ministers of common fields, Directors Generals and Secretaries in the official meetings for senior officials, and many other working groups at different levels, constitute already a common working relationship that is admirable.

The results of such institutional arrangements should be follow-up in policy measures and actions to be taken in the respective field of activities and transformed into concrete and positive steps or common regulations, Ministerial decrees or administrator instructions; these regulations should be the foundation and the administrative infrastructure for smoothening the ASEAN aparatus and mechanisme that should regulate administratively ASEAN common interest.

This general framework of administrative infrastructure should be able to accomodate the specific requirements of industrial administration dealing with aspects of industrial development that needs special attention.

Sub.4. Physical Infrastructure.

Industrial development requires a specific industrial location and site when set up an industrial project; this site or"Location-specific" of an industrial project, especially if such a project is substantially large, requires physical infrastructure that ultimately will determine whether such a venture is technically and economically viable; the cost of investment for such an infrastructural requirement could be substantial and the question might arised as who is paying ultimately for the social cost of such infrastructure ? The ASEAN Urea Fertilizer project is a good example for an additional cost for establishing the necessary infrastructural requirements, such as harbour facilities, roads, water supply and electrical power, in the Province of Aceh in North Sumatera where the location is selected because of the availability of natural gas as the main feedstock for producing urea.

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The provision of physical infrastructure is the main responsibility of a nation cencerned: the country should provide such infrastructural facilities and by doing so, can attract industrial investment since the project will make use of the "economies" created by the existence of the infrastructural facilities. The respective countries of ASEAN should well aware of this obligation; unless the country itself is willing to build-up its infrastructural requirements, it will otherwisw weakened its position for attracking industrial investment vis a vis the other ASEAN countries where the infrastructural facilities are provided. Singapore as a city-state is in a favourable position to provide infrastructural facilities; on the other hand countries with a vast area consisting of so many islands, such as Indonesia and the Philippines are in a more disadvantageous position with regard to supplying the necessary infrastructural facilities.
Especially when an industrial project is "Location-specific" because of its relative comparative advantage of having a specific natural resource, such as natural gas or industrial minerals for cement production, producing rather bulky products, infrastructure will add to the total cost of investment and may in some cases even prohibitive high and hereby discouraging the project to be implemented in a specific location or site.

The ASEAN Committee on Transport and Communications (COTAC) has embarked already in a very extensive activity in the field of Land Transportation, Shipping & Ports, Civil Aviation, besides Post & Telecommunications.
Hunderds of projects are already tabled : in various stages of implementation as a proposal, approved by ASEAN, on-going project, long-term continuing stage, aboundened or completed fully and is now operational.
Their efforts certainly will bear fruit in the course of the time; especially when looking in long-term perspective, no doubt that by the year 2.000, the countries of ASEAN will be linked closer and better among themselves and with the other countries through land, sea and air communication, besides through the postal services and telecommunitation network.

In the field of energy which is also an important input in industrial development, the ASEAN Committee of Industry, Minerals and Energy (COIME) especially in the field of energy is still in a early stage of development.
During the first meeting of AEM on Energy Cooperation in Bali September 1980, three approaches were proposed on energy cooperation :

- A long-term approach particularly directed towards the development of alternative energy resources outside oil;
- A medium-term approach aimed at increasing exploration and development activities of oil and gas in the region;

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- A short-term approach relating to such measures as expanding the scope of the emergency petroleum sharing plan and the establishment of the ASEAN Petroleum Security Reserve.

Institutions dealing with energy cooperation are :

- ASEAN Cooperation on Petroleum(ASCOPE) for oil and gas matters:
- COIME to deal with other sources of energy which have reached the commercial stage;
- COST to deal with energy sources which are in the research and development stage.

Within this context, a meeting of ASEAN Heads of Power Utilities/Authorities held in Jakarta 13-14 April 1981 agreed on both the institutional framework and modalities of cooperation in the field of electrical power development. 10 substantive areas/projects have been identified for cooperation : micro-hydro power development; computer application; interconnection of electrical grids; research, development and engineering; training; geothermal power development; nucleaur power for electrical power generation; rural and urban electrification; standardization of electrical equipment; setting up of an Electric Power Information Centre.
Much of the ground-work for formulating programmes in the field of energy has been laid down which give sufficient assurance for industrial development that the infrastructural requirement for electrical power has been taken care of; since a long-term approach to the problem has been also adopted, sufficient attention is already given to ensure the required electrical power in the ASEAN region for the future.

Sub.5. Social Infrastructure.

When we considered that a industrial project is "location-specific" such a project has another impact on the immediate surroundings ; social impact that requires a sufficient social infrastructure. The social infrastructure consists of:

1. Human settlement aspects:
2. Productivity related to human resources development efforts.

Both aspects on human resources are very important for industrial development. An industrial project requires the inputs of human resources ; during the pre-investment stage, during the construction stage, and during the operation of the plant; different people are needed for the three stages of industrial project implementation. Facilities for human settlements should be provided : decent housing facilities and facilities for social needs, such as religious services, recreational facilities, educational facilities for the children, welfare institutions to take care of the social welfare requirements, etc;

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in short labour and employees are requiring more and more elements of "quality of life" and such facilities should be provided in this modern world of industrial progress, even if the project is located far in the hinterland and isolated from the world.

Another aspect of human resource development deals with productivity; this is again related to the above mentioned welfare facilities on the one hand, the efforts to improve his productivity through various incentives, including salaries and training opportunities, on the other hand.

It is primarily the responsibility of a country in the ASEAN region to take care in general of the human resource development, in particular the industrial project concerned; but here again common programmes could be instituted within the ASEAN context to improve the human resource development activities. Common training and upgrading programmes in a wide variety of skills and technical know-how, is one way of common interest.
Exchanges programmes among the ASEAN countries is certainly encouraged, such as inplant and in-service training in factories and its auxialeries activities; in management science, industria management and engineering, besides exchange programmes in technological requirements for each industrial branch.

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Sub.o. Co-operation in Technological Acquisition, Application & Generation.

The ASEAN Comittee on Science & Technology since June 1980 to the early part of 1981 has been active in many fields, such as research in protein, food technology, food waste materials, climatic statistics environment, marine science, non-conventional energy.
Only recently the 5th Meeting of Cost adopted the Plan of Action on Science and Technology for Development consisting of the following programme areas :

1. Food Science & Technology
2. Energy & Natural Resources Development
3. Manufacturing industries, Transportation & Communications
4. Health & Social Development
5. Science & Technology Infrastructural Development.

The relevant activities related Industrial Development are the following items : Food Waste Materials, Food Technology, Ferrocement, Marine- , Forest- and Mineral Resources Management & Utilization, Low cost construction materials, Materials Processing and Standardization of Steel & Steel Products.
These programme are in various stages of implementation.
Within this context of COST, hopely that more programmes will be devoted to industrial development, either directly or indirectly.

What are actually the areas of common interest for the ASEAN Region in terms of Technology transfer ?
The transfer process can take place from countries outside ASEAN to the ASEAN region, or among the ASEAN countries themselves.
When dealing with technology transfer from outside the Region, advanced technology and appropriate technology should be our aim; but when dealing with technology transfer among the ASEAN countries themselves, then endogenous technology should be our goal or the further transfer or advanced technology from one ASEAN country to another, and within one country itself to a region and to certain localities.
Advanced technology should be transfered in the varies industrial branches, such as space technology (aircraft manufacturing), petrochemicals, ferrous & non-ferrous industries,computer technology: examples for transfering endogenous technology are technologies that in the course of centuries and decades, the ASEAN countries have fully command those technologiesm such as in some of the processing industries of Agricultural commodities crumb-rubber, palm-oil, sugar refining, vegetable oils, but also processing of some of the non-ferrous metals, such as tin.

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If advanced technology, appropriate technology and endegenous technology are the technologies to be transfered directly related to enhancing industrial development, the second question arises as regard to technological capacities and infrastructure. For industrial development there is a need of direct transfer of technology to the industrial plants that represent a typical spectrum of technological inputs, and through technological infrastructure : Research Institutions, Universities, Laboratories, Development Centres, Data Banks, and many more institutions that absorp the technology first, then adopt and adapt, before applying the technology and if possible even generate and develop further the transfered technology.

Two areas should be strengthened then :

First the immediate application of the transfered technology within the industrial plant or enterprise itself;
Second the technological infrastructure that received the transfered technology, adapt to local conditions and then applied that part of the technology which is appropriate to the situation of each country or to each case.
This capacity building is very important for a rapid growth of the industrial sector and should be persued seriously in action programmes and feasible projects.

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Possible Areas of Co-operation.

What are the possible area of cooperation between advanced countries and the ASEAN ?
There are a number of concrete possibilities of cooperation between advanced countries and ASEAN in technology transfer :

a. Government sponsored Project Assistance and Technical Assistance Programmes.

The Governments of advanced countries have and are still giving Project Assistance and Technical Assistance on a bilateral arrangement to the Governments of the ASEAN countries.
Under these kind of Assistance Programme, some of the cooperative scheme in he field of industry could be intensified, ranging from surveys, Feasibility-Studies to actual financing of industrial projects, providing experts and consultants, giving fellowships and scholarships for training and education, and funding for strengthening institutions that can promote, stimulate and render services to small and medium size industrial enterprises.
A whole scheme of co-operative programmes under this kind of official assistance should be worked out.

b. Private to Private Arrangements :

ASEAN in cooperation with advanced countries should sponsor co-operative programmes in various forms :

i. Affiliation Programmes :

- Between enterprise to enterprise;
- Between Universities or educational and training institutions;
- Between similar manufacturers associations;
- Between consulting companies rendering services to industries;
- Between professional groups or associations, such as engineers and managers;
- Between industrial research centres or institutions.
- Between enterpreneurial groups.

ii. Joint - Ventures :

- ASEAN, Multinational Companies that should be able to operate in more then one ASEAN country in promoting business ventures, setting up business enterprises, rende - ring industrial services, encouraging enterpreneurial development, and build institutions that should encourage industrial firms:
  - ASEAN Industrial Consulting Companies that can pool experts from the region, operate through branch offices in the countries of ASEAN, and render industrial consulting services to small and medium business enterprises;

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- ASEAN Training Centres that can offer upgrading courses, training in industry or in-plant training in existing industries, in fields such as industrial management, industrial engineering, industrial extension services and the like;

iii. Industrial Licensing Agreements :

One main aspect of transfer of technology is in the field of licenses, of patents, of industrial secrets, and industrial properties. The ASEAN in cooperation with advanced countries should encourage the peaceful transfer of such as technology that those countries have developed in the course of the time its industrialization process and be willing now to transfer this patents and industrial properties to the countries of ASEAN.
There is a number of devices to formulate this transfer process and with the guidance of the international agencies, such as UNCTAD and UNIDO, arrangements should be made in order to accelerate the transfer process of technology.
Once private business is willing to transfer technology through above mentioned arrangements, the process of industrialization in the ASEAN countries will be speed up.

iv. ASEAN - Data Bank and Information Centres :

Information is the cheapest way of technology transfer.
An ASEAN-Industrial Data Bank should be set up to take care of information to be exchanged, dessiminated to industries, to keep them up to-date and to be well informed about technological progress in other countries.
Links should be established between the main information centres of the advanced countries with similar information centres in the ASEAN countries, and be accessable directly to business.

v. Other ways of Cooperation between Private to Private :

Such as the re-deployment progress of industries where advanced countries are not interested anymore and industries could be redeployed to ASEAN countries through private arrangements.

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B. Policy Measures of a Specific Nature.

ad.1. Harmonization of Industrial Plans.

Each of the 5 ASEAN countries has its own industrial plan expressed in different ways. This plan can be part of an overall plan as in the case of Indonesia, it could be proclaimed as one part of a policy measure on investment, such as the case of Singapore, it can l over a long-term period, medium-term or even a short-term period of 1-2 years. The ASEAN countries are heading towards a more intensive approach towards industrialization; a more active policy towards industrial development is persued. There is therefore a need for harmonization of these Industrial Plans, within the ASEAN region to achieve the following goals and objectives :

1. To exchange information on industrial plans in order to get well acquanted with each other plan and learn from each other information about future projections in the development of industrial branches in the region;
2. To exchange information on specific industrial projects in each country that might affect the future outlook of another ASEAN country in our specific Industrial Branch;
3. Within the framework of each Industrial Plan, to study the feasibilities for common interest in the implementation of certain policies measures or specific industrial projects;
4. Within the scope of re-deployment process or re-structuring of industries, exchange information on how to meet such changes and take the necessary steps for realigning and adjustments in the respective countries;
5. To have regular reviews on the various national industrial and plans exchange information and experiences regarding certain problen areas:
6. Study the affects of technology, of changing markets, of increasing capacities and levels of production, prices and limited funds on the implementation of future industrial projects:

Ad.2. Common Policy on Industrialization.

Usually when Industrial Plans are implemented, either by the public or private sector,or according to a certain fiscal year by the Government in power, many policy measures are issued and regulations made for the actual implementation of such Industrial Plans.
Such policy measures or regulations of a legal nature affect the process of industrialization in each country. From the experiences gained by one country, another country of ASEAN may learn or take lesson, or even consult each other for the repercusion of such policy measure and follow a common policy or stand. There are areas of common interest that may stimulate for taking a common policy on some specific issues.

A whole body of regulations and a number of institutions involved within the scope of Industrial administration, could be developed among the ASEAN countries. The objectives of such common policy may cover the following items :

1. Laws and regulations concerning industrial location, industrial estates, industrial parks, industrial zoning, site requirements, environmental impact, and other considerations related to location and site-specific of an industrial project;

2. Technology transfer covering licenses, patents, royalties, industrial properties, research & development activities, but also technology transfer through human resources by training, exchange of experts, - ization policy towards the utilization of expatriates, in the field of industries and more specific related to an industrial project;

3. Industrial relations dealing with labour-management relations, collective bargaining, tripartit arrangements, work conditions, wage policies, workers & associations, trade unions, labour laws, etc, mobility of labour & management personnel, etc.

4. Government intervention in monopoly practices, monoplistic competition and unfair business practices;

5. Industrial licenses covering a wide variety of permits from establishing and operating an industrial enterprise until the actual operation of such an endeavor, when expanding or closing down the industrial plant.

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Ad.3. Obtaining Financial Resources for Industrial Financing.

What are the sources of financing industrial projects ? External resources and domestic sources :

A. External Resources of Financing :

1. Foreign Investment.

Industries in the ASEAN countries are usually undertaken by the private sector with some exceptions. Since the 5 ASEAN countries are opened for Foreign investment, have their own investment laws and regulations, it is obvious that the largest financial source for industrial projects is foreign investment. The equity capital is usually in hands of the Foreign partner which could also get equity participation from a domestic partner in a joint-venture enterprise; the loans should be acquired on an international basis from many private international banks for coping with investment outlays, whereas the working capital requirements can be taken care by local banks or foreign bank as well.

2. Long-term loans for capital investments :

There are two main sources :

a. Official loans given by Governments, such as the case of financing the AIP by the Government of Japan;
b. Loans from lending agencies, such as IFC an affiliate from World Bank, or ADB; the ASEAN Finance Corporation, a financial institution that will be set up with the purpose of financing ASEAN industrial projects;

3. Grants and soft loans for Technical Assistance projects:

Here again are several possibilities :

a. Through bilateral assistance programmes of which the ASEAN dialogues with certain countries proved to be possible;
b. Multilateral agencies such as UNDP, ESCAP, UNIDO, UNCTAD, ILO,etc:
c. Non-governmental-organizations could provide also Technical Assistance, such as the Chambers of Commerce & Industry (ASEAN-CCI).

B. Domestic Sources :

To compliment the external resources of financing industrial projects, a local component is usually required for which local resources should be used;

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1. Domestic investments :

   The equity participation of existing companies is one source of financing, usually matched with bank loans or loans from financial institutions or corporation (non-bank);

2. Government Budget :

   In special cases, the Government can provide for some of the financial resources through an allocation of its annual budget, but administered by seperate agencies;

3. Development Banks and Financial Development Instituions or Corporations :

   Local development banks but also local financial corporations are the main sources of industrial financing. They can contribute to the investment requirements undertaken for ASEAN industrial projects;

Ad.4. Access to Export Markets.

The traditional pattern of trade between the ASEAN countries with the outside world is based on exports of primary commodities; tin, rubber, palmoil, timber products and pepper just to mention a few export products. The traditional markets because of its colonial past has been Western Europe this pattern is changing drastically : the commodities find now their markets in Japan, USA and the countries of the Pacific Basin. This shift in geographical distribution of ASEAN export commodities have also changes the countrie's outlook towards their new trading patners .for which most of their products now find their outlets. ASEAN prospective markets are the Asian countries, lead by Japan followed by South Korea, Hongkong and in the future China; also the other Pacific countries, lead by the United States with Canada in the Northern hemisphere, and Australia and New-Zealand in the Southern hemisphere.

The EEC countries are still belonging to the"old customers" for coffee, tea, cacao, palmoil and pepper, but they are becoming more and more marginal in terms of volume as well as in total expert receipts.
Nevertheless their established position in ASEAN export trade is still important, since they are also taking care of further trade with other European and Socialist countries.

If we consider the ASEAN countries as the nucleus in Asia, in a broader setting covering Japan, China, Hongkong and South Korea, this part of Asia has been doing well these years despite the recession in Western Europe and United States :

GNP.Growth (The Asian Wall Street Journal) 29 September 1981.

	1980.	1981.	1982.
Japan.	4.2%	4.1%	5%
China.	5%	3.5%	4.5%
Singapore (GDP)	10.2%	9%	8.5%
Hong Kong (GDP)	10%	8%	7%
Philippines	5.4%	4.5%	5%
Indonesia (GDP)	9.6%	8%	8%
Thailand (GDP)	6.3%	6%	6.5%
South Korea	-5.7%	6%	8%
Malaysia	8%	7%	7.5%

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This traditional export pattern in terms of primary commodity exports should be changed gradually; these commodities should be further processed in the ASEAN countries themselves into semi and finished manufactured goods, adding up substantially to the value-added portion of the export trade. The timber product should be produced into finished timber products, plywood, veneer, sawn timber, pulp & paper, furniture and other wood-based industrial products; the processed, refined and fabricated into all kinds of finished industrial products downstream, at the same time working upstream to capture the total value-added that could be obtained by processing those primary products industrially. Two main lines of industrial products should be developed :

1. The agribusiness covering the agricultural sector, the agro-industries until reaching the final customers is one sery of industrial activity that could be developed:
2. The non-ferrous industries covering the upgrading & processing of the areas, the refining into ingots or pure metals, until the fabrication into industrial goods or finished consumers goods:

But once those traditional primary commodities have been transformed into semi- and finished manufactured goods, the problem of access to the market is becoming a real crucial problem that should be overcome ever since.
The process of industrialization producing first as import-subtitutes for the domestic markets, will soon be followed by exporting those industrial products; a whole sery of industrial goods will come into the market, while the process of industrialization takes place at a rapid rate. Here the problem of access to the markets of the industrialized countries will be even more accute. If trade among the ASEAN countries have been improved by the ASEAN Prevential Training Arrangements of some 2.000 commodities, trade with the industrial nations should also be guaranteed by achemes that are the results of efforts of joint-consulations or dialogues with the industrial countries: ASEAN with the EEC, USA, Canada, Japan, Australia and New-Zealand.

Ad.5. Joint Consultations & Negotiations : The ASEAN Dialogues.

ASEAN has started with a serie of useful dialogues with the industrialized countries. Are those dialogues fruitful and what are the concrete results, especially related to industrial development.
Let us start with Japan :

a. Financing the ASEAN Industrial Projects.

This is a real success: Japan has promised to finance the AIP and it did: Indonesia's ASEAN Urea Project started already by Japan. The same terms and conditions of financing the package for ASEAN Urea Projects are in the pipe line for financing : for Thailand the Rock Salt-Soda Ash project and the Copper processing plant in the Philippines.

b. Japan's pledge to finance human resources development projects, such as :

Indonesia - Development of Skills for small and Medium enterprises:
Malaysia - Sub-engineering skills in steel industry, heavy industry and computer science;
Philippines-Project in Agro-industries, small and medium enterprises:
Singapore - Institute for Continuing Occupational Development
Thailand - Natural Gas & Petro Chemical Training & Research Centre.

Above projects related directly to industrial development has been agreed by both sides : ASEAN and Japan; implementation will soon start.

c. Still in aprepatory stage : ASEAN Centres for Appropriate Technology (ACAT).

Next to Japan, some co-operation with the EEC has been achieved;

d. Industrial Confrences on a sectorial basis in : chemical industries; engineering industries, energy industries, electrical and electronic industries, and resource based industries;

e. Science & Technology : two-years programme of 2.8 ECU for fellowships, experts, seminars and studies.

f. Securing funds for large scale industrial projects from INTERACT.

With Australia some progress has been made on project which are indirectly related to industrial development.

g. The ASEAN Food Technology Research and Development Project, to improve quality of life through the adoptation of appropriate food processing technology:

h. ASEAN proposed US$ 5 million for pre-feasibility and feasibility studies of possible regional projects in industry, minerals and energy: Australia suggested specific project proposals. New-Zealand interest in industrial development is very limited; only one single project has been endorsed sofar;

i. Research & Development of Ferrocement : a seminar/workshop to be held in Indonesia;
The United States and Canada are interested in other fields of cooperation but industrial development.

The ASEAN-dialogue proved to be useful; some results of those consultations bear fruits in real terms. The EEC countries representing Europe, Japan and its neighbouring countries South Korea, and Hongkong, later China representing the Asian countries, and USA and Canada as countries along the Pacific Ocean in the Northern Hemisphere, are the largest potential trading partners of ASEAN; other continents, such as Africa and other regions, for instance the Middle-East and South-Asia, might also be potential market for ASEAN products and possibilities should be explored for closer trading and industrial relationship.

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A further potential partner in progress are the multilateral agencies : UNDP, ESCAP sofar but also IBRD with the IFC, the ADB, UNIDO, ILO and other UN bodies could cooperate with ASEAN on a regional or sub-regional basis, not only in capital assistance but also in technical assistance programmes.

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Ad.6. New Forms of Industrial Cooperation.

The main patterns of industrial cooperation : the ASEAN Industrial Projects and the ASEAN Industrial Complementation and continued scheme should be extended, while new devices and improvements should be made to make them more realistic and workable. Both schemes are aiming at producing typical ASEAN products, either for ASEAN domestic consumption or for exports. The products should be labeled "Made in ASEAN", produced in one ASEAN country like Urea, or forming one single package to produce one single product like the automative Industry Package within the Industrial Complementation scheme.

Besides the 2 schemes, there should be other forms of industrial cooperation.
Such schemes should be based on a multi-product basis instead of one single ASEAN product.

1. The ASEAN multi-product scheme should cover multiple products that are linked or grouped together through cooperative efforts. The range of products is un - limited, each product stands on its own merit, the production capacities are in more then one ASEAN country, they are inter-related because of technology, integrated backward or forward, belonging to one industrial branch according to ISIC but can cross the different branches of industries as well; agribusiness for instance covering the entire range of wood-based industries products in Indonesia, Malaysia, Philippines and Thailand.

2. ASEAN - Export Zones.

   For setting purely export-industries, ASEAN Export Zones should be established with all the physical and administrative facilities which such zones required.
   Such Zones could be set up in any of the 5 ASEAN countries, provided that the country is willing to host such an Export Zone. Within the boundaries of the ASEAN Export Zone, priority should be given to companies of ASEAN member countries to joint the scheme. The industries set up in the ASEAN Export Zone are based on value-added, making use of any kind of technology as long as it has still comparative advantages when combined with other factors of production, such as labour and capital; social overhead and physical infrastructure should be beared by the host country.

Chapter VI : Major Constraints to increased ASEAN Co-operation.

There are a number of constraints that are facing ASEAN in the execution of its aims. Since its inception 14 years ago ASEAN remained predominantly a political forum: as such it is effective and is becoming even more focal, especially facing recently the political problem of Camboja in international forum.
The political will to co-operate is always there; the various meetings at the Ministerial levels are constantly held, proceeded by meetings of Senior Officials and the results of their proceedings are on paper very impressive. But when dealing with the implementation of the resolutions made at the highest levels, the process becomes slow and rather less effective.
What are the major constraints ?

1. Administrative barries : bureaucracy.

   The ASEAN Secretariat recently moved to a new building; administrative and secretariat facilities are sufficient to guarantee a smooth wofking secretariat. The bureaucracy is actually at the national or country level. The national secretariats are facing their own bureaucratic problems dealing with the appropriate authorities in each field of activity. Especially in the field of industrial development, problems are becoming even more complex, since the development of the sector of industry is closely linked to other sectors of activity: legal aspects, financial administrations, physical infrastructural requirements administered by other agencies, trade considerations, social overhead, environmental impact, aspects of transportation & communication; the implementation of the AIP is an example of such bureaucracy. ASEAN Industrial Complementation scheme is another example: despite so much efforts from ASEAN-CCI, the official umbrella in the form of "Basic Agreement on AIC" just recently has been seconded at the Ministerial level. It will take years to implement the specific projects under this scheme.

2. Lack of Actions : lack of concrete plans & projects.

   It takes years to prepare a plan, a programme or a project; many conferences, meetings, seminars, symposiums, workshops are preceeding the decision making process: once the decision has been made, another series of surveys, pre-feasibility studies, feasibility studies, project proposals, appraisal reports, negotiating the financial terms, the setting up of the executing agency, the legal aspects of the company, and the terms and conditions of the basic constract have to be followed. This pre-investment stage takes 10 years for an industrial project, 3 more years to construct the plan and it will be then in operation.

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The entire planning and programming phase needs special attention· it needs a set of procedures, an institutional framwork to speed up the process and especially when coming to the project proposal and appraisal, the process should be accelerated.
Suggested actions are as follows :

a. Setting up a planning & programming committee for industrial development at the ASEAN Secretariat;

b. Setting up a project management unit to deal with specific industrial project following the industrial project cycle, from pre-feasibility studies, to project proposal, negotiating the contract, constructing the plant, until commisioning the factory; at the national level;

c. Establishing links between ASEAN Secretariat with the National Secretariats for the implementation of industrial projects, also with the ASEAN-CCI and the various Industrial Clubs.

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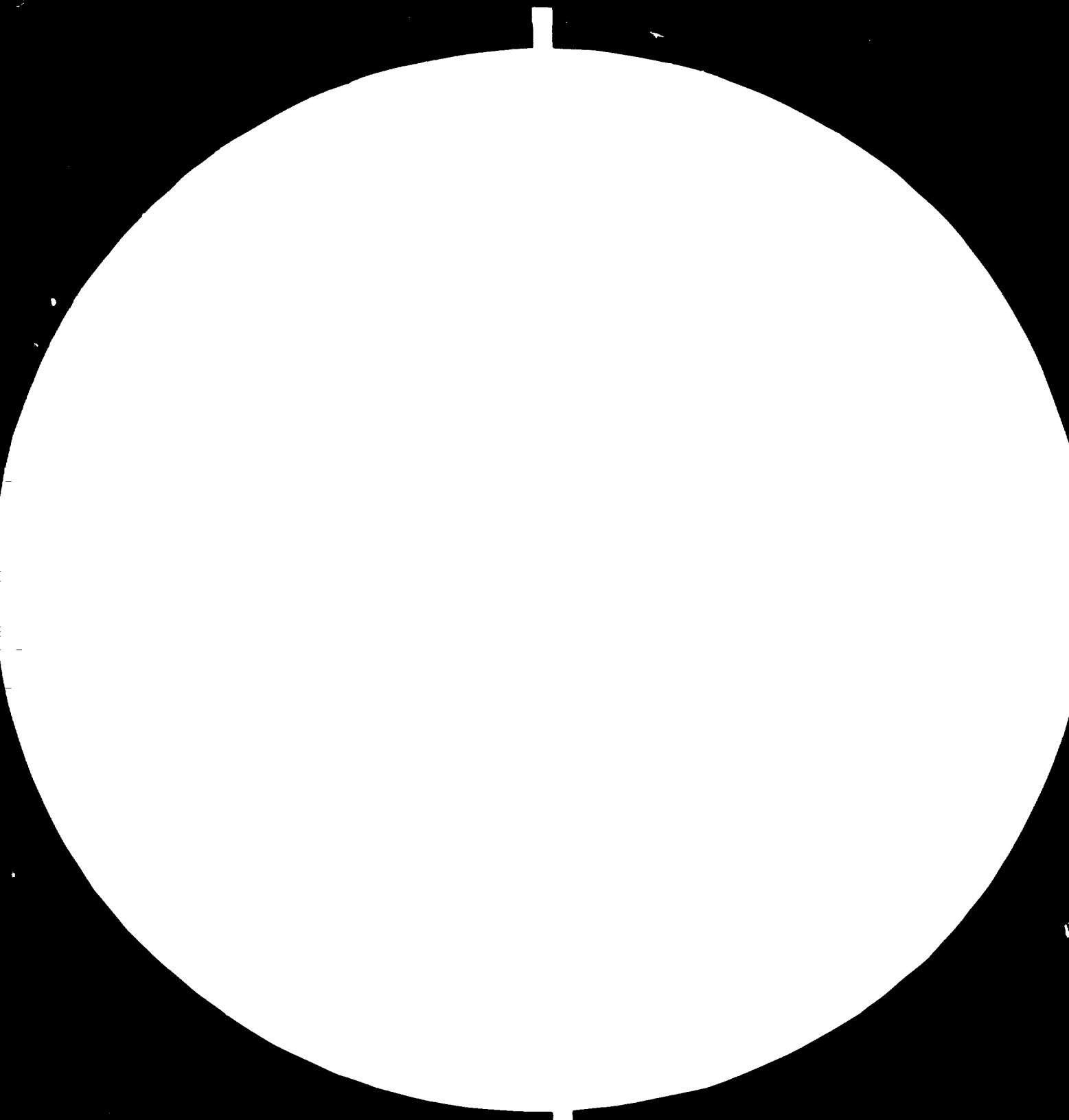

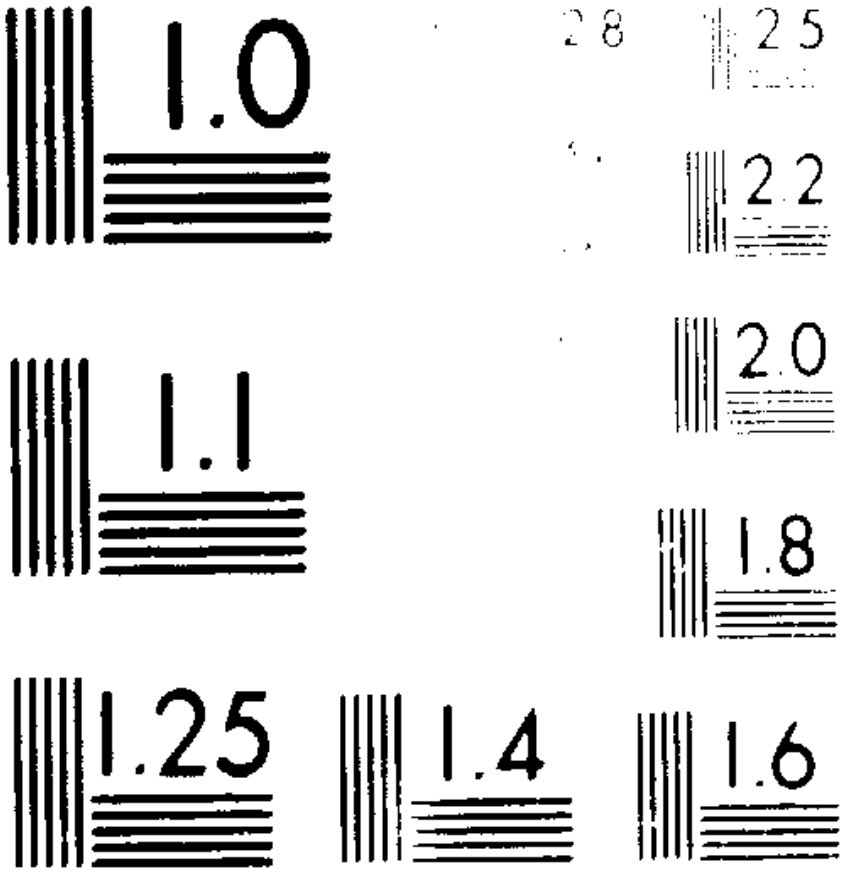
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3. Private Participation : Communication-gap between Govern- and Private Business.

In every ASEAN country there is felt a serious gap between Government Agencies and the Private Business, usually represented by the Chmaber of Commerce & Industry ot through other manufacturer's associations. What have been decided at the official levels, either at the Ministerial level or at the Senior Officials level, filter slowly down to the private sector. In some case representatives of the private business have been invited to participate actively with the official meetings' despite these participations, the relations between Government Agencies and the Private Business needs considerable improvement. In the field of industry, the Government should leave to the private sector to set up factories and industrial plants; but without getting them involved directly, there will always be a serious gap. The following proposals is strengthen Government-Private Business relations are as follows :

a. Closer contact between the ASEAN Secretariat and ASEAN-CCI and the Industrial Clubs.

b. Closer contact between the Government Agencies concerned with Industrial development, and the National Chamber of Commerce & Industry or directly with the various associations of manufacturers; when dealing with matters related to industrial development within the ASEAN context;

c. Joint-consultations between Government and Private Business on specific areas of common interest;

d. More participation of representatives of the Private Sectors in ASEAN officials meetings regarding industrial development;

e. Joint-review on industrial progress on a regular basis;

4. Traditional Links.

Links among private business in the past are important aspects to be considered in fostering relationship among the ASEAN countries in general, among business communities in particular. The colonial links between Indonesia and the Netherlands, between the Philippines and the United States, between Singapore and Malaysia, and the Commonwealth countries are well established business connections; business links between the Chinese community throughout South East Asia, Taiwan and Hong Kong is another strong network to recken with. All those traditional links are becoming real obstacle in establishing new links among ASEAN member countries, or among ASEAN and other countries not belonging to those traditional links.

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Business pressures and changes in the economic conditions of the world, will gradually break down those traditional links; new relationship should be built up within the ASEAN context once the new linkages have been firmly established, while in the meantime the old colonial linkages are breaking down, the way is wide open for an accelerated growth of business relations among the ASEAN countries. At the same time, consumers demand for well established products with well-known trade-marks, should be changed to new demands for ASEAN products and products of new industrial enterprises set up within the ASEAN scope.

Industrial development in the ASEAN regions will come up with new industrial products that should find their outlet first within ASEAN and then to other countries outside ASEAN; such new products should be accepted by the ASEAN markets and its consumers.

5. Lack of Institutions.

In the field of industrial development, there are a number of institutions recently set-up under ASEAN contex to deal with industries, such as the ASEAN-CCI and the ASEAN Industrial Clubs, the ASEAN Financial Corporation that will finance industrial projects, the various ASEAN multi-national Corporations for implementing the AIP's. These institutions are relative new and without real practical experiences in their own field of interest.

If ASEAN is really starting to industrialize at a rapid rate, more institutions are required; especially financial institutions dealing with the financing of industrial project, which should tap the capital from free Euro-, Asia-, or Petro dollars. Besides special industrial finance institutions, ASEAN need institutions working at the planning, programming and project level, institutions that take care of transfer of technology aspects, institutions for research and development suited to the specific conditions of the ASEAN countries, industrial training institutions, industrial consulting institutions, industrial designers, industrial standards institutions, and many more ASEAN sponsored institutions that can support and strengthen existing industrial institutions.

CHAPTER VII : SUMMARY & CONCLUSIONS.

7.01. Starting from the hypothesis underlying the general framework of industrial development in the ASEAN countries as mentioned in chapter II, we may summarize our findings as follows :

- the continuous balance betwee population growth on the one hand and the proper utilization of the natural resources and human resources on the other hand, is highly dependent upon available capital of financial resources both domestic and external; this critical factor ultimately determines whether a resource-gap exists or be closed so as to avoid any offsetting of the balance mentioned above and forms the most important constraint in industrial development of the ASEAN countries.
- one way of developing the natural resources and human resources effectively is through the process of industrialization; taking into account the possibilities of setting up both domestically import-substitution industries and export-oriented industries against an expanding intra-regional and extra-regional trade pattern, as well as a growing domestic market because of higner standards of living and increasing populations within the ASEAN region; industrialization is feasible and therefore recommendable;
- to accelerate the process of industrialization, cooperation among the ASEAN countries is a pre-condition that should be adhered to and pursued seriously by adopting various policy measures and building the required institutions by each of the ASEAN member countries and by ASEAN themselves collectively.
- trade barriers among the ASEAN countries themselves and trade barriers in the countries regarded as the main trading partners should be removed in order to secure a continuous growing market which in turn secures a continuous and growing industrial production by the ASEAN countries.
- one may conclude that under such circumstances, while looking into the future of the ASEAN region, industrialization and cooperation in industrial development among the ASEAN countries is a must and a conditio sine qua non; various scenarios ultimately should lead to one main target of achieving economic growth at a reasonable rate within the region of ASEAN which politically should maintain its stability and its neutrality, and should form an umbrella for a continuous and undisturbed proces of industrialization.

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7.02. The objectives factors determining the pattern of ASEAN, such as the potential natural resources, a large population pattern, the strategic position in this part of the world, should be fully utilized to achieve optimal results from efforts where such objective factors are combined and complimented with external resources, such as capital, technology and market conditions, such efforts towards developing potential resources do not come automatically, but should be pursued as a deliberate step by taking positive policy measures followed by actions in the various fields, especially by promoting the establishment of industrial plants and factories along the line as suggested in this study.

7.03. Priority setting is necessary in view of the constraining factor is financing along programmes of short-run, medium-range or long-term views; the sequential development of various branches of industries should also be considered besides. the integration process and determining economies of scale.
The employment aspect should receive serious consideration since this aspect should cover both impact on direct employment creation in the various related services industries..

Industrial Project.	Annual Output of a Plant of minimum Efficient Size.	Total ASEAN Consumption.			Largest Consumption in one ASEAN Country.		
		1970	1980*)	1990*)	1970	1980*)	1990*)
1	2	3	4	5	6	7	8
1. Soda Ash (10^3 tons)	360	116	310	504	44	104	164
2. Nitrogenous Fertilizers (10^3 tons)	360-400	312	1,067	1,822	120	559	998
3. Phosphatic Fertilizers (10^3 tons)	250-300	130	416	702	37	153	269
4. Newsprint (10^3 tons)	over 500	175	534	893	71	225	379
5. Steel billets (10^3 tons)	2,000-3,000	3,200	7,700	12,200	1,000	2,000	3,000
6. Passenger cars (10^3 units)	500-1,000	108	284	460	34	80	126
7. Small diesel engines (10^3 units)	250- 300	62	225	388	48	90	132
8. Ordinary Sheet Glass (10^3 tons)	over 100	64	157	250	21	47	73
9. Carbon black (10^3 tons)	50-80	25	53	81	8	11	14
10. Typewriters (10^3 tons)	100-200	117	330	543	24	45	66
11. Transformers (10^3 tons)	5-10	28	33	88	11	11	30
12. Power cables (10^3 Al conductor tons)	1-5	9	28	73	4	9	22

*) Estimated values; Sources : ASEAN Cooperation in Industrial Projects. Edited by : Mohamed Ariff, Fong Chan Onn and R.Thillainathan, Malaysian Economic Association in Co-operation with the Institute of Southeast-Asian Studies, Kuala-lumpur (1977), p.17-18.

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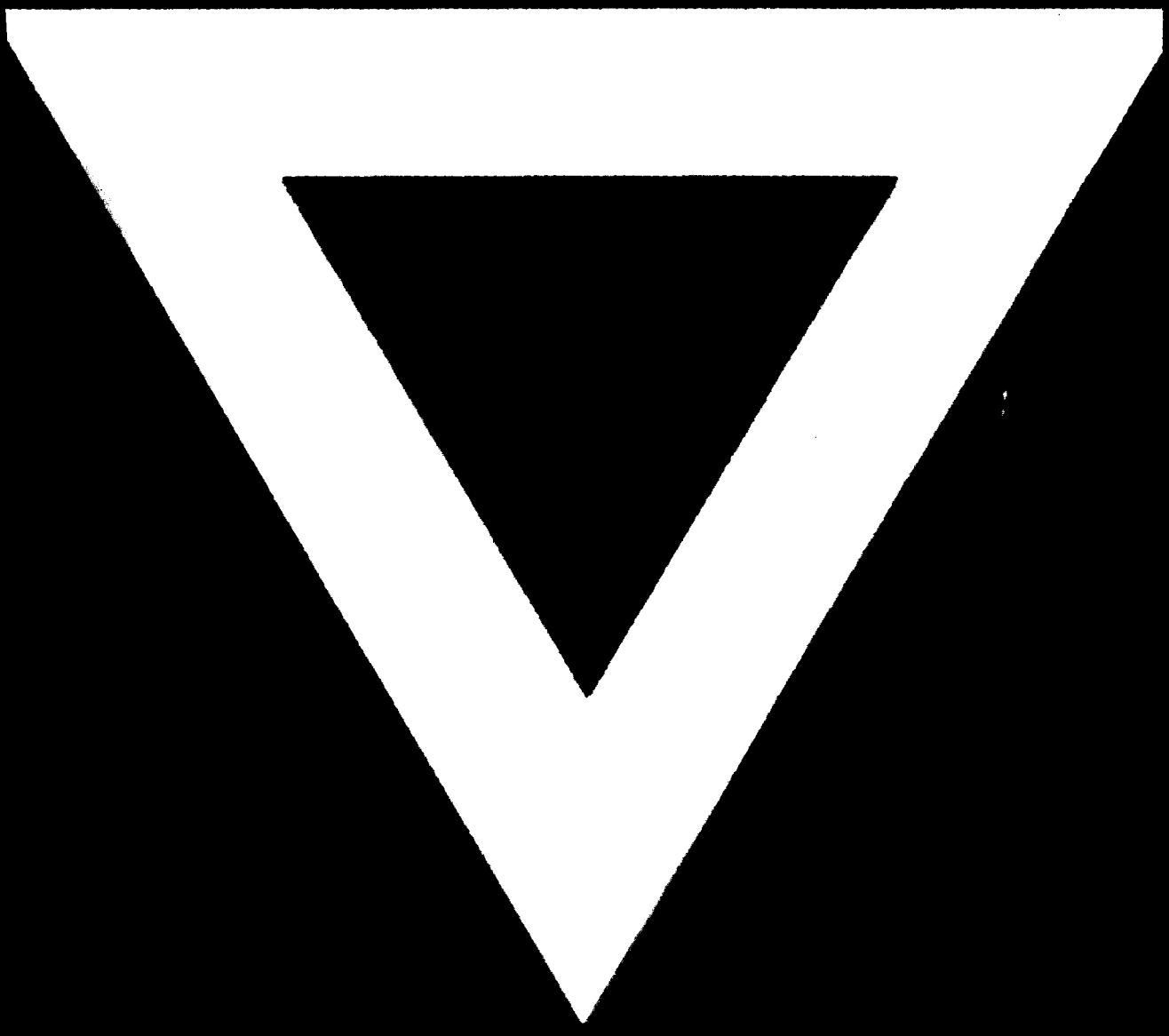

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