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**VISIT TO SOUTHEAST ASIA
OF
U S PRIVATE SECTOR ECONOMIC SURVEY
MISSION**

1-10 APRIL 1973

**SEATAC
KUALA LUMPUR
12 MARCH 1973**

Planned, Organized, and Carried Out
Jointly with the Director and Staff
of the United States Agency for
International Development's (AID)
Southeast Asia Regional Economic
Development (RED) Office, American
Embassy, Bangkok, Thailand. Mission
Members (approx. 55 U.S. business
leaders) Visited Hong Kong,
Philippines, South Vietnam, Khmer
Republic, Laos, Thailand, Singapore
Indonesia, and Malaysia.

F O R E W O R D

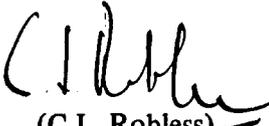
On behalf of the Coordinating Committee of Southeast Asian Senior Officials on Transport and Communications (COORDCOM) and the Southeast Asian Agency for Regional Transport and Communications (SEATAC) I wish to welcome you to the region. In close cooperation with our colleagues in the Regional Economic Development Office (US) in Bangkok, we have attempted to make your short stay as productive and enjoyable as possible.

As you may know, SEATAC is an outgrowth of the Southeast Asian Regional Transport Survey. You have a copy of Book One of this Survey. SEATAC is charged with the responsibility of assisting the countries in the region carry through to completion over 150 projects in the transport sector totalling some \$3-4 billion in cost. The aim of SEATAC is to encourage greater economic integration within Southeast Asia through support of transport investments and policies having benefits and costs diffused over more than one country.

Although SEATAC's prime mission is in the field of transport and communications, the ultimate purpose is to promote economic development among the countries. Creation of a suitable transportation and communications infrastructure will open up economic opportunities, many of which can be most effectively developed by the private sector. We hope your visit will convey something of the enthusiasm we all share regarding Southeast Asia's economic potential and permit you to identify more specifically areas where mutually profitable ventures exist. To assist you in advance we have prepared this statement concerning general and specific opportunities in Southeast Asia.

We hope you will enjoy your visit and I look forward personally to meeting you.

Kuala Lumpur
March 12th 1973


(C.L. Robless)
DIRECTOR - SEATAC

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INVESTMENT OPPORTUNITIES IN SOUTHEAST ASIA

AN OVERVIEW

I. INTRODUCTION: THE INTEREST OF SEATAC

Southeast Asia has significant potential for accelerated economic and social progress. To help develop this potential in the shortest possible time, the countries in the area have embarked on regional economic co-operation in a number of spheres. One of these efforts is in the field of transport and communications.

Recognizing the importance of a cohesive blueprint of action in this field, Southeast Asian Governments requested the Asian Development Bank in 1967 to commission on their behalf a Regional Transport Survey (RTS) which would make recommendations on the manner in which transport development should be planned in the interest of national and regional development. This Survey was undertaken by Arthur D. Little Inc. of Cambridge, Massachusetts under contract to the Asian Development Bank and was completed in October, 1971.

The RTS was considered by the First Ministerial Conference on Transport and Communications in Southeast Asia in May 1972 and three major decisions were made. First, the Conference accepted as broad guidelines for transport planning and investment in the region the massive agenda of action embodied in the RTS. Second, in view of their limited financial and technical resources at this stage in the development of their economies, the Ministerial Conference invited positive international co-operation to supplement their own efforts in the implementation of the investment recommendations of the RTS. Third, the Conference established the Southeast Asian Agency for Regional Transport and Communications Development (SEATAC) as a permanent and professional agency of the Coordinating Committee of Southeast Asian Senior Officials on Transport and Communications (COORDCOM)† to follow-up the recommendations of the RTS;

† Member Governments of COORDCOM comprise Indonesia, Khmer Republic, Laos, Malaysia, Philippines, Singapore, Thailand and Vietnam.

to keep current the analytical framework of the RTS as a basis for identifying high priority projects in transport and communications and in fields related thereto; and to help member countries secure regional and international cooperation in the implementation of such projects.

Taking advantage of their presence in Washington DC to attend TRANSPO 1972, the International Transportation Exposition, Southeast Asian Ministers explored with their counterparts in the US the role which both the public and private sectors could play in assisting with the implementation of the recommendations of the RTS. It is in response to these discussions that this visit of the US Private Sector Economic Survey Mission to Southeast Asia is being arranged.

The direct interest of COORDCOM and SEATAC is, of course, transport and communications development in the region. As, however, our ultimate interest is overall economic and social development and as transport and communications development is inextricably bound up with development in other sectors of the economy, a basic objective of countries in the region with respect to this visit of the US private sector will be to explore as wide a spectrum of opportunities for economic cooperation as can be arranged in the limited time in which the mission will be in the area.

COORDCOM and SEATAC are appreciative of the high level interest shown by the US private sector in this mission and are hopeful that this exploratory visit will lead the way to mutually beneficial economic cooperation between Southeast Asia and the United States.

II. THE ECONOMIC POTENTIAL OF THE REGION

The countries to be visited have for many decades, in some cases, centuries, been designated as economically poor and under developed. While there are rich cultural traditions dating back centuries and enormous cultural diversity among Southeast Asian nations, the focus at the present time is on economic development.

As recently as ten years ago it was widely believed that at best, the nations of Southeast Asia could expect slow and halting growth in the economic sphere. The

region was viewed by many as perpetually mired in low level economic stagnation. Yet the past decade has witnessed a radical transformation. Those Southeast Asian nations not ravaged by war have, in fact, achieved rates of economic growth never hitherto believed possible.

Future prospects appear even brighter. Indeed, for the region as a whole, rather conservative estimates indicate annual average rates of growth of real Gross Domestic Product in excess of 6 percent with manufacturing increasing at an even more rapid pace. If the peace in Indochina is lasting and secure, Laos, the Khmer Republic and South Vietnam appear to have equivalent possibilities for rapid development as their regional neighbors - Thailand, Malaysia, Singapore, Indonesia and the Philippines. In short, the basis for sustainable growth at high rates has already been laid in Southeast Asia. While still poor by North American and European standards, the economic future is one of dynamic expansion. Indeed, of all the presently under-developed regions in the world, Southeast Asia has by far the brightest future. There are several bases for this optimistic view:

- (i) Southeast Asia has an abundance of natural resources for which there is or will shortly be an excess world demand (e.g. tin, copper, nickel, petroleum, timber, iron ore);
- (ii) The agricultural potential of the region is substantial not only because of the so-called "green revolution" but also because of the existence of abundant fertile land as yet untouched, not unlike the American and Canadian West in the 19th century;
- (iii) The existence of a large and growing labour force willing and anxious to work and steadily increasing in skills and abilities ensures high productivity and low unit costs of production which underlies the export-oriented strategy;
- (iv) The emergence of regional economic cooperation in such fields as fisheries development, education, trade promotion, transport and communications and population and family planning with the possibility that such cooperation will also be shortly extended to the

industrial field augurs well for a rational and coordinated development of regional resources and the creation of a large Southeast Asian market;

- (v) The presence of a nearby rapidly growing neighbour, Japan, whose needs for resources coincide closely with the resources available in Southeast Asia, ensures a competitive advantage in a sharply expanding market.

In short, the stage is set in Southeast Asia for even more dramatic progress in the next ten years than in the preceding decade. This is further reinforced by the recent peace agreements in Indochina. The whole of the region can therefore be expected to participate fully in the efforts for economic expansion in the coming years.

However, the realization of these very real possibilities in the economic sphere will require substantial investments in both human and physical capital as well as strenuous efforts to reduce the rate of population growth and maintain a high degree of internal stability. Most of these efforts must and will originate from within the countries themselves. But full realization of the potential will require external assistance in the form of capital transfers (public and private), joint ventures, external credit on reasonable terms and so on. The countries of the region accordingly welcome the interest of the private sector, overseas and domestic, in seeking ways in which it may share in and help realize Southeast Asia's economic potential.

Countries in the region continue to promote private investment through incentives which increase the profitability of investments and through administrative reforms which reduce the cumbersome red tape and delays that would otherwise occur. They continue to assist overseas investors by identifying specific project areas in which private investment would not only contribute substantially to the fulfilment of national needs but also should prove to be highly profitable. In addition public investments continue to be made in areas that will open up economic opportunities for private investment.

In short, both the future potential of the region and the present politics and investments designed to realize it provide a substantial opportunity in a wide variety of areas

for private overseas participation as suppliers of finance or equipment.

The visit of the US Private Sector Economic Survey Mission is to inform you of these opportunities and to invite your participation in the economic development of an area having exceptionally attractive prospects. The following sketches provide more details of several of the major dynamic areas. This will be followed by a selection of specific projects having high priority from the national and/or regional standpoints.

(1) The Dynamic Export Industries

Total exports from the region are expected to rise from \$6.7 billion⁺ in 1970 to over \$14 billion by 1980 (in prices of 1970).⁺⁺ Needed imports will rise to about \$16 billion by 1980 with the fastest growth in capital goods imports as the region develops more and more in the direction of consumer goods self-sufficiency. Underpinning these export prospects is the substantial but as yet under-developed natural resource base. Vegetable oils, rubber, forestry products, metallic minerals and petroleum are the major categories where the world supply and demand situation appears especially favourable from a supplier's viewpoint. Exports to the burgeoning Japanese economy will be especially attractive given Japan's proximity and growing resource requirements. It is estimated for example that Japan's requirements for copper, aluminium, iron and nickel alone will reach more than \$35 billion by 1990, much of which will be supplied by Southeast Asia.

Selected data on volume of exports by major commodity type are shown in Table I.

+ All references are to US dollars unless otherwise specified.

++ The data and projections contained herein are derived from the SOUTHEAST ASIAN REGIONAL TRANSPORT SURVEY, Book One and Book Two, Asian Development Bank, Manila, 1972. These volumes and others to appear, attest to the growing spirit of co-operation and recognized mutuality of interests among the countries of the region.

TABLE I

EXPORT OF SELECTED MAJOR COMMODITIES FROM RTS COUNTRIES*
(000 M.T.)

Commodity	SITC Category	Within Region				Outside Region				Total				Growth of Total 1970-1990
		1970	75	80	90	1970	75	80	90	1970	75	80	90	
Rice	(042)	592	478	340	315	683	1446	2015	2330	1275	1924	2355	2645	107%
Feed Grain	(043)	290	525	525	1085	1410	2475	4975	8915	1700	3000	5500	10000	488
Sugar	(061)	32	42	50	112	1041	1056	1071	1232	1073	1098	1121	1344	25
Coffee, Tea, and Spices	(07)	59	67	73	88	280	334	407	603	339	401	480	691	104
Rubber	(2311)	107	111	119	153	2322	3150	4101	4722	2429	3261	4220	4875	101
Oilseeds, Nuts, and Kernels	(22)	88	21	11	11	647	947	986	986	735	968	997	997	36
Palm Oil	(4222)	30	30	220	300	545	1261	2290	2895	575	1291	2510	3195	456
Coconut Oil	(4223)	0	0	0	0	382	440	540	720	382	440	540	720	88
Logs, Lumber	(24)	1395	1792	2239	2799	14652	14293	13936	11302	16047	16085	16175	14101	-13
Plywood Veneer and Chips	(63)	0	16	23	33	634	1890	3212	4526	634	1906	3235	4559	619
Iron Ore	(281)	0	0	0	0	7200	10700	9500	5500	7200	10700	9500	5500	-24
Copper	(2831)	0	0	0	0	760	3920	5360	7400	760	3920	5360	7400	874
Bauxite	(2833)	0	15	15	10	2000	2985	2985	2990	2000	3000	3000	3000	50
Tin Ore	(2836)	3	3	4	6	16	0	0	0	19	3	4	6	-95
Tin (metal)	(687)	1	1	1	1	101	130	130	152	102	131	131	152	49
Nickel-Ore	(2832)	0	0	0	0	250	500	500	500	250	500	500	500	100
Nickel (metal)	(683)	0	0	0	0	0	38	100	200	0	38	100	200	-
Other Mfg. Goods*	(60)	1065	1440	2325	4340	395	1400	3495	8460	1460	2840	5820	5820	777
Petroleum	(331)	6050	7811	9846	23382	28540	80514	134829	158142	34590	88325	144675	181524	425

* Based on 1970 estimates and "high" projections of the RTS Sector Studies

** "Other Manufactured" here refers to manufactured goods not explicitly referred to elsewhere in the RTS sector studies (See Manufacturing Sector Study, Appendix D, Book Three)

All of these data are based upon rather detailed sector studies which will be made available upon request. Noteworthy in Table I is not only the sharp increases, especially in feed grains, palm oil, plywood (veneer and chips), copper, petroleum and "other" manufactured goods, but also the increasing extent of processing prior to export which will necessitate considerable investments in plant and equipment as well as sharply improved transportation and communication facilities, notably in sea ports.

(2) The Internal Market in an Age of Mass Consumption

The sales potential within the area is substantial. Population and consumption levels in 1970 were 230 million and \$26 billion respectively. By 1980 these are expected to increase to 300 million and \$44 billion respectively and by 1990 the prognosis is for a population of about 400 million and total consumption expenditure of over \$80 billion.

Not only will aggregate consumer purchases rise rapidly but there will be important relative shifts in consumer spending as growth takes place. Consumer durables will constitute an ever increasing proportion of household expenditures. Such items as radios, television, bicycles, refrigerators, motorcycles and automobiles should have extremely high sales potential. Forecasts of automobile purchases alone suggest increased expenditure of almost \$50 billion over the next twenty years.

In short, the region as a whole comprises a consumer market which, in terms of population, exceeds that of North America, Western Europe or the Soviet Union. To be sure, such a market is much smaller in terms of purchasing power but the rate of expansion of incomes and consumption expenditures should be considerably greater than in the already developed nations. It is this prospect that should have greater appeal to overseas investors. Present indications are that private interests from countries such as Japan are acutely aware of the region's potential and have already emerged as substantial participants in the region's development of a mass consumption society.

Some of the region's consumer goods requirements will obviously be imported. But the basic strategy of the region is one of import substitution in the consumer durables, food

and food processing fields. With a few exceptions, the countries are encouraging local production of these commodities in addition to local service industries. This means establishing factories through encouragement of local or foreign entrepreneurs by various forms of tax preferences, especially for industries that use considerable manpower and which facilitate either export expansion or import substitution. There is a long list of so-called "pioneer" industries granted tax and other preferences by many of the countries.

(3) The Prospects for Industrial Growth

Beyond the manufacturing of consumer goods, the countries are emphasizing industrial products such as steel, chemicals, electrical apparatus and supplies. Although the manufacturing sector remains relatively small, it is expected to grow at annual rates varying from 8% in Indonesia to about 11% in Singapore for the next 20 years at least. This will provide enormous scope for highly profitable investments.

True, the productive exploitation of this potential, particularly in respect of the modern science-based industries, will depend to a significant extent on whether the plants to be established are geared to individual markets or to the much wider regional market. If the former is the case, the result will be the emergence of small, inefficient and high-cost industries sheltered by high tariffs and other protection. A significant development for the economic future of the region is thus the increasing attention being given to industrial cooperation with the object of promoting, where it is economically desirable, the establishment of relatively large-scale industries on a multi-national basis. The opportunities for such development are many and the following are good examples: fertilizers, carbon black, the polyester group of man-made fibres, newsprint, soda ash, sheet glass, electrical components, small engines, typewriters and steel. Indeed, they are opportunities not only for the acceleration of industrial growth on a viable basis in the region but also for mutually beneficial collaboration with interests in the more industrialized countries of the world.

(4) The Future of Tourism in Southeast Asia

All of the countries in the region are also counting on a rapid development of the tourist industry. The Southeast Asian Regional Transport Survey projected a steady growth

in tourist receipts from roughly \$180 million in 1969 to over one billion dollars by 1990. International tourist arrivals are projected to grow at annual rates that vary, depending upon the country, from 10 to 16 percent. This will, of course, necessitate improved access by air transport, better airport facilities and customs and immigration procedures as well as hotel accommodation and the like. As you will notice upon arrival, the private sector is already well advanced in providing hotel accommodation. There will also be some opportunities to develop new or expand existing resort areas such as Bali in Indonesia, Penang in Malaysia, Pattaya in Thailand and others. As the region becomes more and more accessible and comfortable for foreign travellers, it should progressively replace other tourist areas of the world both because of its unique cultural attractions and differences and its strategic importance in world social, political and economic development. In blunt terms, this part of the world is "where the action is" which should provide a powerful magnet for tourists especially from North America, Western Europe and Japan.

(5) The Needed Infrastructure

If the prospects noted above are to be realized, they will have to be supported by adequate investment in transportation, communications, education, health and so on. The countries are well aware of this and, in fact, co-operated in the completion of the Southeast Asian Regional Transport Survey which provides a comprehensive economic overview and identifies areas where transport investments would be needed to stimulate or accommodate economic growth. The capital requirements for infrastructure to adequately support developments in other sectors of the economy are substantial and will require larger savings than can be expected to be available regionally. The need for external capital inflows is apparent in the form of both public and private investment.

Indeed total capital requirements for the decade of the 1970s, excluding reconstruction needs in the Indochina states, are on the order of \$75 billion (in 1970 prices) assuming an optimistically favourable capital-output ration. Of this, approximately one third has been estimated as being available from foreign sources, both public and private. There is, in short, a very large market for capital equipment of all sorts as well as ample scope for mutually profitable private investment under favourable economic conditions.

III. PROJECT PRESENTATIONS

Individual projects that could form the basis for discussion between the US Private Sector Economic Survey Mission and the countries to be visited fall into three categories:-

- (i) private sector investment projects in the transport and communications field;
- (ii) private sector investment projects in other sectors of the economy;
- (iii) public sector investment projects in the transport and communications field.

Projects under categories (i) and (ii) are presented with the object of exploring with the Mission the possibilities, if any, for US private investment in these projects. Projects under category (iii) are presented with the object of ascertaining the kinds of services and equipment best available from the US and the financing possibilities involved. In all cases, it is hoped in the discussions that will take place in each Southeast Asian capital that every endeavour will be made to identify innovative ways of US/Southeast Asian co-operation in the economic development of the region.

Potential private-sector type investment projects identified by the RTS are contained in Appendix 1. Projects specifically selected by COORDCOM countries for discussion with the Mission are in Appendices 2-9.

IV. CONCLUSION: SUGGESTED OBJECTIVES OF THE MISSION

In each of the countries to be visited, Government officials will provide a complete briefing of the current economic position and prospects in each of their countries; discuss the opportunities for investment as they see them in the major sectors of their economies; and explain the role which projects presented in Appendices 1 to 9 will play in the development of their countries.

It is hoped that during these discussions active interaction will ensure between Southeast Asian Governments on the one hand and members of the US Private Sector Economic Survey Mission on the other hand and that it will result in:-

1. better appreciation by the US private sector of the tremendous potential for economic development in Southeast Asia, especially as peace returns to Vietnam, Laos and the Khmer Republic;
2. identification of investment opportunities in which collaboration between Southeast Asia and the United States will prove to be of mutual benefit;
3. identification of innovative ways in which the US could assist in the planning and implementation of public sector projects in Southeast Asia; and
4. formulation of an action programme to enable the discussions on the above between Southeast Asian Governments and the US Private Sector Economic Survey Mission to be followed-up effectively.

APPENDIX I

Summary

SUMMARY OF RTS IDENTIFIED INVESTMENT PROJECTS

1. FORESTRY

Forestry Development - Investment in Large Scale Mechanized (LSM) Logging Operations

2. FISHERIES

Development of the Shrimp Industry
Development of the Tuna Industry
Operation of Public or Private Fish Carriers
Development of the Fishing Industry in Southeast Asia
Culture of Mollusks
Fisheries Loan Fund

3. MANUFACTURING

Increased Investment in the Manufacturing Sector

4. TOURISM

Development of Tourism in RTS Countries

5. OCEAN TRANSPORT

Short Range Marine Navigational Aids
Long Range Marine Navigational Aids
Shipbuilding, Maintenance and Repair
Specialized Log and Lumber Carriers
Specialized Parcel Tankers
Investment in Bulk Carriers
Investment in Petroleum Tankers
Investment in a Container Ship
Ship Charter Exchanges

6. AIR TRANSPORT

Investment in Air Operations Support Facilities
Establishment of a Flight Inspection Service (FIS)
Regional Air Transport Training

1. Name of Project: Forestry Development - Investment in Large Scale Mechanized (LSM) Logging Operations
2. RTS Identified Location: Indonesia (Kalimantan, Sulawesi, West Irian, Moluccas, Philippines (Mindanao, Luzon) and Malaysia (West Malaysia, Sabah, Sarawak)
3. Objective: To encourage investment in LSM logging so that forest products can be of recognized standard of quality and produced in a consistently large volume of output that can be dealt with as a bulk commodity and transported in economic-size units, to compete in the international market.
4. Brief Explanation of Operation: Logging practices in the region vary from the primitive hand-logging methods used in many areas of Indonesia to modern LSM logging in some parts of the Philippines. With hand-logging, the pace is slow, largest trees are often left because they are too difficult to handle, and if favourable high-water conditions fail to develop at critical times, some logs are stranded and cannot be recovered because of insect and fungus attacks which cause rapid deterioration of quality. Coupled with the long transit time from cutting until delivery to a shipping point, cracks and splits often develop and the resulting product commands a low price. To be fully competitive, LSM logging must be utilized to an increasing extent than at present.
5. Investment Required: Considerable capital is required to mount and maintain a LSM logging enterprise - an estimated \$5 million total investment to produce 240,000 m³ per year.

6. Expected Returns:

The RTS has developed a model of a LSM logging operation.

Assuming that logging operations in an area with favourable conditions for development like the Kalimantan and Suiawesi Dipterocarp Forest will be about 85 per cent as efficient as the model, the margin for profit, risk and income tax is estimated at \$11.70 per m³ or about 76 per cent of the production cost of \$15.30 per m³.

With a less favourable situation like the Sumatra Dipterocarp Forest area, if efficiency is assumed at 80 per cent of the model, the margin for profit, risk and income taxes is estimated at \$8.50 per m³ or 52 per cent of production cost of \$16.25 per m³.

The area which can be logged economically depends on the terrain, stand density, wood quality, and desired financial return. For the regions under consideration, this might encompass an area reaching 100 to 250 kilometers from the shipping point.

1. Name of Project: Development of the Shrimp Industry
2. RTS Identified Location: East Coast of Kalimantan, South Coast of West Irian, Southeast Coast of Sumatra and scattered bay areas in the Philippines.
3. Project Sponsor: Government of the Republic of Indonesia or Government of the Republic of Philippines
4. Objective: To encourage private investment develop the shrimp industry in lightly exploited areas of large shrimp potential.
5. Brief Explanation of Operation: Around 20 ships is the minimum number needed to support on-shore processing and freezing facilities. This operation would produce from 1,000 to 1,500 tons of heads-off shrimp per year. Each boat would have a crew of 5 plus supporting shore personnel and local labor to run the processing facilities.
6. Investment Required: Approximately \$2.5 million in direct investment would be needed for a 20-boat shrimp operation, plus some infrastructure backup required by the country in which the operation is located. A franchise or licence system might be developed that would permit foreign companies to operate within a specific fishery area for a given number of years, subject to a variable licence fee.
7. Expected Returns: Such an operation working in South-east Asia could expect to gross a minimum of \$4 million annually and might, if established on a licence basis, contribute between \$300,000 and \$500,000 to the country or area in which it fishes. As many as

30 to 50 operations of this size would be possible given the resource of shrimp in the region, world demand and the current production of the area. Thus, if all these operations were started, gross earnings might eventually reach around \$160 million a year.

1. Name of Project: Development of the Tuna Industry
2. RTS Identified Location: The territorial waters of Indonesia and the Philippines
3. Project Sponsor: Government of the Republic of Indonesia or Government of the Republic of the Philippines
4. Objectives: To attract private investment take advantage of the relatively unexploited tuna resources in the territorial waters.
5. Brief Explanation of Operations: A tuna operation, whether long-line or surface fishing, is very sophisticated. Heavy equipment, boats of 300 to 500 tons and fairly expensive shore facilities with considerable deep-freezing capacity are required. To get maximum benefit from tuna resources, a modern tuna catching operation should be set up fairly soon. Operations appear to be feasible today, particularly if a regional joint venture could be worked out that would permit boats to operate in both Indonesian and Philippine territorial waters.
6. Investment Required: A minimum operation for Indonesian/Philippine waters, with 10 catching vessels and a shore base with cold storage would involve an investment of at least \$5 million plus considerable infrastructure within the shore base country. A foreign company could provide the know-how, management and capital and local partners and the government would provide access to fishing grounds, some capital and a sizable part of labor. Some capital for a venture of this type might well come from public sources of financing.

7. **Expected Returns:**

Annual gross from an operation of this type should be between \$5 million and \$7 million. The existing successful operation in Penang, which is a joint venture between Malaysia and Japan, is probably the best way to proceed in a complex, highly sophisticated enterprise of this sort.

1. Name of Project: Operation of public or private Fish Carriers
2. RTS Identified Location: Thailand-Singapore, Kalimantan-Jakarta and Singapore
3. Project Sponsor: Governments of Thailand, Singapore and Indonesia
4. Objective: The operation of public or private fish carriers would appear to be justifiable because of the considerable price differential between the point of catch and the major markets. If such carriers could have the right to service markets in more than one country, it would be possible to improve the earnings of local fishermen as well as produce profits for the fish carriers.
5. Brief Explanation of Operation: Some examples of situations where fish carriers might provide useful and profitable service include:
 - a. moving fish caught in Southern Thailand directly to Malaysian/Singapore ports rather than exporting overland through Malaysia. Land shipments are now estimated at more than 10,000 tons annually and should increase to 20,000 tons by 1980.
 - b. moving surplus inland fish catch from east and southeast Kalimantan to Jakarta and Singapore. Local surpluses are estimated to amount to 30,000 tons annually or more. Market prices for various fresh-water fish species are almost twice in Jakarta what they are in Kalimantan.

- c. moving cheap mackerel caught off southwest Kalimantan to Jakarta, with the option of market in Singapore if prices are better. Mackerel prices are estimated to be less than 20 cents per kilogram in Kalimantan compared with 40 cents per kilogram wholesale in the Jakarta markets. Singapore prices are somewhat higher.
- d. moving a variety of fish species from east and west Java to Jakarta markets, based on very substantial price differentials between the catch points and the major markets.

6. Investment Required:

Investment in boats would be minimal - \$100,000 to \$200,000 per boat - but shore facilities might be more expensive, particularly shore-based ice plants. Because shore facilities for loading and ice would probably be needed and because controls might be required if the boats were operating in more than one country, investments of this type might best be considered by the public sector, perhaps in combination with private capital.

7. Expected Returns:

Has to be worked out. Returns will vary, depending on the particular situation and movement.

1. Name of Project: Development of the Fishing Industry in Southeast Asia
2. RTS Identified Location: RTS countries, especially Indonesia, Philippines, Thailand and Malaysia
3. Project Sponsor: Governments of RTS countries
4. Objective: To expand the fishing industry in Southeast Asia at least two and one half times its current size in the next 20 years, and to provide the needed animal protein for the growing population of the region. To do this, the industry must shift from coastal to off-shore and deep-sea fishing which will require massive new capital investment.
5. Brief Explanation of Operation: Resources necessary for the required catch are unevenly distributed among the various countries in the region. Much of the fish resources exist near Indonesia but that country is one of the lowest in per capita GNP, capital reserves and skill levels in the fishing sector. Singapore, which has well-developed fishing facilities and ample capital, has no real access to fish resources. Thailand and the Philippines which relatively well-developed fishing industries and some access to capital will each be one million tons below their production demands because they lack fish resources. Thus, a program that would help solve the financial problems while at the same time assist in the balanced development of fisheries in other RTS countries is necessary.

6. Investment Required:

New capital investment in boats, harbors, inland pond development and processing facilities is estimated at \$2.2 billion. In addition to direct investment, considerable technical assistance is needed to train fishermen in seamanship and modern technology.

7. Expected Benefits:

A program of this type could represent a highly viable as well as practical contribution both to economic development and to the growth of regionalism.

1. Name of Project: Culture of Mollusks
2. RTS Identified Location: RTS countries
3. Objective: To cultivate mollusks, applying modern culture methods.
4. Brief Explanation of Operations:

The entire RTS region is rich in mollusk resources all along its shores and in the Philippines, Malaysia and Thailand. Several thousand tons are already landed each year. High coastal water temperatures, tidal currents and a rich planktonic development constitute ideal conditions for the growth of these species through the conversion of the high primary productivity of coastal waters into protein food.

None of the Southeast Asian countries has yet applied modern methods to the culture of mollusks. Activity has been limited merely to collecting mollusks from their natural environment.
5. Investment Required: Not given.
6. Expected Returns: Market demand for mollusks in Southeast Asia in the past was not significant. In the next few decades the demand for more high protein food will increase and mollusk production may eventually reach three million tons even by conservative estimates.

1. Name of Project: Fisheries Loan Fund
2. RTS Identified Location: Indonesia
3. Objective: Providing loans to Indonesian fishermen for new modern boats and equipment and for mechanizing existing craft.
4. Brief Explanation of Operation:

With active cooperation of the Indonesian Government, establish a loan fund, supported by the technical assistance team and a loan administrative committee from the ADB. Simultaneously and as a pre-condition to granting the loan, secure the agreement and cooperation of the Indonesian Government to open its waters for foreign fishing on a license and franchise basis, with license income to be administered by the loan administrative committee as credits to the local fishery cooperatives under which the fishermen will be operating. License income can then be used to guarantee individual loans based on recommendations from the local fishery cooperatives. The fees could later be used as a source of loans and possibly for funding technical assistance program.

Foreign licensees should be required to buy an increasing percentage of their catch from the local fishery and to make investments with or transfer investments to Indonesian nationals. They might also be required to employ some local fishermen on their boats to provide on-the-job training. As the industry develops in various localities,

loans for freezing plants and other related industries would be made against the developing business. Such loans might eventually extend to harbor projects. Technical assistance could also be provided (partly funded out of license income) in the various localities where loans are being made to train fishermen in modern technology, seamanship, engine maintenance and related fields.

5. Investment Required:

Not given

6. Expected Returns:

A program of this type would represent a highly viable as well as practical contribution both to economic development and the growth of regionalism.

1. Name of Project: Increased Investment in the Manufacturing Sector
2. RTS Identified Location: All RTS countries
3. Objective: To maintain or increase the rates of growth in manufacturing in RTS countries, considering growth prospects in domestic and overseas markets for RTS manufactures and some possibility for further import substitution.
4. Brief Explanation of Operation:

The manufacturing sector has been defined as the entire field of activity which converts primary outputs of agriculture, pastoral, hunting, fishing and mining industries into new physical forms. The sector includes an extremely wide range of products and processes. 19 subdivisions of manufacturing industry were examined by the RTS, which makes observations of the past and previous scope of the industry, its growth potential and factors which may influence it over the next 20 years.

It appears that the following classes of industry will grow fastest in the 1970-1990 period: rubber products, chemicals, base metals, metal products, machinery and transport equipment. The slower growing industries may be food-processing, beverages, tobacco and leather.
5. Investment Required: The size of investments needed will vary widely. The rate of capital formation in RTS countries generally is lower than that required for rapid self-sustaining growth without heavy imports of resources.

Restricted participation of local investment in manufacturing is one reason why foreign investment has played so large a role. Another reason is the need to employ advanced technology which is often only obtainable abroad. As growth proceeds in the future, the rate of domestic capital formation will tend to increase as income in excess of current needs accrues to a larger proportion of the population.

6. Expected Benefits:

Some of the many benefits the RTS countries expect to achieve through industrialization include lifting the low standard of living of the mass of their population, increasing and widening support for their administration, strengthening their capacities for maintaining internal security and external defense, alleviating their nagging balance of payment problems and attracting more long-term international capital, both official and private, for further development.

Expansion of the industrial base is seen as a particularly good way to directly increase employment and incomes, improve the skill level of the population, induce expansion in other sectors, break down traditions which may be barriers to growth in output and primarily through foreign investment, build up capital and managerial resources.

1. Name of Project: Development of Tourism in RTS Countries
2. RTS Identified Location: All RTS countries
3. Objective: To encourage the growth of tourism in RTS countries by ensuring proper development of tourist attractions and provision of adequate hotels, restaurants and other tourist facilities
4. Brief Explanation of Operation: International tourist arrivals in RTS countries are projected to grow from 1.14 million in 1969 to 4.40 million in 1980 and 12.04 million in 1990. The most important stream of tourist traffic consists of individuals who visit the RTS Region to see as many places of interest as they can within the time available. Many move as part of an organized group and the greatest growth rates will be found in this type of traffic. Investment in tourism therefore will be of greatest economic benefit if it is made in facilities which cater to the majority demand.

Investment should go to locations which are already known to have effective tourist locations and which have sufficient impact to generate sales. Projects should be based on the views and preferences of the international travel market and not on purely local ideas of attraction. RTS countries' authorities should lay down vigorous standards controlling the aesthetic appeal of tourist development.

Provided that certain minimum standards are observed, a more modest type of hotel is likely to be more appropriate in the future. Luxury hotels will inevitably result in high rates which may be beyond the means of the majority of future tourists.

5. Investment Required:

The major elements of total capital requirements for tourism development are infrastructure improvements and construction of hotels, restaurants and other tourist facilities. Infrastructure improvement costs are difficult to quantify, since it is hard to allocate such costs between the tourist and local communities. An investment of some \$575 million in hotel construction over the next two decades will be necessary to sustain the projected tourism growth rates.

6. Expected Benefits:

The RTS countries' gross foreign exchange receipts from tourism in 1969 were estimated at \$182.3 million. Projected tourist receipts are \$465.2 million in 1980 and 1166.2 million in 1990.

The economic impact of tourist receipts in terms of foreign exchange earnings, employment and income is substantial - as much as 10 per cent of the earnings from commodity exports in Thailand in 1969 and as indirect employers of labor, tourists provide employment for many workers in hotels, restaurants, shops, tourist and transportation agencies and other establishments.

1. Name of Project: Short Range Marine Navigational Aids.
2. RTS Identified Location: RTS Region (Philippines, Thailand, Malaysia, Indonesia, Singapore)
3. Project Sponsor: The Governments of the above countries, with development and coordination possibly through COORDCOM/SEATAC.
4. Objective: Marine nav aids must be improved and new aids installed to meet acceptable international standards and to provide for the safe smooth flow of marine traffic. An integrated approach is desirable with development and evaluation possibly through COORDCOM/SEATAC.
5. Brief Explanation of Operation: Since good weather prevails most of the time in the RTS region, visual and radar-assisted navigation will continue to be the most important means of navigation in confined fairways, passages and near prominent headlands. Well placed lights with a useful range of 15 to 25 miles and radar reflectors and racons useful to a maximum line-of-sight range of about 60 miles, would assist navigation considerably.
6. Investment Required: Varying types (e.g. lighted buoy, unattended light, manned light, day beacon, racon) and quantities required. Institutional agencies and/or international or regional groups will require some guide for evaluating the costs of the proposed new nav aids and their support facilities and operating personnel before any estimate of total program costs can be assessed.

6. Expected Benefits:

Investing countries will be able to meet the desired standards of reliability to assure the continuous safe passage of shipping and also fulfill their domestic and international obligations. Careful detailed planning and early establishment of priorities will help focus resources toward a more productive solution to marine navigational problems.

1. Name of Project Long Range Marine Navigational Aids
2. RTS Identified Location: RTS Region (Singapore, Indonesia, Malaysia)
3. Project Sponsor: The Governments of the above countries, with development and coordination possibly through COORDCOM/SEATAC
4. Objectives: Marine nav aids must be improved and new aids installed to meet acceptable international standards and to provide for the safe smooth flow of maritime traffic. An integrated approach is desirable with development and coordination possibly through COORDCOM/SEATAC.
5. Brief Explanation of Operation: Long-range high seas navigation systems are those that operate remote from land masses where visual reference to land or other fixed or floating aids are not practical and where shallow water hazards are minimised. Such systems are considered to have consistent position fixing capacity beyond 300 nautical miles (nm).
6. Investment Required:
 - OMEGA \$30 to \$50 million total installed cost \$1.5 to \$2.0 million total operating cost
 - LORAN C \$5 to \$7 million total installed cost \$0.5 to \$0.7 million total operating cost
 - DECCA \$1.6 million total installed cost \$0.16 million operating cost

7. Expected Benefits:

The danger of oil pollution caused by tanker collision on grounding in major shipping channels in the region can be greatly diminished. Safe flow of marine traffic, especially large cargo and container vessels, can also be ensured.

1. Name of Project: Shipbuilding, Maintenance and Repair
2. RTS Identified Location: There are 18 localities in the RTS region capable of drydocking and slipping vessels of at least 500 GRT for repair and maintenance work. Every maritime nation in the region could be regarded as either possessing now or having the potential for a shipbuilding industry during the period 1970-1990.
3. Objective: In view of the substantial present demands and high potential growth for ship maintenance and repair, both of regional and non-regional carriers plying or passing through and to expand the shipbuilding industry of the region, investment opportunities are available for the establishment and expansion of drydocking and slipping facilities in the region.
4. Brief Explanation of Operation: At present, it is estimated that less than 5 percent of the more than 700 vessels over 500 GRT in the RTS fleet were built in regional shipyards and that the region's yearly maintenance and repair bill is approximately \$50 million. In addition, the maintenance and repair bill for non-regional carriers which ply in or pass through the region is an additional \$250 million. By 1990 the size of the fleet serving the domestic and international trade of the region could amount to over 60 million DWT, new construction for replacement and growth of the fleet could be running at 7 million DWT per annum (\$1.75 billion) and tonnage maintained and repaired at \$600 million.

There is also one important case where several vessels can be built to one design thereby yielding appreciable economies of scale. The Regional Transport Survey (RTS) has designed four standard-design vessels, which would seem to adequately provide for the future needs of RTS area general cargo shipping.

5. Investment Required:

The shipbuilding industry of the region is likely to expand in Singapore and to establish itself elsewhere in the region in the 1970-1990 period. The actual course of development will depend heavily on government attitudes. Costs of local construction can be lowered and the size of the industry increased if a regionally-integrated shipbuilding and repair program could be developed. (With low wage costs, developing countries could be expected to enter the shipbuilding industry in the 5,000 - 20,000 DWT general cargo and bulk carrier field.) The size of investment required in this activity is dependent on a number of variable factors. Further and detailed study is warranted in this promising field and a full feasibility study of regional cooperation in shipbuilding sponsored by COORDCOM/SEATAC is desirable.

6. Expected Returns:

Cannot be readily quantified but are expected to be substantial in view of the region's rate of expansion tonnage and of increasing maintenance and repair activities.

1. Name of Project: Specialized Log and Lumber Carriers
2. RTS Identified Location: Indonesia, Malaysia, the Philippines, Singapore
3. Objective: To increase regional participation and to enable regional interests to enter more fully into the use of specialized log and lumber carriers in a trade that will remain important at least through the next two decades. Coordination of acquisition and standardization of ship types is desirable possibly under the auspices of COORDCOM/SEATAC.
4. Brief Explanation of Operation: The amount of logs and lumber expected to be exported from the region suggests that fruitful employment for log/lumber carriers can be found on routes between Northeast Asia and Kalimantan, Sabah, West Malaysia, Singapore and the Philippines. Sufficient cargo exists for the employment of over 1.5 million DWT, equivalent to 150 ships of 10,000 DWT each employed all year in the trade.
5. Investment Required: Investment in four sizes of ships - 6,000, 10,000, 15,000 and 20,000 DWT - were examined by the RTS. The estimated capital cost for the respective sizes was \$1.82, \$2.52, \$3.40 and \$4.30 million for each ship. In addition, annual operating costs were estimated (in thousand \$) at 370, 487, 566, 634 respectively per ship.

Assuming that 10 percent of the trade in 1980 is to be carried by specialized log and lumber carriers, 13 vessels of 15,000 DWT would be

required with a total capital investment of \$44.2 million. If 40 per cent of the trade in 1980 is considered, 53 specialized carriers of 15,000 DWT with a total capital investment of \$180.2 million would be needed.

6. Expected Returns:

Using the net present value technique and based on a freight rate of approximately the charter rate on similar DWT for bulk carriers, the RTS analysis shows that the operation of log/lumber carrier breaks even at around 10,000 DWT, assuming an opportunity cost of capital of 8 percent. By increasing the size from the current standard of 6,000 DWT, a significantly lower freight rate can be achieved, as seen by the shadow freight rate.

Using the shadow freight rate, the foreign exchange benefits were analyzed and subjected to a net present value exercise for the 15,000 DWT vessel. In terms of foreign exchange benefits, the net present value of earnings minus expenditure was \$1.5 million.

1. **Name of Project:** Specialized Parcel Tankers
2. **RTS Identified Location:** Malaysia, Indonesia, Philippines, Thailand
3. **Objective:** To encourage regional interests to move further into the shipping of the region's liquid bulk export products, such as palm oil, coconut oil, rubber latex and molasses, through expansion of the operation of parcel tankers. Coordination of acquisition and standardization of ship types is desirable possibly under the auspices of COORDCOM/SEATAC.
4. **Brief Explanation of Operations:** At the present time liquid bulk exports from the region move mainly in the deep tanks of liner vessels. A considerable increase in regional exports of palm oil and significant movements of coconut oil, molasses and latex in bulk is projected (from 1.77 million metric tons in 1970 to 3.50 million metric tons in 1980). The introduction of special carriers designed to carry parcels of liquid bulk would provide significant contributions of foreign exchange earnings and could do so at a lower freight rate than is presently charged by liners for carriage in deep tanks.
5. **Investment Required:** Three sizes of parcel tankers were considered by the RTS (10,000, 15,000 and 20,000 DWT). Estimated capital cost for the respective sizes was \$2.75, \$3.38 and \$4.50 million while annual operating cost per tanker (in thousand \$) was 644, 695 and 874 respectively.

Assuming that 10 percent of the trade in 1980 is to be carried by parcel tankers, 3 vessels of 15,000 DWT would be required with a total capital investment of \$10.1 million. If 40 percent of the trade in 1980 is considered, 12 parcel tankers of 15,000 DWT with a total capital investment of \$40.6 million would be needed.

6. Expected Returns:

Commercial and foreign exchange analyses were carried out on a net present value basis by the RTS for the different size vessels. For a 15,000 DWT parcel tanker, the net present value of total foreign exchange benefits minus costs was \$1.6 million, and the internal rate of return 16.79 percent.

1. Name of Project: Investment in Bulk Carriers
2. RTS Identified Location: Thailand, Indonesia, Philippines, Malaysia, Singapore, Vietnam
3. Objective: To encourage regional shipping interests to explore the opportunity of expansion by acquiring and operating bulk carriers. Coordination of acquisition and standardisation of ship types is desirable possibly under the auspices of COORDCOM/SEATAC.
4. Brief Explanation of Operations: The export of bulk commodities including rice, maize, ores and sugar is projected to grow from 13.4 million metric tons in 1970 to 23.4 million metric tons in 1980. The precursor of the dry bulk carrier was the conventional tramp ship, but tramps are being gradually replaced as more and more commodities are moving in quantities large enough to be shipped in bulk. To handle bulk commodities economically, bulk carriers are normally at least 10,000 DWT, are single-deck, have large holds squared off to allow ease of mechanical loading and unloading and usually lack their own cargo handling gear.
5. Investment Required: Three sizes of bulk carriers were examined by the RTS (15,000, 30,000 and 50,000 DWT). Estimated capital cost for the respective sizes were \$3.38, \$6.30 and \$10.00 million per ship. In addition, annual operating cost was estimated (in thousand \$) at 621, 928 and 1,187 respectively.

Assuming that 10 percent of the regional trade in 1980 is to be carried by bulk carriers, 5 vessels of 30,000 DWT would be required, involving a total capital investment of \$31.5 million. If 40 percent of the regional trade in 1980 is considered, 22 bulk carriers of 30,000 DWT involving a total capital investment of \$138.6 million would be needed.

6. Expected Returns:

Using the net present value technique, commercial and foreign exchange analyses were carried out by the RTS. For a 30,000 DWT bulk carrier, the net present value of the project in foreign exchange is calculated to be \$3.3 million and the internal rate of return 14.47 percent.

1. Name of Project: Investment in Petroleum Tankers
2. RTS Identified Location: For operation either on the spot market or for a long-term charter to one of the major oil companies.

Objective:

Regional investment in petroleum tankers might be considered by some parties because of their interest in controlling the distribution of their crude oil exports. Investment might also be considered from the standpoint of pure investment since there are the opportunities for extraordinary profits in this field. Coordination of acquisition and standardization of ship types is desirable possibly under the auspices of COORDCOM/SEATAC.

4. Brief Explanation of Operation:

Demand for oil tanker tonnage can come from the major oil companies (which are of great significance to RTS countries), from smaller independent petroleum firms and from governments. The tankers required to supply these demands come from three sources. The major oil companies own and operate about 40 percent of the world's petroleum tankers, thus satisfying part of their own demands. Private shipping carriers own approximately an additional 45 percent of the world's petroleum tankers which are then placed on long-term hire to the oil companies. The remaining tanker tonnage is owned by independent firms but placed on the spot market for charter for single voyages or for a series of voyages. These vessels can earn a great deal more money than those under long-term hire during period when the demand for their services is particularly great, but do not have the security of a long-term hire during depressed periods.

5. Investment Required:

Tankers of 50,000 100,000 and 150,000 DWT were examined by the RTS. The estimated acquisition costs were \$10.75, \$16.00 and \$21.00 million respectively. Operating costs of these tankers were estimated at \$1.58, \$2.20 and \$2.55 million respectively.

6. Expected Returns:

The RTS commercial analysis indicates the attractiveness of the investment in petroleum tankers. At an opportunity cost of capital of 8 percent, it is shown that the break-even freight rate falls considerably (from \$4.82 to \$3.08) with a vessel of 150,000 DWT as opposed to a vessel of 50,000 DWT. The estimated internal rate of return for a 150,000 DWT tanker is 23.85 percent.

1. **Name of Project:** Investment in a Container Ship.
2. **RTS Identified Location:** For operation in international trade with a major container consortia.

Objective: To gain an insight of container ship operations and, in the long-run, to protect the trading and shipping interests of the region.

4. **Brief Explanation of Operation:**

The rapidly increasing growth of international trade is leading toward major changes in ship design with the emphasis on larger, faster and more efficient ships. Nothing shows this more clearly than the changes taking place in the liner trade, where the unitization concept has taken the form of container ships and barge carriers. These ship types are likely to take over much of the trade traditionally carried by conventional break-bulk general cargo carriers.

For the region to gain insights that would enable local shippers to negotiate more effectively with container consortia or conferences, it is reasonable to propose that the region should eventually participate in container shipping by joining one of the major container consortia. As a minimum commitment, the region would probably have to acquire a container ship.
5. **Investment Required:** The cost of a single full container ship plus containers is estimated at between \$20 to \$25 million. For a 25,000 DWT container vessel, an annual operating cost of about \$3.78 million will be incurred.

6. Expected Returns:

Investment in a container ship, as shown in the RTS analysis, could be viable from a commercial point of view. There is also a net benefit from a foreign exchange point of view. If foreign exchange is used as a criterion in determining the potential national benefits on container operations, the RTS results suggest that they are in the national interest.

1. Name of Project: Ship Charter Exchanges
2. RTS Identified Location: Philippines, Singapore, Malaysia, Thailand and Indonesia.
3. Brief Explanation of Operation: To establish national charter exchanges, working with a regional exchange, to keep postings on cargoes and ships available through information coming from shippers' councils and shipowners.

The world's major chartering centres in London, New York and major European capitals have developed sophisticated information systems and a considerable research capability which enable them to maintain up-to-date knowledge of developments in the ship charter markets of the world. It would be unduly costly and difficult for any one RTS country to develop the information and research capability necessary to operate an efficient exchange on a world-wide basis. A significant role, however, may be played by national charter exchanges, with the Singapore exchange acting as a regional clearing house for information on ships and cargoes and for arranging the carriage of regional cargoes in ships of other countries of the region, should no national ship be available.

The exchanges need only a small permanent staff and could be controlled by a board composed of major shippers and shipowners of each country. Government support would be necessary to start the venture, but this activity would benefit little from government participation except through government organizations that are themselves shippers or shipowners.

4. Investment Required:

Not given.

5. Expected Returns:

The increased competition which new ship types and organizational characteristics will present to regional shipping interests will force them to become more efficient and will encourage better organization of international trade in the region. The development of national exchanges and a regional exchange is one way of achieving greater efficiency.

1. Name of Project: Investment in Air Operations Support Facilities
2. RTS Identified Location: All RTS countries.
3. Objectives: To ensure maintenance of high standards of reliability of air transport support equipment needed during the coming decade and to preserve high value assets in service for as long as possible. A navaid which breaks down or is not available when expected can be more dangerous than the known lack of such air aid.
4. Brief Explanation of Operation: One of the most common obstacles to successful operation and maintenance of nav aids and sophisticated communications equipment is a set of government accounting procedures which does not permit accurate depreciation of assets and managing and accounting for spare parts. Another is the absence of high-level technical capability, with government pay-scales, in the field where professional expertise is essential. Using a non-government organization under contract to the civil aviation authorities to provide these services not only overcomes the difficulty caused by low pay scales, but also allows commercial standards of efficiency to be followed both as to level of service and finance. Such an organization could be locally owned and operated, but where necessary it could subcontract certain functions temporarily to foreign organizations.

5. Investment Required:

Since the contract would be for provision of service, the contractor should be responsible for buying the equipment needed to provide the service. The contractor can thus depreciate his equipment at a rate sufficient to build up the reserves needed to purchase replacement items when required. In addition, he will take care that its value is not reduced by neglect or careless handling, quite apart from the necessity of providing the standards of service stipulated in the contract.

6. Expected Returns:

Until some system of user charges is introduced, costs of this service must be covered from general government revenue, since it represents the expense of providing a service for which the government is responsible. When a system of user charges is introduced, as it clearly should be, the government would receive the revenue which would go towards offsetting these costs.

1. **Name of Project:** Establishment of a Flight Inspection Service (FIS)
2. **RTS Identified Location:** For operations in the RTS region.
3. **Objective:** To test the efficiency and accuracy of navigational aids and air ground communications in the RTS region. The FIS should supplement and check the system of ground testing which is also required.
4. **Brief Explanation of Operation:**

In the RTS region, with the exception of Thailand, only irregular checks on navigational aids and air ground communications have been carried out. This situation may be a cause of unnecessary danger. Unless navaids are dependable and accurate, an element of needless risk is introduced. Some navaids now in operation have never been effectively checked and calibrated. There will soon be approximately 270 air navigation and landing aids to be checked in the RTS region.

FIS could be provided either on a national or regional basis. The RTS identifies this as a field where regional cooperation could have a number of long-term benefits and provides arguments in support of a regional service. The feasibility of a regional service is to be investigated in detail under the auspices of COORDCOM/SEATAC.
5. **Investment Required:** On a regional basis, capital cost of four small twin turboprop aircraft, spares, delivery costs and other special equipment including a calibration laboratory is estimated at \$3.6 million, with a training and advisors cost of \$150,000. Operating and other costs would be around \$1.38 million per annum.

On a national basis, capital cost of aircraft, spares, delivery costs and other special equipment including a calibration laboratory would be around \$5.36 million with an additional \$354,000 for cost of training and advisors. Operating and other costs would be around \$1.47 million per annum.

The investment required for a regional scheme would therefore be materially less.

6. Expected Benefits:

Position fixing is necessary to ensure collision avoidance and traffic, whether domestic or international, must rely on facilities adjacent to the route followed. With a FIS service the element of risk arising from faulty nav aids can be minimized and aviation in the region made that much safer.

1. Name of Project: Regional Air Transport Training
2. RTS Identified Location: Djakarta, Bangkok, Manila
3. Objective: To establish training centres to meet the expanding regional demand for air transport training in all categories and also to improve the standards of existing personnel.
4. Brief Explanation of Operation:

Training facilities are presently provided to some extent in all RTS countries. The region-wide need for training services during the next five years in the different categories is estimated as follows: 1,000 pilots, 500 air traffic control staff, 400 communications staff and 600 radio mechanics. These approximate figures however do not indicate the capacity of the training establishments needed since the duration of each course will vary considerably.

Results will generally be obtained quickest and at least cost by making as much use as possible of existing organizations before establishing new ones. Thus, while consideration has been given to the possibility of establishing a single major centre to provide all types of aviation training for the whole region and also to the possibility of dividing the training task between all the countries in the region avoiding duplication by allocating specialized functions to each, the first step suggested by the RTS should be the background of the training centres at Bangkok, Manila and Djakarta. All three training organizations should accept

candidates from other countries in the RTS region. In order to prevent them from becoming too nationally orientated, each one could set up small consultative committees with representatives from the other countries in the region and from ICAO to ensure that international standards are maintained.

The regional training programme must be kept as flexible as possible to watch a fluctuating demand. This underscores the need for an effective training board to provide accurate forecasts of future needs.

5. Investment Required:

Djakarta - The estimated cost of rehabilitation and provision of new equipment for the Institute of Air Communication Training is around \$3.5 million. Bangkok - The estimated cost of the expansion of the Civil Aviation Training Centre is \$1.05 million. Manila - Expansion of the PAL training programme is expected to need about \$1 million. For non-technical subjects, about \$50,000 will be needed by the Asian Institute of Management.

6. Expected Returns:

Training schools should be treated as semi-commercial. They will probably not be able to show a profit in every case, but costs should be balanced by charging governments and other organizations fees for the service provided to their staff. Governments can of course subsidize their own candidates if they wish.

APPENDIX 2

Indonesia

INDONESIA

PROJECT PRESENTATION

1. Jakarta International Airport
2. Shipyard Development
3. Salvage Project
4. Development of Log-Carrier Fleet

1. Name of Project: Jakarta International Airport
2. Location: Tangerang North, Jakarta, Indonesia
3. Proposed Sponsor: Department of Transport and Communications, Government of Indonesia
4. Description: The expansion of airport facilities at Jakarta has been recommended as an urgent project by the RTS.

The site of the proposed Jakarta International Airport is approximately 21 km (13 miles) from downtown Jakarta. Existing roads are totally inadequate and a proposed freeway, paralleling Jakarta Bay, will serve the general area. Approximately five km (3 miles) of limited access highway would be required to connect with this freeway. Preliminary forecasts indicate that four lanes (2 in each direction) are required by the end of 1980 with an additional four lanes by 1985 for airport generated vehicular traffic.

Presently all international and domestic traffic is centralized at Kemayoran Airport. Its potential for accommodating the growing volume of international and domestic traffic in the period ahead is extremely limited. Extension of Kemayoran Airport is difficult as it is located near the crowded parts of the City. Furthermore, the land on which Kemayoran is located has high urban value.

Prior to the completion of the new airport, an existing air force base i.e. Halim Air Force Base, South East of Jakarta, will be used as an intermediate solution. This airport is under preparation for civil international air traffic.

operations to be handled from mid-1973 until the new airport at North Tangerang (Cengkereng) is in operation.

A feasibility study was completed recently by Ralph M. Parsons Company under contract to US AID and has been accepted in principle by the Government. According to this study, the airport should be able to handle domestic traffic of 2,446,000 passengers yearly and international traffic of 2,201,000 passengers yearly by 1980. The study gives enough information for preparing the master design for the new airport as well as a complete master plan for the new airport up to the year 2000.

5. Objective:

The new Jakarta International Airport will make a significant contribution to the economic growth of Indonesia. It will be the center of the domestic air transportation network and will be the main gateway between Indonesia and the other countries and continents of the world. The object of the project is to meet air traffic demands up to the year 2000.

6. Scope of Work:

The work program calls for the following:

- Formulation of the master plan
- Execution of detail designs
- Purchase of necessary land area
- Construction

7. Time Required:

Target date for completion of the project is 1981 which means that construction will have to commence in 1976 and detailed engineering as soon as possible.

8. Project Cost: Total cost US \$ 269.7 million
Local cost US \$ 138.4 million
Foreign exchange cost US \$ 131.3 million

9. Phasing of Expenditure: The disbursement of annual construction costs (in million US \$) is as follows:

Year	: 1978	1979	1980	1981	1985
Foreign:	18.1	41.0	33.1	21.1	8.1
Local	: 39.9	38.7	34.4	15.3	16.1

10. Justification: The internal rate of return is estimated at 10.9% for a 20 year life period of the project with a positive cumulative value of US \$ 52.02 million at the end of the project life (1990).

1. Name of Project: Shipyard Development
2. Location: Jakarta, Surabaya and other locations
3. Proposed by: Department of Transport and Communications, Republic of Indonesia
4. Description: (i) Ship Repair

A shore-based ship repair and maintenance facility is an obvious necessity for Indonesia especially for the domestic fleet operating within Indonesian territory (including the Regular Liner Service fleet and other craft such as dredgers, tugboats, government vessels, etc., totalling about 350,000 dwt, not counting small vessels under 50 dwt and numerous prahus).

The rest of the present national fleet consists of near-ocean and ocean-going trading vessels, tankers, ore carriers, log carriers, etc. These will total about 1,900,000 dwt, or roughly 85% of the national fleet of about 2,250,000 dwt in 1974.

They form a sizeable market for any maintenance/repair set-up in Indonesia.

P. N. Pertamina in fact has started such an operation recently in Dumai which is likely to develop further judging from the rapid growth of the Pertamina fleet. It is expected that this company will rely mainly on its own docking/repair facilities for the large tankers.

Table I attached gives an indication of the national fleet versus available docking facilities as envisaged for April 1974.

The present yearly Indonesian docking output figures are far below the potential market as

mentioned in column 4 of Table II. Presently the output is about 450,000 dwt/year.

This is the result of unfavorable terms of docking in Indonesia as compared with terms abroad, the unreadiness of certain docking facilities and obsolescence of working equipment and working methods.

Through improvement of some facilities and better management, an output of 600,000 dwt/year can be achieved in early 1974, rising to about 1,000,000 dwt/year beginning 1979. By adding facilities and increasing efficiency, an output of about 2,200,000 dwt/year can be achieved. This will be the expected level of the market in 1984 (see Table II) for the non-Pertamina docks.

An estimated investment of about US\$47 million will be needed for replacement and modernization including upgrading of skills.

(ii) New Building

Present facilities in Indonesia are capable of building ships up to 1,000 dwt size. A scrap and build program for the Indonesian fleet will increase the required production of the existing shipyards, which at this moment is fairly low. It will then be necessary also to improve and add facilities to shipyards to take care of the increasing demand.

New-building requirements for ships under 7000 dwt are estimated to be 85,000 dwt/year in 1979 rising to probably about 130,000 dwt/year in 1984, while the capacity level of existing facilities and improved ones as of 1979 is about as tabulated in Table III.

To increase output further, selected shipyards have to be improved and/or new additional shipyards built through capital investment (domestic and foreign).

The the RTS investment for replacement of the domestic fleet is described and recommended to cost about US \$ 118 million. The scrap and build program is the subject of study now and is expected to result in definite recommendations, designs and phasing of the replacement program for the domestic fleet within this year or early next year).

5. Objectives:

Self reliance in the field of ship repair and increased capability in shipbuilding will be beneficial for the economy, create jobs and work opportunities as well as stimulate supporting industries. Foreign currency savings can be substantial.

6. Scope of Work:

1. Using data available, make an appraisal of the investment prospects in selected shipyards of the country.
2. Invite interested party (ies) in participating in the financing thereof.
3. Follow up action in accordance with the investment laws and regulations of Indonesia.

7. Time Required:

1974 - 1979 (5 years)

8. Project Cost:

Production/service
type

Investment
needs
(US \$thousands)

a) Ship repair facilities
(exclusive Pertamina Docks)

47,000

b) New building facilities
(through improvement or
extension of existing
facilities or building
new ones to reach out-
put of about 65,000 dwt/
year for ships under
7000 dwt)

13,000

Total 100,000

TABLE I

	Indonesian managed motorised vessels in certain Dwt ranges (all types & duties)	Estimated vessels and tonnage April 1974		Type of Vessels	Expected Available docking facilities April 1974
		Number of Vessels	Total Dwt of Vessels		
		Potential	Potential Docking market in Dwt for available dock size		
1.	50-- 250	$\frac{900}{900}$	$\frac{120.00}{120.00}$	Local trade 80% spcc & misc 20%	Slipw : 6 x 250 dwt <u>15 x 150 dwt</u> Tpt. 21 fac.
2.	250 - 1.000	$\frac{182}{182}$	$\frac{105.000}{105.000}$	Local interest + near ocean going + 50% oceangoing coastal tankers + misc. 50%	Slipw : 7 x 500 dwt 3 x 1000 dwt Grav. dock : 1 x 750 dwt <u>4 x 700</u> 15 fac.
3.	1.000 - 7.000	$\frac{129}{100}$	$\frac{367.000}{245.000}$		Slipw : 1 x 1800 dwt Fl.Dock : 1 x 1500 dwt 1 x 2000 dwt 2 x 2500 dwt 3 x 3500 dwt 1 x 6000 dwt Tot. 9 fac.
4.	7.000 - 15.000	$\frac{45}{24}$	$\frac{480.000}{255.000}$	Oceangoing 65% tankers + misc. 35%	Fl.Dock : 1 x 9000 dwt Grav.Dock : 1 x 12000 dwt 1 x 15000 dwt Tot. 3 fac.
5.	15.000 - 30.000	$\frac{25}{20}$	$\frac{558.000}{445.000}$	tankers 100%	Fl.Dock : 1 x 30000 dwt Totl 1 fac.
6.	30.000 - up	$\frac{14}{0}$	$\frac{600.000}{0}$	tankers 100%	No fac.
Total tonnage		$\frac{1.360}{1.261}$	$\frac{2.230.000}{1.170.000}$		

TABLE II

	Indonesia managed Motorised vessels by DWT ranges (all types and duties)	Estimated vessels & tonnage April 1979		Type of Vessels	Estimated market for docking in Indonesia April 1979/ Number of ships outside Pertamina docks	Estimated market for docking in Indonesia April 1984/number of ships outside Pertamina docks
		Number of Vessels	Total DWT of Vessels			
1.	50 - 250	900	120.000	Local trade 80% special misc 20%	$\frac{120.000}{900}$	$\frac{180.000}{1350}$
2.	250 - 1.000	196	120.000	Local+internal+ near oceangoing+	$\frac{120.000}{196}$	$\frac{180.000}{295}$
3.	1.000 - 7.000	150	527.000	oceangoing 40% Coaster tankers+ log carriers 60%	$\frac{410.000}{125}$	$\frac{660.000}{195}$
4.	7.000 - 15.000	71	813.000	Ocean tankers + log carriers 60%	$\frac{490.000}{50}$	$\frac{830.000}{90 + +)}$
5.	15.000 - 30.000	56	1.280.000	tankers + are carriers 100%	$\frac{200.000}{45}$	$\frac{350.000}{20 +)}$
6.	30.000 - up	30	1.500.000	Tankers 100%	Pertamina	Pertamina
	Total	1.403	4.360.000		$\frac{1.340.000}{1285}$	$\frac{2.200.000}{1.950}$

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Remarks: +) Market due to the foreign vessels are estimates about 10% of the market due to the national fleet of which are mostly of groups 3, 4, and 5 respectively.

TABLE III

<u>Name of Shipyards</u>	<u>Target for New Built Prod Per Year dwt</u>	<u>Types of Vessels</u>	<u>Expected Revenue Per Year US \$</u>	<u>Estimated Investment</u>
1. Pakin, Menara IPPA Semarang Kapin & other small yards	15,000	Coaster Barges etc.	10,500,000	3,800,000
2. Pelita Bahari	12,000	"	7,200,000	7,000,000
3. Dok Priok & Surabaya	3,000	"	2,100,000	1,200,000
Total	30,000		19,800,000	12,000,000

1. Name of Project: Salvage Project
2. Location: Jakarta
3. Description: Navigation in the Indonesian Archipelago is hampered by the presence of shipwrecks, especially in important fairways, near harbour entrances and in harbour basins. Also dredging operations are hampered by the presence of wrecks.

In 1960 a survey on the position of wrecks was completed. This survey was carried out by a Japanese team (MATSUKURA). The report gives data on the location of wrecks in the most important parts of west Makassar (Ujung Padang). A total of 281 shipwrecks were identified estimated at about 247,000 BRT, representing roughly 92,500 tons of scrap. Since 1960, 113 shipwrecks constituting underwater obstacles to navigation have been removed. Although this clearance has removed many problems, the remaining wrecks are still hampering navigation, causing much delay to ships.

Further, since the completion of the Matsukura report, the number of wrecks has increased.

Up to the present, almost all salvage and rescue operations have been carried out by foreign companies. Local interests have only been responsible for 20% of the work. The expansion of capacity for such work is urgent.

The salvage of shipwrecks, especially in the waterfront of Tanjung Perak (Surabaya), Cilacap and Balikpapan, constitutes a complex operation involving equipment such as salvage tugboats and floating cranes.

Wreck clearance has already been started by Indonesian contractors under the supervision of the Directorate of Maritime Industrial Production and Services. To overcome the existing backlog in salvage, an additional wreck lifting facility is needed. It is intended that this be a joint venture operation with part of the costs borne by the annual budget and the remainder financed from outside sources.

4. Benefit:

The following benefits are expected to be obtained:

- (1) Smoothness and safety of sea communications will be guaranteed.
- (2) Dredging can be carried out to the extent necessary for good shipping operations.
- (3) Frequency of water traffic in Indonesian waters will be increased.
- (4) Salvage equipment will be available as and when necessary.
- (5) Loss of life and property caused by sea accidents can be limited.

5. Scope of Work:

To accelerate the salvage of wrecks, the positions of which are partly known as a result of surveys carried out in the past by Matsukura Salvage Coy, the execution of the project will cover the following activities:

- (1) Elimination of eighteen (18) shipwrecks lying in the waterfront of Tanjung Perak (Surabaya) port totalling approximately 13,770 tons of scrap.

(2) Lifting recoverable barges sunk in the entrance and basins of Cilacap port totalling 54 barges with a capacity of about 50-200 tons each and totalling approximately 2800 tons of scrap.

(3) Elimination of one (1) shipwreck of approximately 2900 tons of scrap in Balikpapan.

6. Program of Work: The project should be initiated in 1974/1975 and involves the following equipment:

3 (three) salvage tugboats, 1500 HP
1 (one) floating crane, 250 tons L.C.

These should be supplied within four (4) years according to the time schedule below:

<u>PURCHASE OF</u>	<u>YEAR</u>	<u>BUDGET</u>	
		<u>Local Cost (In RP)</u>	<u>Project Aid (In U.S.\$)</u>
1 Salvage tugboat 1500 HP 1 Floating crane	1974/1975	131,171,000	1,700,000
1 Salvage tugboat 1500 HP	1975/1976	32,000,000	600,000
Supplement	1976/1977	50,000,000	-----
1 Salvage tugboat	1977/1978	<u>32,000,000</u>	<u>600,000</u>
		245,171,000	2,900,000

The proposed schedule of operations is as follows:

<u>PURCHASE OF</u>	<u>YEAR</u>	Number of Wrecks	BUDGET	
			Local Cost (In Rp)	Project Aid (in US \$)
SURABAYA	1974/1975	5	45,000,000	867,469.90
	1975/1976	2	44,375,000	855,421.69
	1976/1977	3	41,000,000	790,361.45
	1977/1978	8	41,750,000	804,819.28
CILACAP	1974/1975	27	17,500,000	337,349.40
	1975/1976	27	17,500,000	337,349.40
	1976/1977	--	----	----
BALIKPAPAN	1974/1975	$\frac{1}{2}$	18,125,000	349,397.60
	1975/1976	$\frac{1}{2}$	18,125,000	349,397.60
	1976/1977	-	---	---
	Total:	73	243,375,000	4,691,566.32

1. Name of Project: Development of Log-Carrier Fleet
2. Location: East Kalimantan, South Sulawesi, West Irian and other islands in Indonesia
3. Proposed Sponsor: Department of Transport & Communications, Republic of Indonesia
4. Description: The urgent need for the acquisition of specialized log carriers arises from the sizable increase in log production in recent years. In 1971, log production reached 8,000,000 metric tons. It is estimated in the First Five Year Development Plan (1969/1973) that production will reach 10,000,000 metric tons by 1973 and then a steady level of 10 to 12 million metric tons in the years after 1973. Potential export volumes are estimated at 8,000,000 metric tons each year during the next 10 years.

Production locations in Indonesia at present are the coastal regions of Kalimantan and are being intensively exploited. The interior forests will be opened up after the coastal area is fully exploited. In addition, commercial forestry development will be undertaken in the near future on the island of Sulawesi among others, West Irian, the Moluccas and Sumatra.

Indonesian port conditions will permit ships of maximum 5,000 dwt only to be operated, each carrying 4,000 metric tons of logs. Each ship will be operated for 8 trips a year. Thus for the carriage of 8,000,000 metric tons of logs about 250 ships or 1,250,000 dwt will be required.

Practically no investment in a log-carrier fleet has been made in the past. The development of such a fleet of log-carriers is an urgent and attractive undertaking.

5. Objectives:
1. To increase the Indonesian log-carrying fleet
 2. To provide additional employment possibilities in this sector.
 3. To ensure the economic operation of log transportation.
 4. To derive other advantages from the establishment of such a fleet.
6. Scope of Work:
1. The establishment of a log carrier fleet through foreign capital investment in joint enterprises.
 2. The improvement of harbour facilities at central or conversion points e.g. at Muarakanan in East Kalimantan, etc.
7. Time Required: 1975 - 1995
8. Project Cost: About US\$ 27 million to provide 10 ships of 5,000 dwt each, within a 5 year period.
9. Phasing of Expenditure:

<u>Years</u>	<u>Number of Ships</u>	<u>Investment</u> US\$ (millions)	<u>Remarks</u>
1	2	5.5	Partly second hand and partly new ships.
2	2	5.5	
3	2	5.5	
4	2	5.5	
5	2	5.5	
5	10	27.5	

10. Justification: The internal rate of return on investment of ships is estimated at about 9.3% with a 20 year project life.

APPENDIX 3

Khmer Republic

KHMER REPUBLIC
PROJECT PRESENTATION

DEVELOPMENT OF AIR TRANSPORTATION AND TOURISM

1. Phnom Penh International Airport
2. Siemreap International Airport
3. Prek Tameak - Kamchay Mea - Peam Metrei Highway

DEVELOPMENT OF SEAPORTS

4. Construction of a Deep-Water Port
5. Development of Free Trade Zone

OTHER PROJECTS

6. Improvement of Urban Transportation in Phnom Penh
7. Extension of Telephone Network in Phnom Penh

DEVELOPMENT OF AIR TRANSPORTATION AND TOURISM

The Khmer Republic plans to undertake a number of projects for the development of the tourist potential of the country.

To provide a sound basis for this development an overall plan is to be formulated which will take into account the following:

1. The improvement and expansion of the airports at Phnom Penh and Siemreap;
2. The renovation of the highway between Phnom Penh, Siemreap and Poipet;
3. The development of the region around Siemreap as a tourist area.

Terms of reference for this study are being prepared. These terms of reference will be phased in such a way as to take into account security conditions.

Briefs on the two airport projects are attached.

1. Name of Project: Phnom-Penh International Airport
2. Location: Phnom-Penh, south of the "BASET" mountain
3. Proposed Sponsor: Ministry of Public Works (Directorate of Civil Aviation)
4. Description: Construction of a new International Airport of class A ICAO standard

Runway: 3600m length
 45m width

Taxiways

Parking area

Air terminal building for 800 passengers per hour

Radio Equipment Units: Air traffic control (VHF, HF, UHF); Air Navigation Aids (Voh-DME-NDB); Approach and Landing Aids (ILS VASIS); Runway Lighting; Approach Lights; and point to point communication with Saigon, Bangkok, Vientiane and Singapore.

Area Control Center: building for location of Radio Equipment (VHF, RF, recorder, radio TTY, Radar Control Monitor)

Fire safety and rescue equipment: (Hangar, Fire Trucks, Equipment VHF)
5. Objectives: Improvement of Phnom Penh International Airport for tourism. Upgrade present facilities to international standards.
6. Scope of Work: 1973-1974: Feasibility study and planning
1974-1976: Construction, Ordering Equipment
1976-1977: Installation of Equipment

7. Time Required: 5 years
8. Project Cost: US\$12,807,500
9. Justification: The Khmer Republic has unestimable archeological riches. As such, its tourist potential is great. The development of civil aviation facilities in the country is an important instrument for the promotion of this tourist potential. It is therefore being accorded high priority in the country's development plans. It is intended that the country's facilities should be so developed as to attract tourists visiting Hong Kong, Thailand, Japan, Singapore, Australia and New Zealand to come to the Khmer Republic also.

1. Name of Project: Siemreap International Airport
2. Location: Siemreap
3. Proposed Sponsor: Ministry of Public Works (Directorate of Civil Aviation)
4. Description: Construction of a new International Airport of class A ICAO standard

Runway: 3600m length
 45m width

Taxiways

Parking area

Air terminal building for 800 passengers per hour

Radio Equipment Units: Air Traffic Control (VHF, HF, UHF); Air Navigation Aids (VOR-DME NDB); Approach and Landing Aids (ILS, VASIS); Runway Lighting, Approach Lights; and point to point communication with Saigon, Bangkok, Vientiane and Singapore

Fire safety and rescue equipment (Hangar, Fire Trucks, Equipment VHF)
5. Objectives: Improvement of Siemreap International Airport for tourism.

Upgrade present standards of airport to conform with ICAO requirements.
6. Scope of Work: 1973-1974: Feasibility study and planning
 1974-1976: Construction
 Ordering of equipment
 1976-1977: Installation of equipment
7. Time Required: 5 years

8. Project Cost: US\$ 12 million

9. Justification: The Khmer Republic has unestimable archeological riches. As such, its tourist potential is great. The development of civil aviation facilities in the country is an important instrument for the promotion of this tourist potential. It is therefore being accorded high priority in the country's development plans. It is intended that the country's facilities should be so developed as to attract tourists visiting Hong Kong, Thailand, Japan, Singapore, Australia and New Zealand to come to the Khmer Republic also.

1. Name of Project: Prek Tameak - Kamchay Mea - Peam Metrei Highway
2. Location: Prek Tameak - Kamchay Mea - Peam Metrei
3. Proposed Sponsor: Directorate of Equipment and New Works, Ministry of Public Works, Posts and Telecommunications
4. Description: This project consists of the construction of:

- (1) a highway from Prek Tameak (on the Mekong Khmer - Vietnam boundary) via Kamchay Mea (in Prey Veng Province;
- (2) a bridge crossing the Mekong River at Prek Tameak

The highway will be about 110 kilometers long and 12 meters wide (including shoulders) with 2 lanes (3.5 meters per lane).

The bridge across the Mekong River will be about 500 meters long and 12 meters wide (including footpath)

5. Objectives: To develop the rich region of the Khmer Mekong River East Side and to contribute to the promotion of regional development.
6. Scope of Work: Comprehensive surveys
- Construction of the highway and the bridge across the Mekong River
7. Time Required: About three years
8. Project Cost: Highway 26.4
Bridge across the Mekong River 9.0
Total 35.4
- US \$ (millions)

9. Phasing of Expenditure:

US \$ (millions)

Highway:

Earth work	6.7
Foundation	1.7
Bitumen ground stone	6.0
Structure	<u>12.0</u>
Total	26.4

Bridge across Mekong River 9.0

10. Justification:

The construction of Prek Tameak - Kamchat Mea - Peam Metrei Highway and the bridge over the Mekong River at Prek Tameak will contribute greatly to the development of agriculture (rice, rubber, etc...) fishing and livestock in an area estimated at 1,750,000 acres, as well as trade and commerce. It will also allow for improved communication between the Khmer Republic and South Vietnam and Laos.

DEVELOPMENT OF SEA PORTS

The Government of the Khmer Republic plans to improve and expand the following ports: Kompong Som, Phnom Penh and Tonle Bet. (Phnom Penh). (A brief on Phnom Penh is attached).

Associated with the expansion of Kompong Som is a proposal to establish a Free Trade Zone in the area. (A brief is attached).

An overall port study is to be undertaken for the whole country. The objective will be to obtain an overview of the inter-relationships of all ports to avoid future duplication of facilities. The study will also take into account facilities in neighboring countries.

Concurrent with the study of Kompong Som Port, an industrial potentiality study will also be undertaken for industries which might be established in the area in which Kompong Som would serve as a growth pole. Consideration will be given to one part of the industrial area being used as a Free Trade Zone.

1. Name of Project: Construction of a deep-water port
2. Location: On the west bank of the Mekong River on the Chrui-Changwar Peninsula (Phnom Penh)
3. Proposed Sponsor: Ministry of Public Works and Telecommunications
4. Description: The project consists of:
 - 10 berths of 105m each
 - 20 quay cranes of 3 T.
 - 1 office block
 - 1 workshop with covered parking
 - 8 open storages each 75m x 75m
 - 1 customs fence
5. Objectives:
 - To replace the existing facilities consisting of 3 pontoon berths and 2 offshore marginal concrete piers.
 - To increase port capacity in accordance with traffic needs at the present time and in the future.
 - To avoid annual dredging at the port entrance.
6. Scope of Work:
 - Feasibility survey within the context of the transportation network, both national and regional;
 - Choice of location;
 - Structure conception, drawings and lay-out plans;
 - Probable source of financing.
7. Time Required: Two to three years.
8. Project Cost: 1965 estimate:
 - Foreign currency = US\$ 8.75 million
 - Local currency = 25.0 million riels

9. Justification: (a) A Japanese Survey Team in March 1965 indicated that one berth will be able to handle 200,000 tons per year. The reduction of ship's stay in port from 5 to 3 days will result in substantial freight abatement and a cost reduction for exported goods. The direct economic effects are estimated at US\$1,000,000 per year.

(b) A Technical Commission of the Khmer Government concluded in December 1965 that:

The role of the Port of Phnom Penh is of economic importance;

Existing port facilities are not sufficient and that Cambodia needs two ports for adequate servicing of its present and future trade.

1. Name of Project: Development of Free Trade Zone
2. Location: Hinterland of Kompong Som Port
3. Proposed Sponsor: Kompong Som Port Authority
4. Description and Objectives: It is planned to develop the hinterland of Kompong Som as an industrial zone. The proposed zone adjoins areas of natural resource potential, especially forestry.

It is to be established in conjunction with the development of new port facilities at Kompong Som. The present port was built in 1959 and comprises one pier for 4 ships and two berths (350 meters long); two warehouses (120 x 54 meters) and handling equipment, etc.

5. Scope of Work: It is planned to develop 300 hectares as a Free Trade Zone as follows:

Industrial zone	-	242 hectares
Storage zone	-	40 hectares
Common blocks	-	5 hectares

In the initial instance, however, 90 hectares are to be developed as follows;

Industrial zone	-	60 hectares
Storage zone	-	25 hectares
Common blocks	-	5 hectares

Work involved will include site preparation, metalling and asphaltting, construction of Customs enclosure, roads, electricity and water supply.

6. Time Required: Estimated time for completion of the project is about eight years.
7. Project Cost: US\$9 million with foreign exchange component amounting to about two-thirds of the total.

1. Name of Project: Improvement of Urban Transportation in Phnom Penh
2. Location: Phnom Penh city
3. Proposed Sponsor: Ministry of Public Works and Telecommunications (Autonomous Urban Transportation Authority)
4. Description: The project consists of:

Establishment of a mass urban transportation network of 8 routes with 110 buses capable of transporting 80,000 passengers per day

Construction of a workshop for bus repair and maintenance;

Building of bus terminals and storing-parking spaces;

Installation of bus stop and shelters
5. Objectives: To facilitate mass-transportation for the increasing population of the Capital City.

To relieve traffic congestion.
6. Scope of Work: Traffic flow surveys;
Location of bus routes;
Planning of workshops, shelters and terminals;
Identification of possible sources of financing
7. Time Required: One year
8. Project Cost: Foreign currency US\$430,000
Local expenditure 40,000,000 riels
(not including the cost of 110 busses)
9. Justification: According to the feasibility survey carried out in June 1972 by the Directorate of Transport of the Ministry of Public Works:

This project is of public interest;
It will help solve existing traffic problems;
Problems of environmental and air pollution
will be avoided.

1. Name of Project: Extension of telephone network in Phnom-Penh
2. Location: Phnom-Penh
3. Proposed Sponsor: Ministry of Posts and Telecommunications (Director of Posts and Telecommunications)
4. Description: This project includes the extension of the existing switching center from 4000 to 6000 lines, the cost of two new telephone exchanges (capacity 3000/10.000 lines and 200/2000 lines), the rebuilding of underground and overhead cables and the purchase of subscriber equipment.
5. Objectives: To overcome the urgent need for telephone demand and to increase telephone density in the capital which is one of the lowest in the region (less than 1 per cent).
6. Scope of Work: The study of the telephone network as well as the planning of the project was completed in 1968 by a French team (SOFRECOM) in collaboration with P & T engineers & technicians.
7. Time Required: 3 years
8. Project Cost: US\$ 3.5 million
9. Phasing of Expenditure:

<u>1st Phase:</u>	US \$ (thousand)
Extension of existing switching facilities with energy	450
Cables	300
Subscriber equipment	<u>460</u>
Total	2.210

<u>2nd Phase:</u>	US \$ (thousands)
New exchanges	905
Building	<u>385</u>
	1.290

10. Justification:

If 4000 new lines are to be installed, the fees of connection to the switching exchange will come to 14 million riels, not including monthly dues (subscriber fees and urban communications fees) of roughly 3 million riels (the long distance and international calls are not taken into account). It is needless to say that these new facilities will have a great impact on economic and social life and contribute greatly to the growth of industry, commerce and welfare.

LAOS

APPENDIX 4

Laos

LAOS
PROJECT PRESENTATION

I. TRANSPORT AND COMMUNICATIONS

1. Reconstruction of Route RIG. 9
2. Improvement and Upgrading of Route RIG. 13 South from Vientiane to the Cambodian Border
3. Improvement and Upgrading of Route RIG. 13 North from Vientiane to Luangprabang and of Vientiane Plain Road
4. Construction and Rehabilitation of Inter Provincial Roads
5. Nongkhai/Vientiane Bridge on the Mekong River
6. Improvement of Wattay Airport
7. Improvement of Regional and Domestic Airport Facilities
8. Construction of River Port at Savannakhet
9. Feasibility Study of the use of Hovercraft on the Mekong River

II. OTHER PROJECTS

10. Urban Development
11. Urban Transport
12. Development of a Tourist Network
13. Development of the Construction Industry

14. Manganese and Quartzite Survey
15. Study of Iron Ore Deposit at Xieng Khouang
16. Reforestation
17. Forest Survey

1. Name of Project: Reconstruction of Route RIQ.9
2. Location: Savannakhet - Phalane - Vietnamese border
3. Proposed Sponsor: Ministry of Public Works and Transport
(Department of Roads and Bridges)
4. Description: This route constitutes a portion of the Asian Highway A-3 from Savannakhet to the Vietnamese border. It is 246 kms long with a total of 1,835 lineal meters of bridges. The reconstruction of this road will give Laos access to the sea through the Port of Danang in Vietnam.
5. Objectives: Reconstruction of the entire route to Asian Highway standards, i.e. 2-lane 7 meter DBST surface with 2.5 meter shoulders on each side, H-20 structures, etc.
6. Scope of Work: Location and design of road and bridges. Replacement of all present bridges with two lane reinforced concrete bridges. Widening, raising grade, placement of base course and paving with Double Bituminous Surface Treatment.
7. Time Required: 3 years
8. Project Cost:

	US \$ (thousands)
Road	20,810
Bridges	7,065
Engineering and Contingencies	4,321
Total	<u>32,196</u>
9. Phasing of Expenditures:

First year: Engineering work	1,394
2nd & 3rd year: Construction	30,802

10. Justification:

No feasibility study has been done on this project. However, DMJM and Louis Berger, Inc. have completed preliminary studies and made economic projections for the Savannakhet-Danang link-up to serve as a gateway to the South China sea through the Port of Danang for Laos. The report, presented in October, 1972, indicates that the seven southern provinces in Laos, and even the Vientiane area, would best be served in terms of seaborne commerce by reconstruction of route RIG 9 linking Savannakhet with Danang.

1. **Name of Project:** Improvement and Upgrading of Route RIG.13 South from Vientiane to Cambodian Border (897 kms).
2. **Location:** Vientiane - Paksane - Thakhek - Savannakhet
Pakse - Cambodian Border
3. **Proposed Sponsor:** Ministry of Public Works and Transport
(Department of Roads and Bridges)
4. **Description:** This project is on the Asian Highway system A-3 from Vientiane to Savannakhet (454 kms) and on A-II from Savannakhet to the Cambodian border (443 kms). There are 2,534 lineal meters of several different types of one way bridges (Pigeaud, Eiffel, Bailey) for the A-3 portion and 2,650 lineal meters for the A-II section. Most of these have been damaged during the war.

This road is the main North-South route in Laos and serves six major cities situated along the Mekong River and numerous villages along the route.

The entire route is under minimum Asian Highway standards, except for some small portions around the major cities which are surfaced with gravel or laterite. Some portions, between Savannakhet and the Cambodian border, are paved with DBST, 4.5 meter wide.
5. **Objectives:** Reconstruct and upgrade to Asian Highway standards, including Double Bituminous Surface Treatment (DBST)
6. **Scope of Work:** Location and design of road and bridges.

Construction of two major bridges to replace the present ferry services at Nam Ngum and Nam Cading.

Replacement of all present one-way bridges with two lane bridges and/or reinforced concrete box culverts to H-20 criteria.

Widen, raise grade in sub-standard section, place base course and pave with DBST.

7. Time Required: Maximum of 10 years

8. Project Cost: Vientiane - Savannakhet: US \$ (thousands)

Road	34,050
Bridges	9,757
Nam Ngum & Nam Cading	<u>2,000</u>
	45,757

Savannakhet - Cambodian Border:

Road	33,225
Bridges	<u>10,202</u>
	43,427

Total 99,184

9. Phasing of Expenditures: per year US \$ 10 million

10. Justification: This is the main North-South route through Laos, serving six major cities and numerous villages along the Mekong River comprising approximately more than 50% of the population of Laos.

With the connection of RIG.9 and the extension of this route through Cambodia, this road will give Laos access to seaports in Vietnam and Cambodia. It will also provide the main line of communication throughout the country and serve as a gateway to foreign trade.

1. Name of Project: Improvement and Upgrading of Route RIG.13 North from Vientiane to Luangprabang and of Vientiane Plain Road (397 kms + 97 kms)
2. Location: RIG.13 North: Vientiane - Luangprabang (397 kms)
Vientiane Plain Road: RN 10
Phon Hong-Nam Ngum Dam-Tha Ngon-Vientiane (97 kms)
3. Proposed Sponsor: Ministry of Public Works and Transport (Department of Roads and Bridges).
4. Description: Route RIG.13 North from Vientiane to Luangprabang is on the Asian Highway System A-3. There are 76 one-way bridges, mostly Bailey type, totalling 2,109 lineal meters. This road traverses mountainous areas of the northern part of Laos and is surfaced with gravel or laterite, 6 or 7 meters wide including shoulders.

The Vientiane plain road, RN.10, starts at Phon Hong (KM.70) on RIG.13 North, leads on to the Nam Ngum Dam, traverses a part of the Vientiane plain and comes back to RIG.13 South at Km.12. This road (97 kms) is on the national Highway System with conditions similar to RIG.13 North. There are 353 lineal meters of one-way bridges.
5. Objectives: Reconstruct and upgrade to minimum Asian Highway standards, i.e. 2-lane 7 meter DBST surface with 2.5 meter shoulders on each side, AASHO-H-20 structures etc.
6. Scope of Work: Design of road and bridges:

Construction of one major bridge to replace the present ferry service at Nam Ngum in Tha Ngone.

Replacement of all present bridges with two-lane reinforced concrete bridges.

Widen, raise grade, place base course and pave with Double Bituminous Surface Treatment.

7. Time Required:

4 years

8. Project Cost:

RIG.13 North: 397 kms.

US \$ (thousands)

Road 29,775
Bridges 8,119

37,894

RN.10: 97 kms.

Road 7,275
Bridges 1,360
Nam Ngum Bridge 1,000

9,635
Total 47,529

9. Phasing of Expenditures:

Approximately US\$ 10 million

10. Justification:

RIG.13 North is the only supply road for Luangprabang, the Royal capital of Laos. With the connection and rehabilitation of RIG.6 and RIG.7 crossing the North Eastern provinces of Laos, this road will give Vientiane and Luangprabang provinces another access to seaports in North Vietnam.

RN.10 is the main access road to the Nam Ngum Dam situated 80 kms. from Vientiane City. This road, crossing the Northern part of the Vientiane plain, will serve as a main line of communication for the future development of that area along the Nam Ngum River.

1. Name of Project: Construction and Rehabilitation of Inter Provincial Roads (app. 3,846 kms.)
2. Location: Different provinces in Laos
3. Proposed Sponsor: Ministry of Public Works and Transport (Department of Roads and Bridges).
4. Description: These 3,846 kms. of roads are included in the 7,300 kms. of the National Highway system.

They are divided into two categories:
 - (a) Existing small roads which have been abandoned about 15 to 20 years ago due to the political and military situation of the country (2,212 kms.)
 - (b) New roads to be built after the cessation of hostilities to provide lines of communication in the country and to neighboring countries (1,634 kms.)
5. Objectives: Reconstruct and rehabilitate existing roads and construct missing links to minimum standards - 8 to 9 meters wide including shoulders and surface with gravel or laterite.
6. Scope of Work: Location and design of roads and bridges:

Use the old one-way steel bridges salvaged from RIG.13 for these roads.

Construct the roads to minimum standards and surface with gravel or laterite.
7. Time Required: 15 to 20 years
8. Project Cost: Approximately US\$ 192.3 million
The estimates are based on US\$ 50,000 per km including bridges.

9. Phasing of Expenditures: About US\$ 10 million per year
10. Justification: The National Highway Network has been badly damaged by the long war activities in the country. The construction and rehabilitation of these roads are necessary to provide minimum lines of communication between the different provinces in Laos. They will serve to resettle numerous war refugees in appropriate locations and to develop different areas of the country in the field of agriculture, mineral and forestry resources.

1. Name of Project: Nongkhai/Vientiane Bridge on the Mekong River
2. Location: 20 kilometers southeast of Vientiane (Laos) and 3 kilometers upstream of Nongkhai (Thailand).
3. Proposed Sponsor: Ministry of Public Works and Transport (Department of Roads and Bridges) in collaboration with the Loa Mekong Committee.
4. Description: This international bridge across the Mekong River from Nongkhai in Thailand to Thanaleng in Laos is on Asian Highway A-12

Bridge length:

Main bridge	650 m
Approach viaducts	803 m

5. Objectives: To build:

Alternative I:

a Rail/Highway bridge across the Mekong River, a highway, a new railway from Nongkhai to Vientiane, and two administrative facilities for immigration and customs.

Alternative 2:

a two-lane highway bridge with two administrative facilities.

Alternative 3:

a two-lane highway bridge with reserve capacity for railway and with two administrative facilities.
6. Scope of Work: Design and construction of the bridge and appropriate administrative facilities.

7. Time Required: Maximum 4 years

8. Project Cost: US\$ (thousands)

Alternative I: 17,150

Alternative II: 8,310

Alternative III: 11,230

9. Justification: This project is on Asian Highway A-12, linking Bangkok and Vientiane. The use of the bridge will replace the ferry service across the Mekong River at Thanaleng.

Nippon Koei (a Japanese Consultant Company) undertook a feasibility study of the project in 1969. This was followed by an evaluation study by the ADB in 1971.

1. Name of Project: Improvement of Wattay Airport
2. Location: Vientiane
3. Proposed Sponsor: Directorate of Civil Aviation
4. Description and Objective:

The present runway at Vientiane International Airport of 3,000 meters was constructed with the assistance of the U.S. (2,000 meters) and Japan (1,000 meters). France assisted with the terminal facilities and equipment.

To meet international standards at present level of traffic, the following are needed:

 - (i) Improvement of approach lighting;
 - (ii) Installation of radar;
 - (iii) Extension of aero-telecommunications facilities (to establish links with Hanoi, Rangoon and Shanghai);
 - (iv) Improvement of the drainage system at the airport.
5. Scope of Work and Time Required:
 - (i) Improvement of approach lighting and installation of radar: (2 years)

Phase 1: Construction of buildings for radar sets; placement of orders for radar equipment

Phase 2: Installation of radar sets and placement of orders for approach lights

Phase 3: Installation of approach lights.
 - (ii) Extension of aero-telecommunications facilities (3 years)

Phase 1: Placement of orders for equipment and extension of the present transmitting station

Phase 2: Construction of aerials and installation of equipment

(iii) Improvement of the drainage system (1 year)

Phase 1: Planning

Phase 2: Construction

6. Project Cost:

Improvement of approach lighting and installation of radar

Radar of Detection of 50 cm with antenna and accessories	120,000,000 K
Installation of Radar	20,000,000 K
Equipment of the maintenance laboratory	15,000,000 K
Spare parts	22,000,000 K
Construction of 2 buildings and 1 radar tower	40,000,000 K
A vehicle (jeep) for the maintenance	2,500,000 K
High intensity approach lights	22,000,000 K
Electric supply cables for approach lights	15,000,000 K
Installation of approach lights	8,000,000 K
Accessories	3,500,000 K
Vehicle for maintenance	<u>2,000,000 K</u>
	270,000,000 K
	or US\$ 450,000

Extension of aero-telecommunications facilities

3 Transmitters	5 Kw PeP	35,000,000 K
3 Receiving Sets	BLI/BLU	50,000,000 K
Equipment Hannonic Telegraphy		4,000,000 K
3 Log-transmission aerials		22,000,000 K
3 Log-receiving aerials		22,000,000 K
Cable		16,000,000 K
Extension of the building of the transmitting station		5,000,000 K
Transformer and spare parts Installations		20,000,000 K 50,000,000 K
Teleprinters and accessories		20,000,000 K
Furniture B C T		6,000,000 K
		<u>250,000,000 K</u>
		or
		<u>US\$ 417,000</u>

Improvement of the drainage system

210,000,000 K
or
US\$ 350,000

7. Phasing of
Expenditure:

Improvement of approach lighting and
installation of radar:

Phase 1:	Construction of 2 buildings and 1 tower	40,000,000 K
	Ordering of Radar Equipment and 2 vehicles	161,500,000 K

Phase 2:	Installation of radar	20,000,000 K
	Orders for approach lights	22,000,000 K
	Cables and spare parts	18,500,000 K
Phase 3:	Installation of approach lights	8,000,000 K

Extension of aero-telecommunications facilities:

Phase 1:	Orders for equipment and construction of the building	200,000,000 K
Phase 2:	Installation of equipment and aerials	50,000,000 K

Improvement of the drainage system

	Planning and construction	210,000,000 K
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1. Name of Project: Improvement of Regional and Domestic Airport Facilities
2. Location: Sayaboury, Luangprabang and Pakse
3. Proposed Sponsor: Directorate of Civil Aviation
4. Description: The work program involves:
 - (i) reconstruction of the airport at Sayaboury;
 - (ii) improvement of the airports at Luangprabang and Pakse;
5. Objective: Together with improvements at Wattay Airport the objective is the establishment of an air network which would promote:
 - (i) the development of the tourist potential of the country;
 - (ii) the development of an efficient domestic network which would harmonize with other modes of transport of the country and with the air network of neighboring countries.
6. Scope of Work:
 - (i) Sayaboury:
Design and construction of runway tarmac and apron.
 - (ii) Luangprabang and Pakse
Construction of 2 air terminals and the repair and strengthening of parking aprons at the 2 airports.

7. Project Cost:

(i) Sayabouri:

Appropriation of land	74,039,500 K
Preliminary work	21,226,000 K
Earthwork	198,570,000 K
Concrete work	650,000,000 K
Drainage	2,500,000 K
Construction of an air terminal	50,000,000 K
Final work (furniture and equipment)	100,000,000 K
Studies prior to reconstruction	100,000,000 K
Contingent work	200,000,000 K
	<u>Total: 1,396,335,500 K</u>
	or approximately <u>US\$ 2,327,250</u>

(ii) Luangprabang and Pakse

Construction of 2 air terminals	156,000,000 K
Extension and strengthen- ing of parking aprons	<u>847,650,000 K</u>
Total	<u>1,003,650,000 K</u>
or	<u>US\$ 1,672,750</u>

1. Name of Project: Construction of River Port at Savannakhet
2. Location: 459 kilometers south of Vientiane and 493 kilometers from the seaport of Danang (South Vietnam)
3. Proposed Sponsor: Ministry of Public Works and Transport, Department of Hydraulics and Navigation, in collaboration with the Lao National Mekong Committee.
4. Description: The river port project at Savannakhet is related to the project for improvement of Route 9 from the port of Danang to Laos. Based on present movement of merchandise along the river, the port installation should be equipped to handle 20,000 tons per year in the first phase and 70,000 tons in the future. Consideration will also have to be given to the installation of cargo handling equipment for containers.
5. Objectives: Most of the principal cities of Laos are situated along the Mekong river. Savannakhet river port will be the port of distribution to the major riparian cities.
6. Scope of Work: Design and construction of the river port with appropriate facilities for cargo handling including containers.
7. Time Required: 2 to 4 years
8. Project Cost: Estimated cost US \$ 705,000
9. Phasing of Expenditures: Feasibility study: US \$ 25,000
Design and construction: US \$680,000 in 18 months

10. Justification:

This project is located at the end of Route 9 linking the Sea Port of Danang in South Vietnam with Savannakhet. The implementation of this project will eliminate the need for the ferry service across the Mekong river in Vientiane.

1. Name of Project: Feasibility study of the use of Hovercraft on the Mekong river.
2. RTS Identified Location: From the Royal Capital of Luang-Prabang down to Vientiane, Pakse, Phnom Penh and Saigon (South Vietnam)

Luang-Prabang - Phnom Penh: 1,678 km
Luang-Prabang - Saigon 2,065 km
3. Proposed Sponsor: Ministry of Public Works and Transport, Department of Hydraulics and Navigation, in collaboration with Mekong Committee and S.O.G.O.V.
4. Description: The portion of the Mekong river above Vientiane has steeper slopes and presents the most formidable obstacles of a young river. The river below Vientiane to Pakse has flatter slopes and a meandering channel, interspersed with shallow sandbar crossings and occasional rapids and rock obstructions at Keng Kabao and Khemmarath. The reach of river between Pakse and Phnom Penh has a major obstacle at Khone Falls.
5. Objectives: The hypothesis is that transport by Hovercraft on the Mekong river linking the major riparian cities of Laos is more economic and feasible than the use of airplanes. The feasibility survey of the use of the new river craft should take into account other means of transport also.
6. Scope of Work: Survey and study of the use of Hovercraft on the Mekong river and establishment of a Hovercraft Transport Company jointly with Royal Air Lao and SOGOV.
7. Time Required: 6 months

8. Project Cost: Estimated cost for the survey and feasibility study: UK £ 44,200
9. Phasing of Expenditures: Survey and feasibility study: UK £ 44,200
Cost of one Hovercraft UK £326,000
10. Justification: River transport by large cargo-carrying dumb barges, self-powered freight boats and combined passenger and cargo carriers are slow but not expensive while air transportation is fast but very costly. The use of Hovercraft might be the economic solution for transport in Laos.

1. Name of Project: Urban Development
2. Location: Vientiane
3. Proposed Sponsor: Vientiane Prefecture
4. Description:
 - A. City Drainage
 1. Installation of sewerage system
 2. Installation of drainage system
main sewers
main drains
secondary sewers
 3. Installation of water treatment facility
 - B. Urban Streets Development

Reconstruction of streets with asphalt coating on various types of foundations and concrete foot path, following the 1962 Grand Plan and international standards.
 - C. Lights for City Streets and Public Places

Installation of street lighting network
Installation of lighting equipment
5. Objectives:

To provide a city street traffic system which follows the 1962 Grand Plan and is based on international standards. All streets will have asphalt coating with appropriate foundations, canals and a two-sides foot path, including lights.
6. Scope of Work:
 - (1) Drainage

studies	12 months
construction	60 months

(2) Traffic system and additional works

studies	12 months
ordering of material	12 months
installation	48 months

7. Project Cost:	US \$ 51,602,400	Kip 43,332,316,000
A. Drainage	US \$ 26,548,000	Kip 22,300,320,000
B. Street development	US \$ 24,210,000	Kip 20,330,400,000
C. Lighting	US \$ 844,400	Kip 701,596,000

8. Other Appropriate Information:

Streets now in use are slightly coated on clay type foundation which is the most economic material. They have no canals, nor foot path. The street traffic does not follow technical norms. The 1962 Grand Plan studies were made by BCEOM.

1. Name of Project: Urban Transport
2. Location: Vientiane
3. Proposed Sponsor: Vientiane Prefecture
4. Description and Objectives: Development of a city-wide bus system to provide cheaper public transportation and facilitate urban road traffic movement.
5. Scope of Work: 1 year
Studies - 2 months
Ordering of material - 8 months
Installation - 6 months
6. Project Cost: To be estimated.
7. Other Appropriate Information: A bus company is actually being established to operate on the main road with 25 busses giving a 10 minute interval between each car stop. A service for minor roads serving the majority of the low income population also needs attention.

1. Name of Project: Development of a Tourist Network
2. Location: Thalot - Nam Ngum - Reservoir of Nam Ngum Dam
3. Proposed Sponsor: Ministry of Information and Tourism
(Directorate of Tourism)
4. Description: In Laos, tourism is still undeveloped. The growth of this industry has been severely hampered by the recent hostilities. With the ceasefire, Laos aims at attracting to it as great a number as possible of foreign tourists passing through Thailand. Further, the development of Wattay Airport should shortly bring an important influx of visitors. Laos proposes to meet the needs of an ever increasing clientele.

The object of this project is to develop Thalot as a resort area for international and regional tourists.
5. Scope of Work: The following are envisaged:

The redevelopment of buildings used by Japanese technicians during the construction of the Nam Ngum Dam into tourist stations or hotels;

The development of an artificial beach with dressing cabins--2 km from the dams;

The construction of a hotel with 150 rooms, conference hall and bungalow;

Provisions for outings on the lake with visits to islands;

Construction of a golf course;

Reservoirs for fishing and hunting;

Guided tours to the neighborhood of Dam;

Provision for a bus service from Vientiane to Thalot and back

1. Name of Project: Development of the Construction Industry
2. Location: Vientiane and other provinces of the Kingdom
3. Proposed Sponsor: Directorate of Roads and Bridges
National Investment Commission
4. Description: The planning and implementation of major construction works (roads, bridges, dams, etc.) are now entrusted to foreign firms. It is intended to develop domestic enterprises to participate more actively in public works programs.
5. Scope of Work:
 - (i) Survey of characteristics of the existing industry and needs for expansion in consonance with planned public sector works programs;
 - (ii) Formulation of a master plan for the development of the industry.
6. Project Cost: Details need to be worked out.
7. Justification: The development of local capacity in an industry which is envisaged to expand significantly.

1. Name of Project: Manganese and Quartzite Survey
2. Location: Botene and Sanakham
3. Proposed Sponsor: Ministry of National Economy
Directorate of Mines
4. Description: The presence of manganese and quartzite have been established by earlier surveys. More detailed investigations are now necessary to establish the extent of these surveys. The project necessitates semi-detailed prospecting and sub-surface investigations including drilling work with core sampling and chemical analysis.
5. Objective: To ascertain the extent of these minerals, whether they would be economically workable and whether they would be capable of supplying sufficient raw materials for a ferrous-alloy industry as recommended by UNIDO.
6. Time Required: Four years
 - 1st year: Semi-detailed prospecting
 - 2nd year: Detailed prospecting and establishment of access roads for drilling operations.
 - 3rd & 4th year: Drilling with core-samples followed by chemical analyses with geological and geometrical interpretation of the deposits.
7. Project Cost: About 229,200,000 Kip or U.S.\$ 382,000 calculated at the official rate of exchange (US\$ 1 = 600 Kip). The expenditure will be spread over 4 years:

1st Year	8,100,000 K = US\$ 13,500
2nd Year	7,100,000 K = US\$ 11,833
3rd Year	107,000,000 K = US\$ 178,333
4th Year	107,000,000 K = US\$ 178,333
	<hr/>
	229,200,000 K = US\$ 381,999
	say: <u>US\$ 382,000</u>

8. **Justification:** The study of the deposits mentioned above is necessary to decide whether Laos is suitable or not for the installation of a ferrous-alloy industry.

1. Name of Project: Study of iron ore deposit at Xieng Khouang
2. Location: Phou Nhouan Xieng Khouang
3. Proposed Sponsor: Ministry of National Economy
Directorate of Mines
4. Description: A preliminary survey of the region of Xieng Khouang in 1958-59 has revealed outcroppings of iron ore (haematite magnetite) extending over an area of about 40 sq.km. (4 x 10 km) in the sector of Phou Nhouan, and almost as much in the sector of Pha Lack. The study was stopped due to hostilities. According to initial estimates, reserves in Phou Nhouan are of several hundred million tons of ore. Sample appraisals indicate an ore composition of almost pure iron (without gangue), with a metallic content of more than 65%.
5. Objective: To confirm the geological and geometrical character of the deposit and its potential for efficient and economic mining.
6. Scope of Work: Detailed geological mapping of the sector.

Geophysical magnetic study of the region.

Sub-surface survey work (wells, trenches and cross cuts)

Precise ordinance mapping to the scale of 1/10,000

Drilling work for core-sample with quantitative analyses of samples.
7. Duration of Work: Over 3 years.

1st year: Detailed geological survey, magnetic geophysical prospecting and precise ordinance mapping followed by subsurface work (wells and trenches) and the preparation of land for drilling.

2nd and

3rd years: Drilling for core-samples including analysis and geological interpretation, and quantitative analyses of samples collected from drillings.

8. Project Cost: Estimated at 211,500,000 Kip equivalent to US \$352,500 at the official rate of exchange of US \$1=600 Kip:

1st year	24,300,000 K	= US\$ 40,500
2nd year	93,600,000 K	= US\$ 156,000
3rd year	93,600,000 K	= US\$ 156,000
	<u>211,500,000 K</u>	<u>= US\$ 352,500</u>

9. Justification: The mining of these deposits will contribute significantly to exports and to overall development. Sizable multiplier effects on ancilliary industries are also expected.

1. Name of Project: Reforestation
2. Location: All provinces, zones to be replanted with first priority: Houakhong, Xiengkhouang, Luangprabang, Vientiane, Khammouane, Savannakhet, Pakse and Attapeu.
3. Proposed Sponsor: Government of Laos
Ministry of National Economy
Water and Forest Service
4. Description: The program is divided as follows:
 - (a) Zones to be reforested through natural regeneration
 - (b) Zones to be reforested artificially:
 - with high priority
 - with secondary priority

This brief deals only with the zones to be replanted artificially with high priority. Only fast-growing species (eucalyptus pines, teak, etc....) will be used and will be planted at the rate of 2,000 plants per hectare. The work will be mechanized to the extent possible.
5. Objectives: To efficiently develop and enrich the long-term base for wood-products industries.
6. Scope of Work: The main phases of the implementation of the project are:
 - Preparatory phase (first two years)
 - Construction of buildings
 - Recruitment and training of staff
 - Acquisition of technical equipment
 - Field equipment, office and transportation equipment.
 - Creation of trails

Creation of centers through re-
grouping of the peasantry
Topographical work
Establishment of nurseries

Development Phase (in the following
years)

Preparation of the land
Planting
Protection and maintenance of the
replantings

7. Time Required: Long term project.
8. Project Cost:
- A. Known Cost:
1. Construction of buildings and facilities:
Kip 180 Million or US \$ 215,000
 - 2.(a) Annual maintenance of buildings, facilities and personnel:
Kip 211 Million or US \$ 251,000
 - (b) Cost of one field working unit capable of replanting and maintaining 300 to 500 ha. per year:
Kip 4 Million or US \$ 4,700
- B. Unknown Cost: Costs in respect of technical, field, office and transportation equipment and for the creation of re-grouping centers needs to be estimated.
9. Justification: The forest of Laos have been neglected largely as a result of the recent war.

1. Name of Project: Forest Survey
2. Location: For all provinces
3. Proposed Sponsor: Government of Laos
(Ministry of National Economy
Water and Forest Services)
4. Description: The project would be based on forest inventory work undertaken, the use of aerial photographs (sampling, photo-interpretation, photogrammetry, dendrometry, compilation, cartography) and dendrology.
5. Objective: Production of quantitative and qualitative data on the forest resources of the country, their main and secondary products and also their locations.
6. Scale of Work: The principal phases are:
 1. Preparatory Phase (1st year)
Construction of buildings
Recruitment and training of staff
Acquisition of aerial photographs, technical equipment, field, office and transportation equipment.
 2. Implementation Phase (following years)
It is intended that 1/10th of the country or an area of about 1,500,000 hectares be covered annually. During the dry season, the field work would be intensive, especially for sampling.
7. Duration: 11 years

8. Cost of Project:

(a) Known Cost

For buildings, furniture, staff and transportation

6,000 million Kip or US \$7,150,000

(b) Unknown Cost

For aerial photographs, technical, field and office equipment and contingent expenditure for transportation by river and air

9. Stages of Expenditure:

Preparatory Phase:

Known cost: 960 million Kip
or US \$ 1,150,000

Implementation Phase

Known cost: 504 million Kip
or US \$ 600,000

10. Justification:

This project is necessary for subsequent work with respect to the grant of concessions, reforestation, and conservation.

11. Background
Information:

Laos is surrounded by 5 other well populated countries.

Area: 236,000 sq. km.

Population: 3 million

Topography: 4/5th of the territory covered with young, high and pointed mountains.

Vegetation: 60% of the country's territory

Present condition of the forests:

Forests seriously destroyed by:

- (a) itinerant cultivation undertaken by war refugees, highlanders and peasants of the plain;
- (b) war operations (Ho Chi Minh trails, bombings, zones of protection for the soldiers).

The forest resources of the country are relatively significant and it is intended that they be developed to provide the basis for a wood products industry including sawmills, mechanical carpentry, wood preservation factories, factories of plywood and improved wood, paper factories, organic chemical industries, handicraft industries. In addition the forests have tourist potential and it is hoped to develop this also. The development of these potentials is being left to the private sector.

APPENDIX 5

Malaysia

M A L A Y S I A

PROJECT PRESENTATION

A. TRANSPORT AND COMMUNICATIONS

1. Kuala Lumpur International Airport
2. Kota Kinabalu Airport
3. Sandakan Airport
4. Study for the Development of the Port of Penang
5. Kuantan Port Development
6. Malaysia/Indonesia Joint Ferry Service between Penang and Belawan
7. Feasibility Study of a North/South Expressway, West Malaysia
8. Feasibility Study of Yong Peng - Tampin - Seremban Road
9. Feasibility Study of a Road between Ipoh and Kampar, West Malaysia
10. Feasibility Study of Sibu-Bintulu Road
11. Feasibility Study of Feeder Roads in Sarawak
12. Construction of Three Bridges on the Kuantan-Segamat Road
13. Construction of Three Bridges along the West Coast of West Malaysia
14. Kuala Lumpur - Penang Microwave System
15. Kuala Lumpur - Johore Bharu Microwave Radio Telephone System

1. Name of Project: Kuala Lumpur International Airport
2. Location: West Malaysia
3. Proposed Sponsor: Ministry of Communications and Public Works Department
4. Description:
- (1) Expansion of the passenger terminal building designed to process 1,000 peak-hour passengers and to accommodate 365 transit passengers.
 - (2) Strengthening of the existing apron and enlarging it to accept 9 aircraft. (5 stands for B 707/DC 10, 1 for 747 and 3 for B 727).
 - (3) Relocation of certain structures within the terminal area, namely, bulk fuel compound/fuel storage tanks, PWD airport maintenance stores and crash fire rescue facility.
 - (4) Establishment of a fire fighting training area; airport incineration area; kerosene interceptor structure and sewerage treatment plant.
5. Objectives: To provide facilities that will cope with forecasted traffic. Demand forecasts for 1976 are as follows:-

<u>Annual Demand</u>	<u>1976</u>
Passengers	1,255,000
Aircraft movements	50,100
Cargo ('000 kilos)	5,904
Mail ('000 kilos)	1,295
Peak Hour Demand:	
Aircraft movements	28
Aircraft stands	9
Passengers	795

6. Scope of Work: (1) Preliminary and detailed design
(2) Tender specifications and award of contract
(3) Construction
7. Time Required: End 1973 - 1976
8. Project Cost: US\$ (million)
- | | |
|--------------|---------------------|
| Foreign Cost | 4.9 |
| Local Cost | <u>4.0</u> |
| Total Cost | <u>8.9</u>
===== |
9. Phasing of Expenditure: 1973 5%
1974 25%
1975 40%
1976 30%
10. Justification: While additional runway capacity is not called for, expansion and improvement of terminal and apron facilities are needed to meet expanded traffic flows as a result of more intensive coverage of the domestic air network and the growth of international tourist traffic.

1. Name of Project: Kota Kinabalu Airport
2. Location: State of Sabah, East Malaysia
3. Proposed Sponsor: Ministry of Communications and Public Works Department, Sabah
4. Description:
- (1) Diversion of Petagas River.
 - (2) 9,400 ft. runway and extension to existing terminal building.
 - (3) Taxiways for 9,400 ft. runway.
 - (4) Installation of aerodrome ground and navigational aids.
 - (5) Construction of a terminal complex including terminal building, operation block/control tower, cargo building, parking apron and airline equipment store.
5. Objectives: To provide facilities that will cope with forecasted traffic. Demand forecasts for 1976 are as follows:-

<u>Annual Demand</u>	<u>1976</u>
Passengers	735,200
Cargo ('000 kilos)	6,600
Mail	n.a.
Aircraft movements	30,808

Peak Hour Demand:

Aircraft movements	11
Aircraft stands	9
Passengers	n.a.

6. Scope of Work: Detailed engineering is currently underway. The next steps are preparation of tender specifications, award of contract and construction.

7. Time Required: 1971 - 1976

8. Project Cost: US\$ (million)

Foreign Cost	13.9
Local Cost	11.2
Total Cost	<u>25.1</u> =====

9. Phasing of Expenditure:

1971	5%
1972	15%
1973	20%
1974	20%
1975	20%
1976	20%

10. Justification: The growth of domestic traffic following progressive integration of the East and West Malaysian economies and the growth of tourist traffic have made the expansion of this principal airport in Sabah urgent.

1. Name of Project: Sandakan Airport
2. Location: State of Sabah, East Malaysia
3. Proposed Sponsor: Ministry of Communications and Public Works Department, Sabah
4. Description:
- (1) A new 6,500 ft. runway will be built at the existing site.
 - (2) A passenger terminal building designed to process about 270 peak-hour passengers.
 - (3) A new apron to provide 3 aircraft stands for F-27 and 1 for BN-2 aircraft.
 - (4) Acquisition of an additional 271 acres of land for future use.
 - (5) Construction of other facilities, e.g. Operation and Control Tower; Crash Fire Rescue building; Meteorological station, etc.
5. Objectives: To provide facilities that will cope with forecasted traffic demand. Forecasts for 1976 are as follows:-

<u>Annual Demand</u>	<u>1976</u>
Passengers	292,100
Aircraft Movements	20,020
Cargo ('000 kilos)	2,180
Mail ('000 kilos)	170

Peak Hour Demand:

Aircraft movements	9
Aircraft stands	4
Passengers	271

6. Scope of Work:
- (1) Preliminary and detailed design.
 - (2) Tender specifications and award of contract.
 - (3) Construction.

7. Time Required: End 1973 - 1976

8. Project Cost:	US\$ (million)
Foreign Cost	4.56
Local Cost	7.60
Total Cost	<u>12.16</u> =====

9. Phasing of Expenditure:	1973	5%
	1974	25%
	1975	40%
	1976	30%

10. Justification:

The rapid growth of the forest and wood-based industries of Sandakan, the growth of traffic to and from other parts of East and West Malaysia following progressive integration of the separate components of Malaysia make expansion and improvement of airport facilities here urgent.

1. Name of Project: Study for the Development of the Port of Penang.
2. Location: Penang, West Malaysia.
3. Proposed Sponsor: Penang Port Commission and Ministry of Communications.
4. Description and Objective: The objectives of this study are to enable the Penang Port Commission:-
 - 1) to prepare a comprehensive development programme for the Port of Penang for the next twenty years to meet the demand for port facilities arising out of traffic growth.
 - 2) a) to determine suitable areas within the port for the development of future facilities, and
b) to select suitable development alternatives on the basis of detailed economic analysis.
 - 3) to assess the financial capacity of the Penang Port Commission to meet development requirements for the next twenty years.
5. Scope of Work:
 - 1) Economic Base Survey
Undertake an economic base survey of the country in general and the hinterland of the port in particular to determine future levels of economic activity that will influence the demand for port facilities at Penang.
 - 2) Projection of Future Traffic Demand
On the basis of the base survey, forecast the volume and pattern of traffic expected to pass through the Port of Penang.

3) Inventories

Examine the present transport system, both land and sea, serving the Port of Penang, and also the facilities at the Port of Penang.

4) Technological Development

Study technological developments in shipping and cargo handling methods that are likely to influence future development in the Port of Penang.

5) Analysis of Present Facilities

Determine the adequacy of facilities to meet future traffic growth in the light of technological developments.

6) Engineering Studies

Undertake engineering studies of the port to determine suitable physical areas of port development (including an investigation into the problem of draught limitations and the need to deepen the channel entrances at economic cost).

7) Identification of Future Development

On the basis of the above studies to identify expansion projects that the Port Commission requires to undertake during the next twenty years. This identification should be accompanied by detailed economic analysis of the alternative projects recommended for consideration.

8) Financial Study

Undertake a detailed financial study of the port authority's operating departments to assess the financial capacity of the Port Commission to undertake development programmes for the next twenty years (including an examination of possible additional sources of income to meet development costs).

6. Time Required:

1974

7. Project Cost:

To be estimated

8. Justification:

Projected general cargo flows in foreign traffic are expected to exceed the present capacity of the Port of Penang of 1.6 million M.T. between 1975-80.

1. Name of Project: Kuantan Port Development.
2. Location: State of Pahang.
3. Proposed Sponsor: Ministry of Communications.
4. Description: See item 6.
5. Objective:

The Kuantan Port is intended to serve an extensive hinterland in which a number of large-scale land development schemes, sponsored by Federal Government agencies and State Governments, are under development or planned for development during the coming years. These, together with a number of smaller development schemes, both Government and in the private sector, will lead to a very considerable increase in the output of agricultural export products in the Eastern States of West Malaysia. To reach the world markets in the most economical way, these products call for a well laid-out sea port on the East Coast equipped with up-to-date cargo handling equipment and accessible to types of cargo carriers that can be expected to call at the port.

The port will cater initially for bulk and liquid cargo for export and eventually for the export and import of general cargo.
6. Scope of Work:

The project is divided into the following stages:-

 - (1) Construction of the breakwaters, which is expected to commence in January 1974. This phase includes quarrying of rocks.
 - (2) Site preparation, which includes the sand drains and sand fill in September 1973.

- (3) Dredging of the basin commencing mid-1974.
- (4) Construction of the quay wall and the palm oil jetty in the third quarter of 1974.
- (5) Construction of administrative buildings and other services including roads, pavements, lighting etc. will comprise the final stage of port construction. This will begin in 1975.

7. Time Required:

The whole project will take about 3½ years.

8. Project Cost:

Estimated at \$110 million Malaysian excluding consultation fees, land acquisition and approach road.

Foreign costs are estimated as follows:-

	Malaysian \$ (million)
1. Consultation fees	7.2
2. Dredging	30.0
3. Breakwaters	40.0
4. Sand, drain and site preparation	10.0
5. Quay walls	15.0
	<hr/>
Items 2 to 5	95.0
	=====

The remainder can be financed locally. For construction work, it is generally accepted that 40% of the cost is for local employed labour in any contract. Materials and foreign personnel usually take up 60% of the estimated cost. Therefore foreign cost is estimated at \$75 million Malaysian or US\$27 million.

9. Phasing of Expenditure:		Malaysian \$ (million)
Breakwaters	1974	40
	1975	20
	1976	10
Dredging	1974	8
	1975	18
	1976	4
Site Preparation	1973	1
	1974	6
	1975	3
Quay walls	1974	2
	1975	8
	1976	5

10. Justification:

A detailed feasibility study for this port was completed in 1972 by a firm of consultants. This has confirmed that from the extensive land development schemes now being undertaken (some already in production) and planned in the eastern States of Pahang and Trengganu, there is an urgent need for an ocean port to serve the east coast states of West Malaysia. The Consulting Firm has made forecasts for the potential traffic for this port from 1975-1991 for dry, bulk and liquid cargo as follows:-

Projected Total Throughout at Kuantan Port
up to 1995 ('000 tons)

<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
1,180	1,330	1,530	1,710	1,925	2,180	2,365	2,540	2,680
<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1995</u>	
2,820	2,930	2,960	3,020	3,085	3,150	3,200	3,230	

The economic analysis of the project indicates a benefit-cost ratio for the national economy of 1.67 and an internal rate of return of 18.43%. From the commercial point of view alone, the benefit-cost ratio is 0.88 and the internal rate of return 8.14%.

10. Justification:

The present service provided by a second hand conventional motor vessel does not meet requirements as it is often subject to delays which have proved to be inconvenient to passengers and has resulted in loss of perishable cargo trade.

The economic justifiability of the project hinges largely on the free movement of trade between West Malaysia and Sumatra. The implications for both countries in this respect are under careful study.

1. Name of Project: Feasibility Study of a North-South Expressway, West Malaysia.
2. Location: Between Kulai (Johore) and Seremban (Negri Sembilan), between Rawang (Selangor) and Ipoh (Perak), and between Kuala Kangsar (Perak) and Alor Setar (Kedah). Alignment would lie between existing Route I and the west coast for the southern two sections and east of Route I for the northern section.
3. Proposed Sponsor: Highway Planning Unit, Ministry of Works and Power.
4. Description: The project consists of a technical and economic feasibility study of the proposed new expressway. The expressway would consist of three sections, each about 100 miles long. The first would connect Kulai on existing Route I with the planned new Kuala Lumpur/Seremban expressway at Seremban; the second would connect Rawang (which is planned to have a new route to Kuala Lumpur) with Ipoh; the third would connect the planned new Ipoh/Kuala Kangsar road at Kuala Kangsar with Alor Setar via Butterworth. The new road would be mainly on a new alignment but may utilize portions of the existing road and would replace Route I as the principal north-south arterial route. The initial standard may be two-lane in some sections and four-lane in others.
5. Objectives: The proposed feasibility study would determine the most economical routing and design standard for the expressway; indicate its technical and economic feasibility; and recommend on the optimal timing for initial construction and future expansion by sections.

6. **Scope of Work:** The feasibility study would have to include preliminary survey and consideration of alternative routes and design standards; estimates of construction and maintenance costs for each alternative; projections of traffic flows, and an assessment of benefits attributable to each alternative. Conventional project economic analysis is to be applied to achieve the objectives mentioned above.
7. **Time Required:** Feasibility study to be completed by December 1974.
8. **Project Cost:**
- | | |
|----------|--------------------------------|
| Local: | US \$ 300,000 |
| Foreign: | US \$ 700,000 |
| Total: | <u>US \$1,000,000</u>
===== |
9. **Phasing of Expenditure:** 1974: US \$1,000,000.
10. **Justification:** The existing Route I is becoming heavily congested in sections and passes through numerous small towns. As this is the principal trunk road in the country, it is essential that a high standard of service be maintained. This requirement may be better met by a new expressway rather than upgrading the existing road. Moreover, in the southern and northern sections, a new direct route would reduce present mileage by about 25 miles along each section. The central section would provide new access to areas with agricultural potential.
11. **Other Pertinent Information:** The proposal for an overall north-south expressway from Johore Bahru to the Thai border, totalling some 480 miles in length, was examined in the 1970 UNDP financed study "Transport Development in Malaysia" undertaken by Robert Nathan Associates, Inc. The study recommended a full-scale feasibility

study of the route at an estimated cost of M\$2 million. Subsequently, a "Highway Feasibility Study on Route I" in 1972 evaluated the need for an expressway from Seremban to Butterworth on a slightly different alignment and concluded that this project if completed by 1980 would yield an Internal Rate of Return of 3%. The proposed study includes only portions of the latter route. It also incorporates the Ayer Hitam - Seremban section to the south and the Butterworth - Alor Setar section to the north. A prefeasibility study of portions of the proposed route is underway and will be completed by April 1973.

1. Name of Project: Feasibility Study of Yong Peng - Tampin - Seremban Road.
2. Location: Between Yong Peng (Johore) and Seremban (Negri Sembilan), West Malaysia.
3. Proposed Sponsor: Highway Planning Unit, Ministry of Works and Power.
4. Description: The project consists of a technical and economic feasibility study of alternative means of improving or reconstructing the road between Yong Peng and Seremban. The existing 2-lane road is part of Federal Route I, the main north-south arterial route. The section between Yong Peng and Tampin is 90 miles long and between Tampin and Seremban it is 31 miles long. Possible alternative improvements are (a) upgrading the existing route (b) realigning along the existing corridor or (c) realigning on a new corridor.
5. Objectives: The proposed feasibility study would determine for each section the most economical alternative routing and design standard; indicate its technical and economic feasibility; and recommend on the optimal timing of initial construction and future expansion.
6. Scope of Work: The feasibility study will have to include preliminary survey and consideration of alternative routes and design standards; estimates of construction and maintenance costs for each alternative; projection of traffic flows; and an assessment of benefits attributable to each alternative. Conventional project economic analysis is to be applied to achieve the objectives mentioned above.

7. Time Required: Feasibility study to be completed by June 1974.
8. Project Cost: Local : US\$ 100,000
Foreign: US\$ 250,000
Total : US\$ 350,000
9. Phasing of Expenditure: 1973 : US\$100,000
1974 : US\$250,000
10. Justification: Two alternative routes exist between Yong Peng and Tampin - Route I to the east and the west coast road via Malacca. Each forms a rough semi-circle. A new direct route would reduce the present distance either way by about 25 miles. Total traffic on the existing two routes ranges from 4,600 to 10,000 vehicles per day, of which perhaps 500 to 1,000 are long-distance traffic and would divert to a new direct route. The existing road between Tampin and Seremban is of low geometric standards and is experiencing traffic flows of about 5,500 vehicles per day. Feasibility studies of similar sections on Route I with similar traffic volumes have shown major improvements to be justified.
11. Other Pertinent Information: A prefeasibility study of the Seremban - Yong Peng road is to be undertaken and will be completed by July 1973.

1. Name of Project: Feasibility Study of a Road Between Ipoh and Kampar, West Malaysia
2. Location: Between Ipoh and Kampar in the State of Perak
3. Proposed Sponsor: Highway Planning Unit, Ministry of Works and Power
4. Description: The project consists of a technical and economic feasibility study of alternative means of improving or reconstructing the road between Ipoh and Kampar, including a possible by-pass at Ipoh town. The existing two-lane road is 24 miles long and forms part of Federal Route I, the main north-south arterial route. Possible alternative improvements are: (a) widening the existing route to four lanes (b) reconstructing the route along the same corridor or (c) realigning to the west of the existing road to connect with a by-pass at Ipoh on the west side.
5. Objectives: The proposed feasibility study would determine the most economic alternative routing and design standard; indicate its technical and economic feasibility; and recommend optimal timing for initial construction plus future expansion.
6. Scope of Work: The feasibility study would have to include preliminary survey and consideration of alternative routes and design standards; estimates of construction and maintenance costs for each alternative; projection of traffic flows; and an assessment of benefits attributable to each alternative. Conventional project economic analysis is to be applied to achieve the objectives mentioned above.

7. Time Required: Feasibility study to be completed by June 1974.
8. Project Cost: Local: US \$ 60,000
 Foreign: US \$170,000
 Total: US \$230,000
9. Phasing of Expenditure: 1973: US \$ 80,000
 1974: US \$150,000
10. Justification: Although its geometric alignment is good, traffic volume on this section of road is one of the highest in the country, ranging from 9,200 to 14,700 vehicles per day in 1972 and reaching peak hourly flows of about 1,300 vehicles in both direction. It is expected that considerable road user savings will result from an improvement of the road. Feasibility studies of other sections of Route I with lower traffic volumes have indicated that major improvements are justified.
11. Other Pertinent Information: A prefeasibility study of the Ipoh Kamper road is underway and will be completed by April 1973.

1. Name of Project: Feasibility Study of Sibü - Bintulu Road.
2. Location: Between Sibü (Third Division) and Bintulu (Fourth Division) in Sarawak.
3. Proposed Sponsor: Highway Planning Unit, Ministry of Works and Power and Sarawak Public Works Department.
4. Description: The project consists of a technical and economic feasibility study of the construction of a new road approximately 80 miles long to complete the link between Sibü and Bintulu. The existing road has been completed to gravel standards northward from Sibü to around Mukah. The new road would continue from there to Bintulu forming part of the main arterial route through Sarawak. This is the only gap remaining in the main trunk road.
5. Objectives: The proposed feasibility study would determine the most economical alternative routing and design standards; indicate its technical and economic feasibility; and recommend optimal timing for initial construction and future expansion.
6. Scope of Work: The feasibility study will have to include preliminary survey and consideration of alternative routes and design standards; estimates of construction and maintenance costs for each alternative. Conventional project economic analysis is to be applied to achieve the objectives mentioned above.
7. Time Required: Feasibility study to be completed by December 1974.
8. Project Cost:

Local	:	US \$ 70,000
Foreign:		<u>US \$180,000</u>
Total	:	US \$250,000

9. Phasing of Expenditure: 1974 : US \$250,000

10. Justification:

The region through which the Sibul - Bintulu road would pass has relatively high potential for both forestry and agriculture. At present, a UN/FAO study of timber production in the region is underway. Shipment of exports is envisaged to take place via Kapit (on the Rajang River) or Tatau. The proposed road will play an important part in the movement of this timber. In addition, a regional development study is underway including the northwest portion of the Fourth Division (the area between Bintulu and Miri) and will be completed in late 1973. Preliminary findings confirm the need for the proposed Sibul - Bintulu road.

1. Name of Project: Feasibility Study of Feeder Roads in Sarawak
2. Location: Adjacent to trunk roads throughout Sarawak State
3. Proposed Sponsor: Highway Planning Unit, Ministry of Works & Power and Sarawak Public Works Department
4. Description: The project would consist of the investigation of possible feeder roads throughout Sarawak and their technical and economic feasibility. Feeder roads would consist of low-standard roads up to around 50 miles in length for local access onto existing roads.
5. Objectives: The proposed study would identify individual feeder road projects which are technically and economically feasible and establish the most economical routes and design standards for them. The feeder roads would have the objective of providing access to isolated population areas or regions of new development potential with a view to contributing to the economic growth of the people served.
6. Scope of Work: The study will have to investigate all likely feeder road possibilities; establish the most economical routing and design standards; assess traffic flow and benefits due to each proposal; evaluate the economic feasibility of each; and recommend on a priority listing for implementation purposes.
7. Time Required: Study completion by end of 1974.
8. Project Cost:

Local:	US \$100,000
Foreign:	US \$400,000

9. Phasing of Expenditure: 1974: US \$500,000
10. Justification: Although the main trunk road through the length of Sarawak is nearly completed, little road facilities exist aside from this main route. Many populated areas thus remain virtually isolated, the only means of access being by foot or in some cases by air or river. Consequently, subsistence farming is still widely spread and social and economic development in these isolated regions is hindered. Construction of low cost feeder roads linking these areas with the main trunk road would provide direct access to potential markets and permit more rapid development in the rural areas, as well as improve the utilization of the trunk road itself. In order to establish rational priorities for implementing a large-scale feeder road programme, a feasibility study of all likely feeder roads is required.
11. Other Pertinent Information: A regional development study of the northwest portion of the Fourth Division (including the Miri-Bintulu trunk road) is now in progress and should provide some insights into the optimum configuration of feeder roads and their potential effectiveness.

1. **Name of Project:** Construction of three bridges on the Kuantan-Segamat Road
2. **Location:** Bridges are to be located on the planned new Kuantan-Segamat road crossing the Pahang, Rompin and Keratong Rivers. The new road will run from Gambang on Federal Route II (17 miles west of Kuantan) to Segamat on Route I.
3. **Proposed Sponsor:** West Malaysia Public Works Department, Ministry of Works and Power.
4. **Description:** These three bridges will form part of the new 95 mile long Kuantan-Segamat road which will pass through the Southeast Pahang region. This region is planned for extensive land development and the road will become the primary access route. The road will be a two-lane paved facility to high geometric standards and the three bridges are the largest bridges on the new road. They will also be two lanes wide with lengths as follows:

Pahang River Bridge	2,000 feet
Rompin River Bridge	1,700 feet
Keratong River Bridge	1,000 feet
5. **Objectives:** The bridges will be an integral part of the Kuantan-Segamat road which has the objective of providing access for the Southeast Pahang development area and of providing an additional through-route for north-south traffic along the east coast.
6. **Scope of Work:** The work includes detailed design (except for the Pahang River Bridge for which design is already underway) and construction of the three bridges.
7. **Time Required:** All three bridges are to be completed by the end of 1975 in order to coincide with the opening of the road.

8. Project Cost:	U.S. \$	- Pahang River Bridge	Rompin River Bridge	Keratong River Bridge	Total Three Bridges
1973			170,000	100,000	270,000
1974	1,700,000		760,000	450,000	2,910,000
1975	1,700,000		770,000	450,000	2,920,000

9. Justification:

A feasibility study of the Kuantan-Segamat road indicated an internal rate of return of 14-17%, depending on the method of timber extraction. At an initial construction cost of about M\$48 million, the road is expected to produce benefits for the next 20 years as follows (on present worth basis)

<u>Malaysian \$ (million)</u>	
Net value added in Agriculture production	146-224
Savings to existing traffic	1- 2

10. Other Pertinent Information:

The Pahang Tenggara Regional Study, which was done following the Kuantan-Segamat road feasibility study, confirmed the need for the road with only a slight change in alignment. The road and bridge locations finally selected are in accordance with this regional study.

1. Name of Project: Construction of Three Bridges along the West Coast of West Malaysia
2. Location: Selangor River at Kuala Selangor, Bernam River at Sabak, Perak River near Teluk Anson.
3. Proposed Sponsor: West Malaysia Public Works Department, Ministry of Works and Power
4. Description: All three bridges are located on the existing west coast road between Kuala Selangor and Lumut. (The last section of road between Teluk Anson and Lumut is to be constructed beginning in 1973.) The two bridges at Kuala Selangor and Sabak are to replace existing ferries. All three bridges are to have two lanes and the Sabak Bernam bridge will have a swing span to permit passage of large river vessels. Bridge lengths are: Kuala Selangor: 1,200 feet; Sabak Bernam: 1,000 feet; Teluk Anson: 950 feet.
5. Objectives: The two bridges that will replace ferries have the objective of reducing travel time and cost for west coast traffic and eliminating existing ferry services and accident hazards. The bridge at Teluk Anson is an integral part of the new 15-mile road to be constructed between Teluk Anson and Lumut which will reduce the distance from Kuala Lumpur to Lumut by 60 miles.
6. Scope of Work: The work includes detailed design (except for the Kuala Selangor bridge for which design is complete) and construction of the three bridges.
7. Time Required: Kuala Selangor Bridge: Construction July 1973-December 1974.

Sabak Bernam Bridge: Design during 1976.
Construction during 1977 and 1978.

Teluk Anson Bridge: Design during 1973.
Construction during 1974 and 1975.

8. Project Cost:	<u>Local</u>	<u>Foreign</u>	<u>Total</u>
	(Malaysian \$ Thousand)		
Kuala Selangor Bridge	480	720	1,200
Sabak Bernam Bridge	880	1,320	2,200
Teluk Anson Bridge	<u>410</u>	<u>600</u>	<u>1,010</u>
Total Three Bridges	1,770	2,640	4,410

9. Phasing of Expenditures:	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
	(Malaysian \$ Thousand)					
Kuala Selangor Bridge	400	800				
Sabak Bernam Bridge				200	1,000	1,000
Teluk Anson Bridge	<u>90</u>	<u>460</u>	<u>460</u>	—	—	—
Total Three Bridges	490	1,260	460	200	1,000	1,000

10. Justification: An economic study of the Sabak Bernam Bridge proposal has concluded that the economically optimal opening year is 1979. For construction in 1977/78, the Internal Rate of Return over 20 years is 10%. Costs and benefits (in present value terms) are as follows:

(Malaysian \$ million)

Eliminated ferry costs and traffic benefits	9.20
Construction & operation costs	4.43
Net present value	4.77

Feasibility studies have not been conducted for the other two bridges but comparative traffic flows are as follows (excluding bicycles):

Kuala Selangor Bridge:
1972 ferry traffic: 1,060 vehicles/day

Sabak Bernam Bridge:
1972 ferry traffic: 900 vehicles/day

Projected 1979 bridge traffic: 1,540 vehicles/day

Teluk Anson Bridge:
Projected 1976 bridge traffic: 685 vehicles/day

11. Other Pertinent Information:

Tenders for construction of the Kuala Selangor Bridge were invited in March 1973 and construction is scheduled to begin in June 1973.

1. Name of Project: Kuala Lumpur-Penang Microwave System
2. Location: Selangor, Perak, Penang Kedah in West Malaysia
3. Proposed Sponsor: Ministry of Communications
4. Description) Provision of a high capacity micro-
) wave system equipment.
5. Objective)
6. Scope of Work: Supply and installation of microwave system equipment.
7. Time Required: End 1974
8. Project Cost: Equipment and installation approxi-
) mately M\$2,500,000
9. Phasing of Expenditure: Expected 80% in 1974, 20% in 1975.
10. Justification: Increasing demand for trunk telephone traffic to cater to the high growth rate which continues to be experienced.

1. Name of Project: Kuala Lumpur-Johore Bharu Microwave Radio Telephone System.
2. Location: Selangor, Negeri Sembilan and Johore in West Malaysia.
3. Proposed Sponsor: Ministry of Communications.
4. Description:)
) Provision of a high capacity microwave
) radio link to augment existing tele-
) communications services.
)
5. Objective:)
6. Scope of Work: Supply and installation of microwave radio system equipment.
7. Time Required: Early 1974.
8. Project Cost: Equipment cost and installation approximately M\$2,000,000.
9. Phasing of Expenditure: Expected 90% in 1974, 10% in 1973.
10. Justification: The density of telephone traffic between the main towns in the South of West Malaysia is high and the average growth rate is 20% per annum. Presently there are delays in telephone traffic thus causing loss of revenue to Government.

B. INDUSTRIAL BRIEFS

I. Agro-Based Industry:

1. Integrated Coconut Processing Complex
2. Cocoa Processing
3. Integrated Coffee Cultivation and Processing
4. Maize Processing
5. Rubber-Dipped Goods
6. Rubber Products for Sports and Games
7. Rubberized Fabrics
8. Rubber Parts and Fittings for Motor Vehicles
9. Rubber Hose
10. Rubber Belting
11. Particle Board from Wood-Waste
12. Laminated Parquet
13. Wooden Objects
14. Hardboard from Wood-Waste

II. Chemical Industry:

1. Carbon Black
2. Titanium Dioxide
3. Refining, Fractionating and Hydrogenation of Palm Oil
4. Furfural
5. Pyrolysis of Wood-Waste
6. Dextrins

- III. The Textile Industry
- IV. The Electronics, Medical Instruments, Watches and Optical Industries
- V. The Toy Industry
- VI. The Metal Working Industry

1. Name of Project: Integrated Coconut Processing Complex

2. Availability of Raw Materials: 1) West Malaysia

Coconut ranks as the third largest crop after rubber and rice in terms of acreage cultivated. It covers over 500,000 acres. Coconuts are mainly grown on a small-holder basis with Johore, Selangor and Perak as the more important producing states. Estimated yearly production of nuts in West Malaysia in recent years was over 800 million. Yields range from over 500 nuts per acre in Kelantan to almost 3000 nuts in Selangor.

2) Sabah

Coconut is the second largest crop by acreage in Sabah following rubber, with an estimated acreage in 1971 of about 140,000. Estimated yearly production of nuts is reported to be about 200 million and average yield in Kudat District, the prime growing area, according to a recent survey, is stated to be 2,500 nuts per acre per year.

3) Sarawak

According to the 1960 census, the total acreage in Sarawak was 31,332. During the period 1959 - 1971 an additional acreage of 77,274 was planted under 'schemes' bringing the total acreage under coconut to 108,606.

The highest concentration is in the 1st Division, and out of the 53,499 acres, Kuching District accounts for 27,685 acres, about 25% of the total acreage under coconut in Sarawak.

Total production of nuts is estimated to be about 120 million.

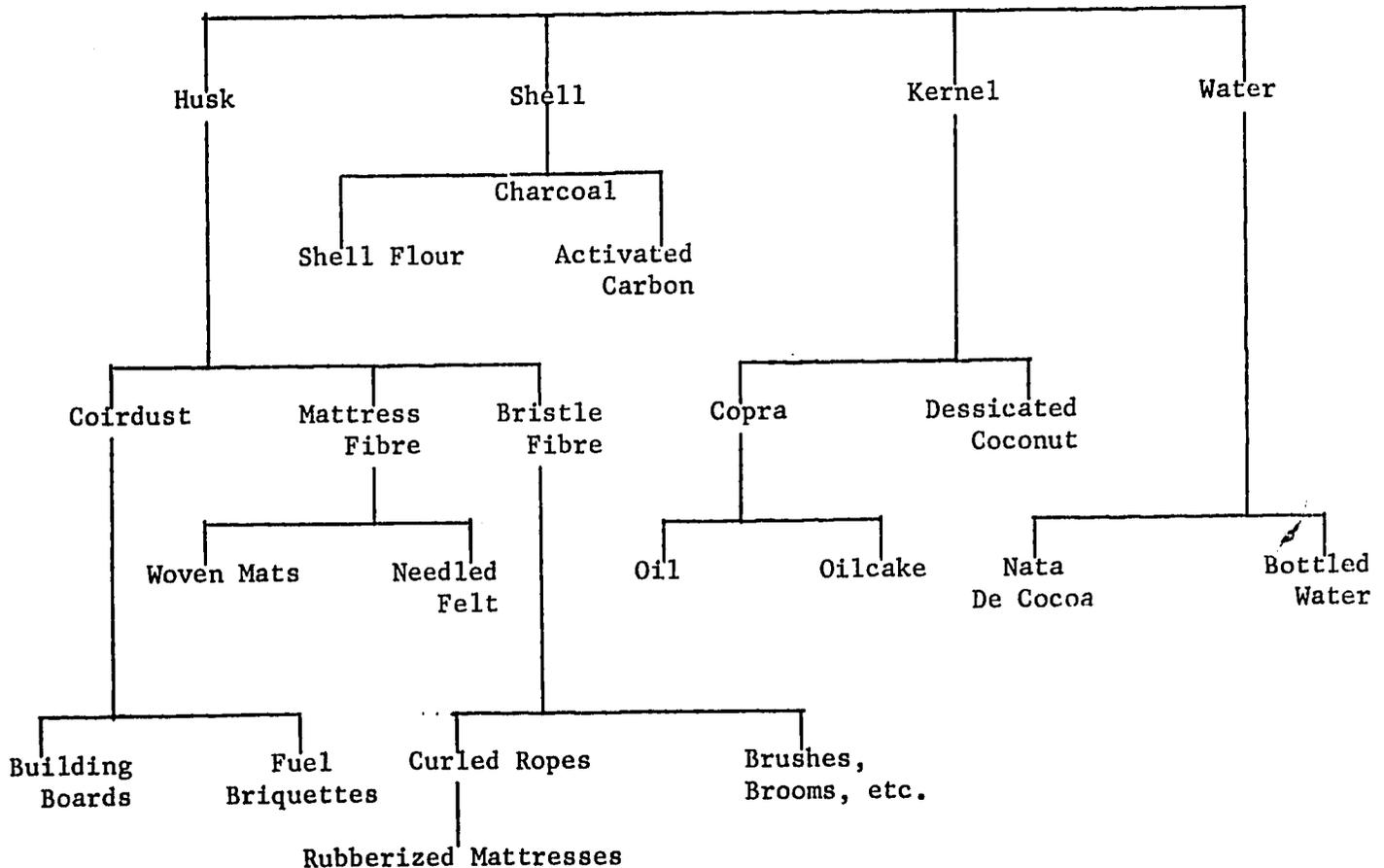
3. Local Utilization:

Almost all the produce of nuts in West Malaysia, Sabah and Sarawak are converted into copra, with only a small quantity consumed as fresh nuts.

The shell and husk are partly utilized as fuel - the shell for copra drying in crude kilns and husk as domestic fuel - but the bulk of these nut-products goes to waste, with the exception of very small quantities of husk processed for the extraction of fibre in West Malaysia and shell for the production of shell flour.

The various products of commercial value which can be obtained from whole coconuts are illustrated below:-

Whole Coconut



4. Market:

There is an established market overseas for dessicated coconut bristle and mattress fibre, shell, charcoal and activated carbon. The main importing countries are USA, U.K., Germany, Japan, Italy and lately USSR. West Malaysia itself is importing coir, raw waste or processed not spun from Ceylon, India and Indonesia.

5. Duties:

Fresh coconut are imported free of duty, while imports of dessicated coconut have an import duty of 30 cts. per lb. No duties are imposed on the imports of other coconut products.

6. Joint Venture Possibilities:

The following organization have shown keen interest in establishing integrated coconut processing complexes.

- 1) Department of Industrial Development, Sabah.
- 2) State Economic Development Corporation, Perak.
- 3) State Economic Development Corporation, Trengganu.
- 4) State Economic Development Corporation, Johore.
- 5) Sarawak Economic Development Corporation.

1. Name of Project: Cocoa Processing.
2. Availability of Raw Materials: Climatically, Malaysia is very suitable for cocoa growing. The rainfall is about 80" a year and temperature averages about 80°F throughout the year. The high and continuous humidity is also good for cocoa growing. Although the Criolla type grows throughout the country, it is the Trinitario which is found on a commercial scale since it is of higher yielding variety than the former and less susceptible to 'die-back'.

Sabah is the main producer of cocoa in Malaysia and as there are not sufficient processing facilities in Malaysia, most of the cocoa beans are exported. The acreage of cocoa is increasing at about 9.6% p.a.

Sabah: Cocoa is grown mainly on the basaltic soils in the Tawau Residency but cocoa planted on alluvial soil in the Labuk Valley is showing good growth and yield. Experiments in the rich Tenom Valley have also been favourable.

West Malaysia: Cocoa is cultivated as a:

- (i) Sole crop
- (ii) Main crop occupying 7% of the cultivated area
- (iii) Mixed crop occupying 50% of the cultivated area

Perak and Trengganu are the most important cocoa growing states in West Malaysia. In the former state, nearly all the cocoa is grown as a mixed crop whereas in Trengganu it is mainly grown as a sole crop and is centered around the Ulu Trengganu district.

3. Domestic Demand for Cocoa Products: About M\$4 million a year is spent on the import of processed cocoa products (cocoa powder, cocoa paste, cocoa butter, chocolate and other chocolate preparations). However it must be noted that the potential demand is greater for before the imposition of duty imports of cocoa and other allied products were about \$6 million annually. Prevailing import duties on cocoa and all allied items are:-
- | | |
|---|------------------|
| Cocoa Beans | : 10¢ per lb. |
| Cocoa Paste | : \$1.60 per lb. |
| Cocoa Butter | : 15¢ per lb. |
| Cocoa Powder unsweetened: | 15¢ per lb. |
| Cocoa Powder sweetened | : \$1.60 per lb. |
| Chocolate and other confectionery preparations containing cocoa | : \$1.60 per lb. |
4. Local Consumption of Cocoa Beans: As there are only a few manufacturing establishments processing cocoa beans into end-products, most of the harvest in West Malaysia and Sabah are exported. Malaysian exports of cocoa beans in 1970 were M\$5.4 million.
5. Existing Local Producer/Approved in Principle: To date, the Government has granted approval to three companies, including one in East Malaysia for the manufacture of chocolate and other allied items. Of these only one has commenced production.
6. Joint-Ventures Possibility: The following bodies have indicated interest in the project and would therefore welcome any joint-venture possibility with established companies:-

- (i) FIMA Sdn. Bhd.
- (ii) Sarawak Economic Development Corporation
- (iii) State Development Corporation Negeri Sembilan
- (iv) Perak State Development Corporation

1. Name of Project: Integrated Coffee Cultivation and Processing.

2. Availability of Raw Materials:

Coffee production is hardly sufficient to satisfy local demand for coffee beans which are roasted and ground into coffee powder. Coffee is cultivate mainly as a mixed crop. Present acreage is over 13 thousand acres.

In view of Government's programmes to encourage inter-planting of coconuts with coffee or cocoa in coconut re-planting schemes, total acreage under coffee especially on a mixed crop basis can be expected to increase. At present coffee is mainly concentrated in Selangor and to a smaller extent in Johore.

The Liberian coffee is the predominant variety grown in the coastal districts, while in the inland districts the *L. usta* variety is more commonly found.

The temperature is fairly steady throughout the year with November, December and January being the coolest months. The rainfall is also steady.

FAO estimates that in 1968 West Malaysia produced 2,000 metric tons of coffee beans whilst East Malaysia accounted only for 300 metric tons.

3. Domestic Demand:

In view of the short supply of local coffee beans, a sizeable amount of coffee beans is being imported annually with unroasted coffee forming the bulk of imports. In 1971, import of coffee beans and other coffee products amounted to M\$11.5 million.

4. Existing Local Manufacturers/Approval:

There are at present numerous coffee factories in West Malaysia producing coffee powder and ground and roasted coffee beans. In 1968, there were

191 such factories. These factories are however run on a small scale. Since local production of coffee beans is small, the coffee beans required have to be imported.

Despite the good potential market in coffee extract and essence in Malaysia, to-date there is no local producer. Two companies have been given approval but have not started production.

5. Duties:

The following are the prevailing import duties imposed in West Malaysia:-

Coffee unroasted	:	\$336/ton ex-surtax (P)
Coffee roasted, not ground	:	20 cts./lb.
Coffee roasted, ground (coffee powder)	:	20 cts./lb.
Coffee substitutes containing coffee	:	20 cts./lb.
Coffee husks and skins	:	Nil

6. Joint-Venture Possibility:

The following bodies have indicated their interest in the project:-

- a) FIMA Sdn. Bhd.
- b) Trengganu State Development Corporation

1. Name of Project: Maize Processing.
2. Availability of Raw Materials: 3 species of maize are grown in West Malaysia viz.
 - (i) Flint variety: grains usually small, hard, round and highly polished. The most important types in the sub-species are nature flint, American Field Corn & Natal Eight-Row Flint.
 - (ii) Dent variety: Among the white dents introduced and grown successfully in Malaysia are Hickory King, Natal White Horse-tooth, Pkchefstroom Pearl & Salisbury White.
 - (iii) Sweet variety: These cobs are used solely as a green vegetable and is not widely cultivated in Malaysia.

Maize is grown in all the states of West Malaysia as either a sole mixed crop.
3. Total Acreage: Total acreage under maize is however still very small, amounting only to 7,605 acres in 1970.

Annual production figures for maize are not available but based on existing acreage and an average yield of 2000 lbs per acre, it is estimated that production of maize is in the region of about 8,000 shorttons. This is hardly sufficient to meet local demand for maize.

About 40,000 acres of land in Trengganu in West Malaysia have been identified as suitable for maize growing.
4. Domestic Demand: The rate of increase in imports of unmilled maize and maize for animal feed

is high being 113% in the years 1964 to 1969 or a simple growth rate of about 16% per annum. This high rate of growth can be explained by the fact that while the demand for maize especially for animal feed has increased on the one hand, local production has remained relatively constant at a low level. Imports of maize products into West Malaysia, Sabah and Sarawak in 1971 were 222,555 tons at a value of M\$44.4 million.

The consumption of maize in the country by 1980 is expected to reach some 520,000 tons. Locally produced maize currently satisfies only about 10 - 11% of the market.

5. Existing Producers/
Approvals:

All maize products are currently imported.

6. Joint-Venture
Possibility:

The following bodies have indicated their keenness to go into the maize project:-

- 1) FIMA Sdn. Bhd.
- 2) Negri Sembilan State Economic
Development Corporation.

1. Name of Project: Rubber Dipped Goods
(balloons, gloves, bathing caps, football bladders, teats, fingerstalls, bicycle valves, etc.)
2. Availability of Raw Materials: Latex, zinc oxide, whiting, clay and some surfactants are available locally.

Other chemicals can be imported through local chemical agents.
3. Domestic Market: Although the domestic market is small, vast potential exists in foreign markets.
4. Existing Producers/ Approvals: There are at present two companies producing prophylactics and two companies producing small quantities of balloons and gloves.

Approvals have been given to four companies to produce bathing caps, prophylactics, gloves and teats.
5. Existing Rate of Duty: SITC : 629300 & 629301 Nil

SITC : 841600 35%
6. Joint-Venture Possibility: The Sarawak Economic Development Corporation has indicated interest in rubber-based projects.

1. Name of Project: Rubber Products for Sports and Games.

(Balls of rubber, rubber toys, water sports equipment, etc. Products in particular: golf equipment viz. golf balls, club grips, tees.)
2. Availability of Raw Materials: Natural rubber, blata, gutta percha, zinc oxide, whiting and clay are available locally. In the near future, rubber thread will also be available.

Other chemicals will have to be imported.
3. Domestic Market: While the domestic market is small, opportunities for exports exist.
4. Existing Producers/ Approvals: Except for a recent application to manufacture rubber balls (basketballs, volleyballs, sponge balls and toy balls), there is no company known to be manufacturing other equipment for sports and games (excluding footwear for sports).
5. Rate of Duty: Nil.
6. Joint-Venture Possibility: The Sarawak Economic Development Corporation has indicated interest in rubber-based projects.

1. Name of Project: Rubberized Fabrics.

(inflatables, water-proof garments, tarpaulin, life rafts, jackets, tents, etc.)
2. Availability of Raw Materials: Natural rubber, prevulcanized latices and latex compounds, zinc oxide, whiting, clay and textile fabrics are available locally.

Other chemicals and products have to be imported.
3. Domestic Market: While the domestic market is still small, opportunities for exports exist.
4. Existing Producers/ Approvals: There is as yet no company manufacturing rubberized fabrics in the country.
5. Rate of Duty: 25% or 10 cts. per sq. yd. whichever is higher.

The Government has declared "Rubberized Fabrics" a priority product, eligible for additional incentives under the Investment Incentives Act.
6. Joint-Venture Possibility: The Sarawak Economic Development Corporation has indicated interest in rubber-based projects.

1. Name of Project: Rubber Parts and Fittings for Motor Vehicles.
2. Availability of Raw Materials: Natural rubber, fillers like whiting and clay and zinc oxide are available locally. In the near future, carbon black will also be produced locally.

Bonding agents and other chemicals are available from local chemical agents who frequently import these products for the existing rubber-based companies and other industries.

3. Domestic Demand: Almost all rubber components used in the automotive industry, together with other components, are imported in completely-knocked-down packs as original equipment. At present, the domestic market is primarily a replacement market. With the introduction of the Local Content Ordinance for the Motor Vehicle Industry in the near future, the domestic market would be both for the replacement market as well as for the original equipment market.

Rough estimates of total domestic market size can be gauged from the statistics below:-

	<u>Passenger Cars</u>	
	<u>Total</u> <u>Registration</u> (Units)	<u>Annual</u> <u>Local Production</u> (Units)
1967	188,055	319
1968	200,461	8,563
1969	219,273	20,487
1970	238,366	21,682
1971	260,868	23,634

Commercial Vehicles

	<u>Total Registration</u> (Units)	<u>Annual Local Production</u> (Units)
1967	50,736	947
1968	52,937	2,624
1969	56,722	4,485
1970	61,755	6,258
1971	66,990	6,886

Motorized Two-Wheelers

	<u>Total Registration</u> (Units)	<u>Annual Local Production</u> (Units)
1967	251,529	-
1968	278,836	4,353
1969	312,686	17,713
1970	350,049	32,065
1971	389,133	31,263

4. Existing Producers/
Approvals:

Except for tyres and tubes, there is still very little manufacture of rubber component parts for the automotive industry in the country.

5. Existing Rate of
Import Duty:

The existing rate of duty for "Parts and Accessories of Motor Vehicles" BTN: 87.06 is 25% ad valorem.

The Government has declared the manufacture of "Rubber Parts and Fittings for Motor Vehicles" as priority products, eligible for additional incentives under the Investment Incentives Act.

1. Name of Project: Rubber Hose
2. Availability of Raw Materials: Natural rubber is available in abundance. In addition, clay, whiting, zinc oxide and cotten fabrics are also available. In the near future, carbon black will also be produced locally.

Other raw materials like synthetic fibers and wire braiding have to be imported. Certain other chemicals required are readily available from chemical agents in the country.
3. Domestic Market: Imports of certain types of hoses are considerable, the main types being:
 - (i) Special hoses for the oil industry
 - (ii) High pressure hydraulic hoses
 - (iii) Industrial hoses of specific standards and function.
The total value of imports of rubber hose into Malaysia was almost M\$ 2 million in 1970.
4. Existing Producers/ Approvals: There are at present, five manufacturers of rubber hoses in Malaysia. Locally manufactured hoses are of fairly good quality but nevertheless are below international standards and as such enjoy little demand in sophisticated markets where special international standards are required.
5. Existing Rate of Duty: Rubber hose for industrial use: 35% ad valorem
Other piping of unhardened vulcanized rubber: 35% ad valorem
6. Joint Venture Possibility: The Sarawak Economic Development Corporation has indicated interest in rubber-based projects.

1. Name of Project: Rubber Belting
2. Availability of Raw Materials:

Natural rubber, textile fabrics and fillers are locally available. In the near future, carbon black will also be produced locally.

Other raw materials will have to be imported or bought from local chemical agents.
3. Domestic Demand:

The domestic market is primarily a replacement market since all new industrial equipment is imported complete with rubber belting.

In Malaysia, the market for industrial belting is an increasing one and with the rapid growth of industrialization, it is expected to increase at some 20% per annum.

Imports of rubber belting into Malaysia in 1970 amounted to M\$ 2.1 million.
4. Existing Producers/ Approvals:
 - (i) Two local firms are making conveyor belts but have not gone into it in a big way. Their annual production is very small and users normally prefer to import them. There is no manufacturer of V-Type transmission belts.
 - (ii) Approvals have recently been given to two firms, one to manufacture V-type transmission belts and the other to manufacture both transmission and conveyor belts.
5. Existing Rate of Import Duty:

Towards the end of 1969, an import duty of 35% was introduced for these products which hitherto had been imported duty free. The Government has listed rubber

beltings as a priority product eligible for additional incentives under the Investment Incentives Act.

6. Joint-Venture
Possibility:

The Sarawak Economic Development Corporation has indicated interest in rubber-based projects.

1. Name of Project: Particle Board from Wood-Waste
2. Raw Materials Available Locally:
 - (1) Industrial residues such as slabs and edgings from sawmills; peeler cores from veneer manufacture; and off-cuts and showings from furniture manufacture.
 - (2) Logging operations are carried out extensively in West Malaysia, Sabah and Sarawak. The non-commercial species available are not being utilized at the moment.
3. Domestic Market: Imports of particle board into Malaysia totalled M\$ 60,000 in 1970. The modest requirements of the country are partly met by a local producer. A large section of the domestic demand for board of this type has been substituted by plywood, on account of its domestic availability and lower costs as compared to imported particle board.

Although the domestic market for particle board is limited, indications are that it will expand in years to come. There are great potentialities for this item in the construction, furniture and electrical industries.
4. Export Market: There is a good export market for particle board in Europe, U.S.A., Japan and Australia. The demand for this product is increasing and is gaining popularity in its use for doors, table tops and cabinets, etc.
5. Existing Manufacturers / Approvals Granted: At the moment there is only one firm producing particle board and it meets a small proportion of the domestic market. In addition, 5 other companies have been granted approval in principle to produce particle board.

6. Import Duty on
Finished Product: Particle board imported is subject to
20% ad valorem duty.
7. Joint Venture
Possibility: Sarawak Economic Development Corporation.

1. Name of Project: Laminated Parquet
2. Raw Materials Available Locally:
- (1) Hardwood for the surface layer
 - (2) Soft or other low quality wood for the core and base layer
 - (3) Urea formaldehyde

Malaysia has a number of varieties of hardwood which could be used for the surface layer such as Kempas, Keranji, Mengkulang and the various Meranti woods. For the core and base layers, any low price wood and non-commercial varieties can be used. Malaysia has an abundance of non-commercial varieties which are not being utilized at the moment.

Urea formaldehyde resin is also being produced locally by 2 firms.

3. Domestic Market: Laminated parquet is not produced in Malaysia and thus the demand for parquet is met by mosaic parquet produced locally and through imports. The estimated local market for parquet is approximately 284,000 sq.ft. per month. However the market fluctuates with the intensity of building activity.

The current boom in the building market is likely to increase the demand for parquet flooring.

4. Export Market: There is a large export market for laminated parquet in high labor cost countries such as the U.S.A. and Europe.

5. Existing Manufacturers/ Approvals: At the moment, there are 3 firms producing parquet in Malaysia. They meet about 40% of the local market

requirement. Considering the excellent export potential, there is scope for establishing laminated parquet plants. Two additional firms have been granted approval to produce parquet.

6. Import Duty on
Finished Products:

Imported parquet is subject to 20% ad valorem duty on value.

1. Name of Project: Wooden Objects.

2. Raw Materials
 Available Locally: Enormous quantities of wood of small dimensions are either not recovered or disposed by burning in the forest and in sawmills and plywood factories. Most of them could be utilized to produce a wide range of small objects of commercial value such as spools, bobbins, reels, dowel-pins, tool handles, handles of kitchen utensils, bowls, plates, napkin rings, standard and table lampstands, wooden toys, small furniture parts, coat hangers, etc.

3. Domestic Market: The demand for wooden objects is met by supplies from local sources as well as by imports. Local furniture makers scattered throughout the country produce various articles of wood for sale in the local market. Imports of wooden objects to Malaysia in 1970 were about M\$ 1 million.

The domestic market for wooden toys is estimated to be within the region of \$280,000 and is mostly imported from China, United States and United Kingdom.

4. Export Market: The export potential is very substantial for round turned objects, mouldings, carvings and toys, especially in countries like Germany, U.S.A. and United Kingdom. US imports of wooden objects is on the increase and it could be a promising export market.

5. Existing Manufacturers/
 Approvals: There is no large manufacturer of wooden handles. Small furniture makers produce broom handles for sale in the

market. Currently there is no local producer of wooden toys on a commercial scale. Souvenir and decorative wood-ware is being produced by a number of small units who meet a small portion of local demand. Wood mouldings are being produced by at least 8 firms in the country. Considering the excellent export potential and availability of raw materials, there is scope for the manufacture of wooden objects in Malaysia. The following have been granted approvals.

2 companies to produce wooden household gifts

2 companies to produce wooden toys

6 companies to produce wood mouldings

6. Import Duty on Finished Products:

All finished products are subject to 20% ad valorem duty except for spools, cops, bobbins, sewing thread reels and the like of turned wood which are duty free.

7. Joint Venture Possibility:

The Perak State Development Corporation has indicated interest in the project.

1. Name of Project: Hardboard from Wood-Waste
2. Raw Materials Available Locally: The following wood fibrous materials available locally could be utilized.
 - (a) Roundwood (mainly non-commercial species, low quality wood, residues from thinning, logging and clearing operations)
 - (b) Industrial wood residues (from sawmills, plywood and veneer factories)

There are about 500 (or more) sawmills and 44 plywood mills in Malaysia and waste from these mills could provide an economic source of raw material for a hardboard plant. Resin necessary for hardboard manufacture is also available locally.
3. Domestic Market: There is no local production of hardboard and demand is satisfied by imports which amounted to little less than M\$ 2 million in 1970.

The local market for hardboard is approximately 20,500,000 sq. ft./annum. Expansion of the market is anticipated with the increase in building activity.
4. Export Market: Production of hardboard in Asia is of a very low order and is only about 8% of total world production while production in Southeast Asia is practically nil. Demand for hardboard in Southeast Asia is met by imports. The prospects for exports are good.

5. Existing Manufacturers/
Approvals: There is no local producer of hardboard in Malaysia, although one company has been granted approval. It has not started production yet.
6. Import Duty on
Finished Product: Hardboard is subject to 20% ad valorem duty.
7. Joint Venture
Possibility: The Sarawak Economic Development Corporation has shown interest in the above project.

1. Name of Project: Carbon-Black

2. Raw Materials:
- (a) Material oil from petroleum refineries will be required for carbon black production. Although currently, local oil refineries are not producing material oil to the specifications required for carbon black production, it may be possible to arrange with the local refineries to modify slightly their plants to yield the required material oil.
 - (b) Eventually, local oil refineries will have a total output of 57,400 barrels/yr:

	<u>000's Barrels/Annum</u>
Shell, P.D.	11,000
Esso, P.D.	13,500
Shell, Lutong	21,900
Allied (not yet in production)	<u>11,000</u>
	57,400

3. Domestic Demand: The demand for carbon black is increasing every year in Southeast Asian countries and Japan. Local consumption including Singapore's is estimated from import statistics at 8,800 tons per year. Currently the main local consumer is Dunlop, a tire manufacturer (capacity = 300,000 tires/yr.). Another tire manufacturer, Good-year, (capacity = 322,000 tires/yr.) will be in production shortly. Export prospects to Japan and other Southeast Asian countries are bright.

4. Existing Local
Manufacturer:

- (a) There is as yet no local manufacturer of carbon black.
- (b) However, Ashland Chemicals of U.S.A. was given approval in principle for the manufacture of carbon black in October 1971 but the company until today has not commenced operations. Capacity of Ashland is 10,000 tons/yr.

5. Duties:

	<u>BTN</u>	<u>Import Duty</u>	<u>Export Duty</u>
Carbon black	28.03/100	Nil	Nil

6. Joint-Venture
Possibilities:

The State Development Corporation, Negeri Sembilan has shown interest in the project.

1. Name of Project: Titanum Dioxide
2. Availability of Raw Materials: Titanum Dioxide is found in the form of ilmenite ore which is abundantly available in Malaysia. Malaysia's ilmenite deposits are composed approximately of 52% titanium dioxide, 28% iron oxide and 20% trace elements. Exports of ilmenite concentrates were over 150,000 tons in 1971 valued at M\$ 5.6 million. These figures do not, however, take into consideration the existence of other resources which might not at present be commercially exploitable. In respect of sulphuric acid, there are 2 factories producing this chemical in Malaysia.
3. Domestic Demand: The local demand is estimated at 2,000 tons per year valued at M\$ 2,000,000. In the absence of a domestic market for titanium dioxide concentrates, however any local plant to be established will have to rely on the export market. Imports of titanium oxides into West Malaysia in 1971 were 39 thousand cwt valued at M\$ 2.9 million.
4. Existing Local Manufacturers/ Approvals: There is as yet no local manufacturer of TiO_2 . However, to date 4 companies have been granted approval in principle but have not started production.
5. Duties:

	<u>BTN</u>	<u>Import Duty</u>	<u>Export Duty</u>
Titanum Dioxide	28.25/000	Nil	Nil
Ilmenite	26.01.391	Nil	10% per ton

1. **Name of Project:** Refining, Fractionating and Hydrogenation of Palm Oil (100% for export)
2. **Raw Materials:** The annual production of crude palm oil is about 650,000 tons. The bulk of this production is exported to Europe and U.S.A. for further processing.
3. **Demand:** The final products are:-
a) cooking oil
b) salad oil
c) margarine
d) vanaspati
e) shortening
f) hydrogenated vegetable fats
g) technical fats - fatty acids + glycerine
- Export markets can be found if prices are competitive.
4. **Existing Local Manufacturers:** There are already two local companies manufacturing the above products - Lam Soon and Lever Brothers. In addition a total of 21 companies have to date been approved in principle for similar operations, several of which are in various stages of implementation.

5. **Duties:**

<u>Product</u>	<u>BNT Code</u>	<u>Import Duty</u>	<u>Export Duty</u>
1) Palm Oil	15.07/180	Nil	7½ per ton
2) Margarine			
a) Airlight Container	15.13/110	\$201.60 per ton	Nil
b) Non-airlight container	15.13/120	\$201.60 per ton	Nil
3) Hydrogenated Vegetable Fats	15.12/900	Nil	Nil

<u>Product</u>	<u>BNT Code</u>	<u>Import Duty</u>	<u>Export Duty</u>
4) Fatty acid (Technical Fats)	15.10/100	Nil	Nil
5) Glycerine	15.11/100	Nil	Nil
6) Salad Oil	N.A.		
7) Vanaspati	N.A.		
8) Shortening	N.A.		

5. Joint Venture Possibility: The bodies listed below have indicated their interest to participate in the project:

(a) State Economic Development Corporations - Johore;

(b) Sabah State Industrial Development Office.

1. Name of Project: Furfural
2. Raw Materials:
- (a) This is an intermediate organic product which cannot be manufactured by petro-chemical processes. It is manufactured by hydrolysis and condensation of a number of plant materials containing pentosans.
 - (b) There is sufficient locally available plant material containing enough pentosans; i.e., bagasse and rice husks for the production of furfural. It is estimated that at least 50,000 tons of bone dry bagasse will be available annually when the 4 sugar plantations currently under establishment are in full production.
3. Market: There is no furfural producer in the Southeast Asian region. The prospects of establishing one in this area to supply the needs of the region appear good.
4. Existing Local Manufacturer: There is as yet no local manufacturer of this product in Malaysia.
5. Duties:
- | | <u>B.T.N.</u> | <u>Import Duty</u> | <u>Export Duty</u> |
|----------|---------------|--------------------|--------------------|
| Furfural | 29.35 | Nil | Nil |

1. Name of Project: Pyrolysis of Wood Waste
2. Raw Materials: The raw materials are wood and wood waste, the latter being abundant and cheap. Wood wastes include those from the forest proper (residues from logging, cleaning and thinning) as well as from saw mills, plywood, veneer factories, etc. It is estimated that at least 1.2 million tons of waste wood is available per annum.

The products of pyrolysis are: charcoal, acetic acid, methanol, and wood tar.
3. Domestic Market:
 - (a) There is still a sizeable consumption of charcoal for domestic purposes in Malaysia - about 50,000 tons per year.
 - (b) The demand for acetic acid has been wholly met by imports - 536 tons in 1971 valued at M\$557,784.
 - (c) The demand for wood tar is similarly met by imports - 23,850 gallons in 1971 valued at M\$71,278.
 - (d) The demand for methanol (wholly imported) has increased a great deal in recent years with the establishment of 3 plants producing formaldehyde from methanol - one already in production and the other 2 approved in principle. The eventual requirement of methanol for these 3 plants will amount to 15,000 tons per annum.
4. Existing Local Manufacturers: There is as yet no local manufacturer of the above chemicals in Malaysia.

5. Duties:

	<u>BNT</u>	<u>Import Duty</u>	<u>Export Duty</u>
Acetic Acid	29.14/200	Nil	Nil
Wood Tar	38.09/900	Nil	Nil
Methanol	29.04/100	\$2/gal.	Nil

1. Name of Project: Dextrins
2. Raw Materials: The main local raw material for the manufacture of dextrins is tapioca starch. There are currently at least 30 tapioca starch factories in Malaysia, most of which are small scale - each with a capacity of 5 to 6 tons of starch per day. Currently the price of tapioca starch is about M\$315 per ton.
3. Domestic Demand: The domestic market is at least 390 tons per year. However dextrins could possibly find an export market in view of the preference for tapioca dextrins for postage stamps and envelopes in European countries.
4. Existing Local Manufacturers: There is one local manufacturer of dextrins in Malaysia - Adhesives (Malaysia) Sdn. Bhd.

5. Duties:		Import	Export
	<u>B.N.T.</u>	<u>Duty</u>	<u>Duty</u>
Dextrins	35.05/100	Nil	Nil

Brief on the Textile Industry

I. THE MALAYSIAN MARKET

The Malaysian market for textiles is met by both imports and local production. Until local production commenced in 1969, with the establishment of a cotton mill in Johore almost all the requirements of the domestic market were supplied by imports. However, within a short space of 12 years a number of integrated mills have commenced operation concentrating largely on cotton fabrics for the domestic market. In addition to the integrated mills a number of knitting establishments and conversion plants for knitted fabrics and garments have been established in the last decade catering largely to the requirements of the domestic market. In order to determine existing Malaysian consumption and future trends, attention should be paid both to the size and categories of imports as well as to existing and future trends in local production.

II. MALAYSIAN CONSUMPTION AND TRENDS

The broad areas of fabric consumption in Malaysia as at 1969/70 are as follows:-

Fabric Type	Apparent Consumption (All Malaysia) 1969/70	
	'000 sq. yd.	%
Cotton	124,331	59.7
Synthetic Woven Filament	35,225	16.9
Synthetic Woven Spun	30,894	14.8
Artificial Woven Filament	1,906	0.9
Artificial Woven Spun	6,425	3.1
Woven Metallized Yarn	98	0
Tulles & Knits	9,525	4.6
Total	208,404	100.0

It is seen that up to 60% of total Malaysian consumption is made up of cotton fabrics with synthetic fabrics closely following with 32%.

A breakdown of fabric consumption by end-use is as follows:-

<u>Fabric Description</u>	<u>Apparent Consumption (in thousand yards)</u>
(i) Cotton duck	1,902
(ii) Cotton woven (unbleached)	12,070
(iii) Cotton woven (bleached)	30,508
(iv) Cotton woven (printed)	28,623
(v) Cotton woven (dyed)	31,747
(vi) Cotton woven (coloured)	9,837
(vii) Woollen woven suiting	738
(viii) Synthetic woven filament	32,314
(ix) Synthetic woven spun	27,897
(x) Artificial woven filament	1,803
(xi) Artificial woven spun	5,839
(xii) Tulle, lace and plain	1,809
(xiii) Knitted synthetic and artificial	5,851

A short-term projection of future trends up to 1972/1973 has been undertaken on the basis of a population growth of 3%. Other factors considered were the increase in urban population, the racial composition of the population, the increases in per capita income and world trends in consumption. On the basis of these assumptions, the short-term growth trend is as follows:-

Fabric Type	Estimated Consumption (All Malaysia) 1972/73		% Annual Increase
	'000 sq. yd.	%	
Cotton	136,678	55.5	3.2
Synthetic Woven Filament	45,660	18.6	9.0
Synthetic Woven Spun	43,676	17.8	12.2
Artificial Woven Filament	1,620	0.7	- 5.3
Artificial Woven Spun	5,100	2.1	- 7.4
Woven, metallized yarn	110	0	4.0
Tulles & Knits	13,177	5.3	11.4
Total	246,021	100.0	5.7

Trends in Malaysian consumption indicate significant increases in cottons in absolute terms, although cottons have declined as a percentage of the total. Filaments and synthetic fabrics and

especially cotton polyester blends and viscose woollen fabrics show dramatic increases.

The growth trends beyond 1973/1974 for the textile industry as a whole may be safely estimated to be in the region of 6% per annum. It is estimated that this growth would be in conformity with the trends of individual fabric types as indicated above.

III. EXISTING TARIFF STRUCTURE

In view of the rapid development of local production capacity, the Malaysian Government, with a view to encouraging the development of the textile industry both for local consumption and exports, has imposed tariffs on a range of textile fabrics currently being manufactured. An indication of the current level of tariffs on broad textile groups is as follows:-

- | | |
|--|-------------------------------|
| (i) Terry towelling fabrics of cotton (unbleached or bleached) | - 50% or \$1.50 per sq. yd. |
| (ii) Cotton duck (unbleached, | - 35% or 25 cents per sq. yd. |
| (iii) Cotton woven fabrics (bleached | - 25% or 20 cents per sq. yd. |
| (iv) Woven fabrics of regenerated fibres (printed or dyed) | - 25% or 40 cents per sq. yd. |

IV. LOCAL PRODUCTION

Woven Fabrics

Existing local production is largely confined to the production of cotton woven and knitted fabrics. As at 1970, five integrated textile mills were in operation concentrating largely on cotton woven fabrics. The total production in square yards was approximately 45 million sq. yds. With expected new capacity, production will reach 105 million sq. yds. by 1973/1974 when nine integrated mills are expected to be in production. Expansion in this sector of the industry over the next few years is also expected to increase production capacity of polyester cotton fabrics to 28.7 million sq. yds. building up substantially the country's synthetic production capacity.

Knitted Fabrics

The production of knitted fabrics is concentrated currently in 14 mills with small and medium capacities producing approximately 2.5 million lbs. of knitted cotton fabrics and 300,000 lbs. of knitted synthetic fabrics. Production in these and new establishments is expected to increase substantially to cater largely to the domestic market.

Conversion Plants

In addition to the integrated facilities in existence and planned for the future, a large number of garment conversion facilities have been established in the past 12 years. Initially these would concentrate on the manufacture of shirts for the export market and made-up knitted goods for the domestic market. The more recent trend has been the approval of establishments of integrated facilities for the spinning, knitting and making-up of garments largely for the export market. A number of plants have also been approved for conversion of imported fabrics into shirts and outer garments for export.

V. POSSIBILITIES FOR NEW ENTRANTS

A comparison of future market trends as estimated earlier and the development of local production capacity indicates limited scope for the manufacture of textile products concentrated on the domestic market. Specific areas where opportunities appear to exist are the manufacture of synthetic woven filament products, tulle plain and lace and the manufacture of high quality garments.

Considerable opportunities exist for manufacture substantially for export. This is particularly so in respect not only of the manufacture of fabrics (especially synthetic fabrics) but also the integrated manufacture of fabrics together with conversion into garments. The number of projects approved for the conversion of imported garments as well as for the spinning, knitting and conversion into garments for export indicates that Malaysia can attract and sustain export-oriented textile projects despite keen competition in export markets. With increasing labour costs in the developed countries of the world, Malaysia's low labour rates and easily adaptable labour have proven to be attractive factors for export-oriented industries.

VI. INCENTIVES

A. Pioneer Status

Pioneer status is available for:

- (i) Approved integrated textile projects catering substantially for export.
- (ii) Integrated manufacture of high quality garments from spinning up to garment manufacture for both domestic and export markets.
- (iii) Integrated garment manufacturer from weaving of the fabrics to the manufacture of outer garments for export.

B. Import Duty Exemption

Import duty exemption on fabrics and other raw materials will be granted to export-oriented conversion projects dependent on imported fabrics and other raw materials.

Brief on the Manufacture of Watches, Optical and
Medical Instruments and Electronic Products

The manufacture of watches, optical and medical instruments and electronic products which involve high labour content and modern technological skills are fields in which the Malaysian Government is keen to invite foreign companies to start manufacture in Malaysia, not so much for the domestic market but to use Malaysia as a base for exports to other parts of the world.

Approved export oriented projects falling under the above 4 industries will be accorded exemption from customs duty (i.e. import duty and surtax) on raw materials, parts and components and other essential machinery and equipment for the projects concerned. Such exemption will be granted for an indefinite period. For simplification of customs administration and control, the exemptions will specify a complete list of raw materials, parts and components and other essential machinery and equipment which are to be imported by the plants.

Approved export oriented plants for the manufacture of optical and medical instruments, watches and electronic products will be allowed to export their finished products free from any form of duty and the minimum of delay and formality.

Domestic requirements for the above products are almost entirely met by imports.

(i) The Electronics Industry

Before 1972 there were not export oriented electronic enterprises in the country. Within the past one year, 10 electronic factories have started production and 26 others are in various stages of implementation.

International and multi-national corporations from the U.S., Japan, Canada and Germany are showing increasing interest in the potential of Malaysia as an offshore export point.

Electronic products currently being manufactured/ to be manufactured in Malaysia range from semi-conductor devices to electronic calculators, capacitors, transformers etc.

It is significant to note that Malaysia has succeeded in persuading companies not only from the U.S., Japan and Europe but also from the Philippines, Hong Kong and Singapore to start operations in Malaysia. Even Malaysian companies are going into manufacturing operations in the electronics field to take advantage of the many facilities accorded by the Government.

(ii) Medical, Dental, Surgical and Veterinary Instruments

To-date, only one company has been approved for the manufacture of products under the above category. This is Acsculap-Worke Antiengesellschaft of Germany which will manufacture surgical forceps, surgical scissors and scalpel blades 100% for export.

(iii) Optical Instruments

To-date, only one company has been granted approval for the manufacture of optimal instruments. This is Robert Bosch GMBH of Germany which is manufacturing cameras and the electronic devices for flashguns and cameras.

An application has also been received from the Minolta Camera Co. Ltd. of Japan for the manufacture of electrostatic photocopying machines, lenses, cameras, light measuring instruments for cameras and scientific purposes and computer output microfilm equipment and audio-visual projectors.

(iv) Watches

At present there is no local assembly/manufacture of watches. The entire market requirements are wholly met by imports mainly from Hong Kong, Japan and Switzerland.

1. Name of Project:

The Toy Industry.

2. Availability of Raw Materials:

Raw materials for the production of wooden, rubber and stuffed toys are available locally.

3. Domestic Market:

On the average, Malaysia imported M\$4 million worth of toys per annum over the past 6 years ranging from simple plastic toys to sophisticated electronic toys.

In view of the fact that the toy market consists of a wide range of varieties, the Malaysian market can be considered to be small for each particular variety. Hence, to develop the toy industry in Malaysia, it has to be export-oriented.

4. Existing Local Producers/Approvals:

Presently, there is only 1 company manufacturing plastic dolls and toys on a commercial scale and the production is for both the local and export market. But there are several toy manufacturers currently producing small quantities of low quality plastic toys catering only for the domestic market. Small quantities of wooden toys have been traditionally produced by the handicraft industry but production is not yet on a commercial scale.

Two companies have been given approvals to produce toys but have not started production yet.

5. Duties:

A 35% ad valorem import duty is imposed on all imported toys.

Brief on the Metal Working Industry

Introduction

During 1966-70, Malaysia successfully attracted overseas industrialists to invest in the local manufacture/assembly of various products for the domestic market. These products range from daily consumable goods and household amenities to industrial items etc.

Greater emphasis is now being placed on the development and establishment of facilities to increase the local content of manufacturers and to promote the establishment of engineering industries (machine tools, forged components, tools, moulds and dyes).

Raw Materials

The basic raw materials required for the manufacture of machine tools and steel forgings are readily available in Malaysia. Pig iron is locally produced and steel scrap is also available locally. Imports of these materials are also permitted duty free entry.

Market

1. Machine Tools

The various types and sizes of machine tools present problems in the selection of types to be manufactured. Initially, popular sizes and types of metal cutting machines would be taken up. Based on estimates of domestic demand, the following are suggested:-

(a) Centre Lathes

All general head, sliding, surfacing and screw cutting types in two sizes:

(i) Max. swing: 150 mm
Distance between centres 600 mm

(ii) Max. swing: 300 mm
Distance between centres 800 mm

The total estimated market of (i) and (ii) is 200 to 250 machines/year.

(b) Drilling Machines

- (i) Bench type:
Capacity: $\frac{1}{2}$ " or 13 mm
- (ii) Pillar type with all general head:
Capacity: 1" or 25 mm

The estimated market is 300 to 350 units per year.

(c) Double Ended Grinders

- (i) Bench type)
) sizes 8" to 14"
- (ii) Pedestal type)

(d) Shaping Machine

- (i) Crank type, geared, size 20" to 24"

The estimated market is 600 nos/year.

2. Steel Forging

Market surveys on forged items with scope of local manufacture include bucket pins for dredges in the tin mining industry, grinding media for the cement industry, and certain types of hand tools and parts of bicycles.

(a) Bucket Pin

Based on a working life of 2 years, the requirement annually is of the order of 5,000 in quantity, weighing about 500 tons valued at M\$2.5 million.

(b) Grinding Media

Various sizes of grinding media are used with an annual requirement of 520 tons presently valued at \$320,000. Another 2 cement plants and 1 white cement plant have been approved but are not in operation yet.

(c) Hand Tools

The requirement for pliers, pincers and spanner in 1972 was M\$2.4 million. In the same year, the demand for hand files and rasps was M\$0.9 million.

(d) Bicycle Parts

The market for bicycle chain-wheels and cranks was some M\$227,000 in 1972.

(e) Malayan Railways, the Armed Forces and the Automotive Industries also require forged items.

Present Position

1. Supporting Industries

Available facilities for the production of quality castings, gears and heat treatment services necessary for the manufacture of machine tools are as follows:-

(a) Foundry

There are over 150 foundries in Malaysia producing grey cast iron at 12,000 - 15,000 tons per year. A small number of steel foundries are already producing steel castings while others are in the planning stage. At present, one company has available idle capacity in its modern iron foundry section to carry out castings on a jobbing basis.

(b) Gear Manufacturing Unit

There are no manufacturers of quality and precision gears yet in the country. It may be started as an integral unit of the machine tools works itself because in machine tools, the needs are mainly in spur gears.

(c) Heat Treatment Services

Knowledge of heat treatment is very much lacking in the industrial sector in Malaysia. The Federal Industrial Development Authority is currently

promoting the establishment of such a service and is finalizing plans for a Production-cum-Training Centre for heat treatment of steel components.

(d) Electroplating Service

There is enough capacity for good quality electroplating in the country.

2. Factories Approved

At present, there are no factories in Malaysia producing machine tools or steel forging. One factory, Machine Products Sdn. Bhd., has been approved for the manufacture of wood-working machinery such as planing machines, circular saws, metal-working machinery such as radial drills, backsawing machines, and speed reducers and air compressors. A number of small engineering workshops are also producing wood-working machinery such as planers, wood lathes, bandsaws.

3. Tariffs

At present, there are no import duties on metal-working and wood-working machinery.

Technical Know-how; Training of Personnel

The required technical know-how for the manufacture of machine tools will have to be obtained by means of licensing agreements with reputed foreign manufacturers.

The skills are highly specialized and can only be acquired after long and costly training.

Investment Opportunities in Malaysia

In the light of Malaysia's rapid pace of economic development, sizable investment opportunities exist for the manufacture in Malaysia of machine tools, forged items, tools, moulds and dyes. The setting up of a machine tool plant, forging shop and heat treatment plant is welcome and would be assisted by the Government in all possible ways. It is considered essential that any foreign collaboration should involve capital participation.

APPENDIX 6

Philippines

PHILIPPINES

PROJECT PRESENTATION

1. National Aircraft Repair and Maintenance Facility
2. Pre-stressed Reinforced Concrete Ties and Continuous Welded Rails with Elastic Rail Spikes for Philippines National Railroad (PNR) Tracks
3. Development of the International Port of Manila into a Container Port and Terminal for Bulk Commodities
4. Establishment of an Inter-Island Port in Batangas
5. Rehabilitation and Development of former Bataan National Shipyard (BNS)
6. Manufacture of 2-way Communications Equipment
7. Mindanao Telecommunications Development
8. Nationwide Telecommunications Expansion and Improvement Projects Phase II
9. Manufacture of Teleprinters

1. Name of Project: National Aircraft Repair and Maintenance Facility
2. Location: Manila International Airport Complex
3. Proposed Sponsor: Philippine Government
4. Description:

The facility will be established upon the implementation of appropriate plans to rationalize the airline industry. It will integrate the existing smaller facilities of the Philippine Airlines. Its establishment will form part of the Manila International Airport (MIA) Development Plan.

The facility will consist of hangars, engineering shops and test facilities capable of undertaking complete repair and overhaul of aircraft, airframes, engines, propellers, avionics and instruments, electrical/electronics and hydraulic systems including the capability of performing block checks of Lockheed C130, Boeing 747 and DC 10 aircraft.

The bigger aircraft of the Philippine Air Force and commercial aircraft including commercial aircraft of Philippine registry engaged in international operation will constitute the base market. Commercial aircraft of foreign owned international airlines as well as US military aircraft operating in Southeast Asia are among the potential markets.
5. Objectives:
 - (1) To achieve in-country repair capability for all types of aircraft operating in the country.
 - (2) To conserve and/or earn foreign exchange
 - (3) To generate employment

6. Scope of Work:
- (1) Allocation of sites within MIA, conforming with the MIA Development Plan being undertaken by AEC at present.
 - (2) Feasibility study of the project.
 - (3) Civil works (vertical and horizontal work).
 - (4) Acquisition and installation of hangars, shop facilities, equipment and instruments.
 - (5) Training of aircraft technicians and engineers.
 - (6) Acquisition and stockpiling of spare parts and fast-moving repair material.

7. Time Required: 1977

8. Project Cost Estimates:	<u>US\$ (mil)</u>	<u>P (mil)</u>
Phase I Engineering and technical services	0.3	1
Phase II Construction of buildings and grounds	2	5
Phase III Acquisition and installation of equipment, tools, and accessories	10	
Phase IV Stockpile of spare parts and materials and training	3	0.5

9. Phasing of Expenditures:

<u>Phase</u>	<u>Period</u>	<u>US \$ (mil)</u>	<u>P (mil)</u>
Phase I	6 mos	0.3	1.0
Phase II	1 yr 6 mos	2.0	5.0
Phase III)	1 yr	13.0	0.5
Phase IV)			
Total	3 yrs	15.3	6.5

Note: Phase III and IV are simultaneous

10. Justification:

One of the major objectives of rationalizing the airline industry is to reduce the cost of operating and maintaining commercial aircraft. The costs of maintenance and repair of aircraft constitute a significant expense for the airlines, as well as the primary cause of the outflow of foreign exchange. The development of an in-country aircraft repair and maintenance capability will substantially reduce this cost and contribute towards accelerating the development of civil aviation in the country.

There exists a sizable number of trained Filipino aircraft technicians and engineers in the country and technicians who could be easily trained for aircraft repair work. Moreover, the comparatively low cost of labor in the Philippines and the availability of suitable aircraft repair facilities within the MIA complex are positive justifications for the project vis-a-vis other countries of Southeast Asia.

11. Other Information:

The implementation of this project and the identification of a specific sponsor shall be carried out after the Government decision is reached on the rationalization of the airline industry.

1. Name of Project: Pre-stressed Reinforced Concrete Ties and Continuous Welded Rails with Elastic Rail

Spikes for Philippines National Railroad (PNR) Tracks.
2. Location: PNR Main Lines from San Fernando, La Union to Legaspi City (Luzon)
3. Proposed Sponsor: Philippine National Railways
4. Description: The project envisions the use by PNR of pre-stressed reinforced ties in lieu of wooden ties. The type of concrete tie proposed is the cheapest and simplest one which would allow the use of the same rail tie fastenings as presently used by the PNR in wooden ties. It is a pre-stressed reinforced concrete tie with wooden dowels where the spikes could be driven. The project envisages the manufacturing of 1,200,000 concrete ties for the main lines of PNR.

After the ties are concretized, the project involves the continuous welding of rail joints which would eliminate the destructive vibration, impact and excessive noise generated by the spliced joints. The enclosed arc rail welding and the thermit rail welding methods are proposed.

With continuous welded rails on reinforced concrete ties, trains may be made to run at very high speeds. This would make it imperative that the rail tie fastenings should be adequate and effective even at high speeds. The use of a much better type of rail fastenings, such as the elastic rail

spikes, in lieu of the presently used dog spikes, is proposed in anticipation of the employment of higher speed trains in the future.

5. Objectives:

- (1) To eliminate the root cause of the bad condition of railway tracks of PNR.
- (2) To bail the PNR out of its present financial predicament brought about by bad tracks which are mainly caused by rotten ties and spliced or jointed rail joints.
- (3) To make the railroad a safe, fast, comfortable and dependable transport system.

6. Scope of Work:

First Phase - manufacture and installation of 600,000 R.C. ties and welding of rails for a distance of 370 kms. in a period of 3 years.

Second Phase - manufacture and installation of 600,000 R.C. ties and welding of rails for a distance of 370 kms. in a period of 2 years.

The first phase period will take longer than the second phase as it will simultaneously occur with the rehabilitation program of PNR. By the time the second phase is started, the rehabilitation program would have been finished and more resources could be diverted to this project.

7. Time Required:

Five (5) years

8. Project Cost:

(a) Foreign Exchange Component:

US \$ (thousands)

1) For the purchase of equipment and material for manufacturing concrete ties	1,810
2) For the purchase of equipment and material for rail welding	780
3) For the purchase of elastic rail spikes and spike driving equipment	<u>3,610</u>
Total	6,200

(b) Peso Component

Pesos (thousands)

1) For purchase of local material and local services for manufacture and installation of reinforced concrete ties	12,053
2) For the purchase of local material and services for rail welding	6,000
3) For purchase of local material and services for installation of elastic rail spikes	<u>6,000</u>
Total	18,653

9. Phasing of Expenditure:

(a) For the manufacture and installation of pre-stressed concrete ties:

<u>Year</u>	<u>US \$(thousands)</u>	<u>Peso (thousands)</u>	<u>Total in Pesos</u>
1st	470	2,000	5,177,200
2nd	400	2,000	4,704,000
3rd	400	2,000	4,704,000
4th	260	3,030	4,922,800
5th	<u>260</u>	<u>3,023</u>	<u>4,780,000</u>
Total	1,810	12,053	24,288,000

(b) For continuous welding of rails:

1st	520	1,000	4,515,200
2nd	50	1,000	1,338,000
3rd	50	1,000	2,040,000
4th	80	1,500	2,040,000
5th	<u>80</u>	<u>1,500</u>	<u>2,040,000</u>
Total	780	6,000	11,272,800

(c) For installation of rail spikes:

1st	610	100	4,223,600
2nd	600	100	4,156,000
3rd	600	100	4,156,000
4th	900	150	6,234,000
5th	<u>900</u>	<u>150</u>	<u>6,234,000</u>
Total	3,610	600	25,003,600

(d) Amortisation of costs of the three (3) projects:
 (\$1.00 - P6.76; Foreign Loans at 8% p.a.; local loans
 at 12% p.a.)

Year	Reinforced Concrete Ties	Continuous Welded Rails	Elastic Rail Spikes	Total
<u>P</u>	<u>P</u>	<u>P</u>	<u>P</u>	<u>P</u>
1st	--	--	--	--
2nd	827,403	700,766	632,116	2,160,284
3rd	1,584,299	1,155,489	1,247,380	3,759,806
4th	2,341,195	1,155,489	1,862,644	5,359,328
5th	3,159,532	1,501,568	2,795,710	7,456,810
6th	3,956,485	1,847,647	3,728,776	9,532,908
7th	3,956,485	1,847,647	3,728,776	9,532,908
8th	3,956,485	1,847,647	3,728,776	9,532,908
9th	3,956,485	1,847,647	3,728,776	9,532,908
10th	3,956,485	1,847,647	3,728,776	9,532,908
11th	3,956,485	1,847,647	3,728,776	9,532,908
12th	3,129,080	1,146,882	3,096,660	7,372,622
13th	2,372,186	919,520	2,481,396	5,773,102
14th	1,615,290	692,158	1,866,132	4,173,580
15th	796,953	346,079	933,066	2,076,098

(e) Total present value of all costs:

Reinforced concrete ties	P 15,315,292
Continuous Welded Rails	7,507,112
Elastic Rail Spikes	<u>13,938,765</u>

Total present value of all costs:

P 36,761,169

10. Justification: (1) To reduce annual maintenance costs of PNR railroad tracks by about P 3 million.
- a) The comparative cost of maintenance of the reinforced concrete ties is cheaper than the wooden tie by P 1.11 per tie per annum, representing a difference of about P 2 million per annum in cost of ties alone for the PNR railroad tracks.

- b) The comparative cost of the welded joint is cheaper than the spliced joint by P 4.97 per joint representing a P 1.1 million difference.
- (2) The supply of wooden ties have dwindled.
- (3) Other benefits:
- a) Reduced track and rolling stock maintained cost
 - b) Reduced occurrence of derailment damages
 - c) Reduction of downtime of rolling stock
 - d) Contribution to national economy due to assurance of faster transportation and delivery of commodities.
 - e) Provision of a stable track for a fast, safe, comfortable and dependable transport system.

11. Total present values of benefits:

Reinforced concrete ties	P 31,557,196
Continuous welded rails	16,592,812
Elastic rail spikes	<u>15,328,743</u>

Total present value of benefits: P 63,478,781

Benefit cost ratio: $B/C = \frac{63,478,781}{36,761,169} = 1.727$

1. Name of Project: Development of the International Port of Manila into a Container Port and Terminal for Bulk Commodities
2. Location: Manila
3. Proposed Sponsor: Bureau of Public Works
4. Description: The project calls for the development of the unfinished International Port of Manila into a Container Port and Terminal for Bulk Commodities. It also includes provision for land access through the construction of an interchange and elevated road network connecting the International Port to major national and city roads within Metropolitan Manila, including the two road ring projects under consideration by the Government. Container cranes and haulers and other weight handling equipment will be installed in the port.

The International Port when developed will have an area of about 74 hectares which will be developed into: (1) a container yard (2) transit sheds (3) tank farms for petrochemical and coconut oil products (4) silos for grains and cement (5) warehouses for plywood and veneer, copra and other manufactured goods, and (6) administrative and service buildings.

The construction of access roads will be undertaken jointly by the City of Manila and the Bureau of Public Highways. To provide for the relocation of residents now squatting in the International Port and those to be affected by the construction of access roads, the national and city Governments will finance and build highrise apartment buildings in the areas to be reclaimed along the International Port.

5. Objectives:
- (a) To provide adequate port facilities to meet the development of containerization and bulk handling of major Philippine export/import commodities.
 - (b) To decongest the South Harbor and limit its operation to servicing conventional cargoes.
 - (c) To provide for fast ingress and egress of cargo trucks in the International Port without unduly adding to the increasing traffic congestion in city thoroughfares.

6. Scope of Work:
- (a) Feasibility study, master planning and detailed engineering.
 - (b) Phase I - construction of perimeter retaining wall and reclamation of the south side and widening and reinforcing the existing marginal wharf to permit installation of container cranes.
 - (c) Phase II - Land development including construction of tank farms and silos on the west end of the port, transit sheds and warehouses to the eastern end, administrative and service buildings and container yards in the middle.
 - (d) Phase III - Acquisition and installation of container cranes and haulers and other weight handling equipment.
 - (e) Phase IV - Construction of interchange in the San Nicolas district and elevated roads.

7. Time Required: 1974-1977

8. Project Cost:

Foreign Exchange	--	US\$ 16.5 million
Peso Cost	--	P 23.9 million

9. Justification:

The Manila South Harbour is located within a heavily congested urban complex and the possibilities of large scale expansion is very limited. Land access is similarly a serious problem which has been further magnified by the imposition of a bus ban by city authorities for certain periods of the day.

The increasing volume of Philippine foreign trade is expected to render the South Harbor inadequate within the next few years. With the recent introduction by big shipping lines of bigger and faster container vessels, LASH ship, Roll-on Roll-off type vessels, and others in international shipping, it is imminent that big shipping lines may skip Manila.

On the other hand, the National Government has started the construction of the International Port which when completed, will have a total area of 74 hectares and berthing draft of 35 ft. The trend in international commerce is towards containerization and bulk shipments and the International Port can be developed to meet this traffic trend at minimum investment cost.

Initial surveys conducted show that while only 100,000 tons of cargoes were handled by containerization in the South Harbor in 1969, nearly 1.5 million tons of foreign trade that year could actually be containerized (370,000 M.T. imports and 888,700 M.T. exports). The increasing volume of Philippine foreign trade will further amplify the need for a larger and more efficient container port in Manila.

The development of the International Port and access roads would generate increased international shipping activities in Manila and would complement the export development program of the Government.

With regard to traditional export/import commodities, the various Philippine trade associations are realizing that substantial savings in transport cost could be achieved if the cargoes could be pooled and handled in bulk. Among these substantial commodities are the import of wheat, corn, cotton/synthetics and lubeoil and the export of coconut oil, copra and cement.

1. Name of Project: Establishment of an Inter-Island Port in Batangas
2. Location: Batangas Province, Luzon
3. Proposed Sponsor: Bureau of Public Works
4. Description: This project involves the construction of a new deep water port along the coastal area of Batangas and an access road to the existing national highway. The port facilities include the construction of four (4) finger piers with a berthing capacity for at least 16 vessels; transit sheds of 180,000 sq. ft.; a passenger terminal with 30,000 sq. ft. floor area; and open storage areas. Also involved are the installation of essential utility connections and provision for modern cargo-handling equipment.
5. Objectives:
 - (1) To meet projected inter-island shipping traffic requirements in the 1980s.
 - (2) To relieve congestion in the Manila North Harbor.
 - (3) To provide deep water berths for the increasing sizes of vessels engaged in the inter-island maritime trade.
 - (4) To serve as an alternate port for cargoes and passengers originating from or destined for provinces south of Manila.
6. Scope of Work:
 - (1) Feasibility studies involving (1) site selection and (2) detailed engineering and masterplanning for the site selected.
 - (2) Phase I - Dredging and reclamation
 - (3) Phase II - Construction of ports and access road

(4) Phase III - Construction of buildings and transit sheds.

(5) Phase IV - Acquisition and installation of equipment.

7. Time Required: 1979

8. Project Cost: Foreign Exchange: US \$ 23.0 million
Peso P 30.0 million

9. Phasing of Expenditures:

<u>Phase</u>	<u>Period</u>	<u>US \$ (million)</u>	<u>P (million)</u>
Technical services	8 mos.	0.3	0.3
Phase I	1 yr.	2.0	4.0
Phase II	2 yrs.	15.0	20.0
Phase III	1 yr.	2.5	4.7
Phase IV	4 mos.	3.2	1.0

10. Justification: The Manila North Harbor handles inter-island shipping port operations with an existing capacity of 38 active berths and 239,300 sq.ft. of transit sheds and with very limited open storage area. The ship berths have an average draft of 9 ft. and the deepest berth is about 12 ft. Extensive dredging to allow deep draft vessels to moor is not advisable due to the weak and shallow pier foundations.

The harbor has no passenger terminal and very inadequate area for storage. Development of back-up areas has been restricted by the road network and the conversion of the foreshore reclaimed area into residential lots.

Land access is inadequate. Only one road parallel to the harbor provides the main ingress and egress for cargo trucks. A railroad spur track leads to only one of

the seven piers but cargo movement by rail is inadequately utilized. Traffic congestion in Manila has forced the city authorities to impose a bus ban during certain periods of the day within city streets. This regulation has further compounded the problems of port congestion brought about by the limited back-up area.

By 1980, projected requirements will be 47 berths, 419,300 sq.ft. of transit sheds and a 30,000 sq.ft. passenger terminal. This will mean a corresponding expansion of the North Harbor's facilities by 50% (berths), 75% (sheds) and 100% (passenger terminal). This expansion is physically impossible unless urban renewal could be effected and an expansive skyway and interchange complex constructed within the Manila area.

The Batangas Coastal Areas are largely natural-covered harbors and accessible to the Greater Manila area. The foreshore areas lie along the primary trade route of inter-island shipping and are generally deep. There exists a fairly adequate national highway network along the coastal area which connects to metropolitan Manila and the southern provinces.

1. Name of Project: Rehabilitation and Development of former Bataan National Shipyard (BNS)
2. Location: Export Processing Zone, Mariveles, Bataan
3. Proposed Sponsor: Bataan Shipyards and Engineering Co. and Bay Shipyard Inc.
4. Description: This project involves the rehabilitation of existing facilities at BNS and the development of additional drydocking structures and shop support facilities to enable the yard to construct inter-island ships as envisioned in the 10-Year Shipping Program of the Government and to provide adequate repair and maintenance services to both inter-island and ocean going vessels.

The existing 2,300 GRT shipbuilding way will be upgraded to 3,500 GRT. Twin graving docks (20,000 and 30,000 GRT) and twin marine slipways (3,500 and 5,000 GRT) will be constructed to the eastern side of the industrial area. Additional metal and pre-fabrication shops will be constructed behind these drydocking facilities to facilitate the smooth flow of construction/repair material. A 1,000 ft. reinforced concrete pier will be constructed between the existing 10,000 GRT graving dock and the shipbuilding way to provide for four (4) mooring berths for outfitting work.

The existing industrial facilities, shops, machinery, equipment and gantry cranes will be rehabilitated and modernized.

5. Objectives: (1) To provide for inter-island ship replacements envisioned under the 10-Year Shipping Program of the Government and other water-craft requirements.

- (2) To provide sufficient services for drydocking, repair and maintenance of both inter-island and inter-ocean ships.
- (3) To ensure adherence by shipowners and operators to the marine safety program.
- (4) To generate new job employment.
- (5) To conserve foreign exchange reserves.

6. Scope of Work:

- (1) Feasibility study, master planning and detailed engineering.
- (2) Phase I - Upgrading the shipbuilding way to 3,500 GRT capacity.
- (3) Phase II - Construction of twin marine slipways and installation of two 50 ton gantry cranes.
- (4) Phase III - Construction of Plate Metal and Pre-fabrication shops and acquisition and installation of shop machinery and equipment.
- (5) Phase IV - Construction of 1,000 ft. reinforced-concrete pier.
- (6) Phase V - Construction of twin graving docks and acquisition and installation of two 100 ton gantry cranes.

7. Time Required: 1974 - 1980

8. Project Cost: Foreign Exchange -- US \$ 13.75 million
Peso -- P 18.9 million

9. Phasing of Expenditures:

	<u>Period</u>	<u>US \$</u> <u>(millions)</u>	<u>Pesos</u> <u>(millions)</u>	
a.	Technical services	8 mos	0.2	P0.3M
b.	Phase I	6 mos	0.05	.1
c.	Phase II	1 yr	3.0	1.0
d.	Phase III	6 mos	1.2	.5
e.	Phase IV	1 yr	1.3	2.0
f.	Phase V	3 yrs	8.0	15.0

10. Justification:

In 1972, the average age of the inter-island fleet was 23 years. About 50% by tonnage requires replacement. By 1976, the preponderance of uneconomical and obsolete vessels of the fleet will have reached a serious level which will definitely adversely affect the targeted economic growth rate. There is an urgent need for the existing ships to undergo massive alteration and repair before that year or replacement by new orders from foreign shipyards have to be resorted to.

The Bataan National Shipyard has existing shipbuilding and shiprepairing capabilities which could be developed to undertake massive rehabilitation of the aging inter-island vessels and progressive ship construction to replace those deemed beyond economical repair.

To meet the expected shortage of inter-island tonnage, the Government has started drawing up a 10-Year Shipping Program which will involve the local construction of 56 standard-design Southeast Asian All Purpose ships. The estimated financial requirement to support the program is \$48 million in foreign exchange and P 232 million in local counterpart funds.

The BNS ownership has been transferred from the Government to a private consortium of companies. The BNS facilities and the adjacent area leased by Bay Shipyard from the Export Processing Zone Authority (EPZA) will have a combined area adequate to meet national ship construction and repair requirements.

The location of BNS within the EPZA area has the advantage of having favorable investment incentives particularly in the tax free importation of capital goods and ship construction material.

1. Name of Project: Manufacture of 2-Way Communication Equipment
2. Location: Paranaque, Rizal
3. Proposed Sponsor: Philcox (Philippines) Inc.
4. Description: Construction of manufacturing plant facilities, acquisition and installation of machinery, tools and equipment, and training of technicians.

The main product line, the 2-way radios, are suitable for police and security agency functions and in the implementation of the Government's fishing industry development program as well as other rural development programs. The radios will be of solid state technology, high performance, easy to operate and maintain, and of low cost design. A potential product line will be the manufacture of local telephone systems in support of the Government's plans to integrate and expand telecommunication services throughout the country.
5. Objectives:
 - (1) To develop in-country capability in the manufacture and development of high-technology communication equipment.
 - (2) To generate additional job employment since the industry is labor intensive.
 - (3) To conserve foreign exchange in the importation of this type of equipment.
 - (4) To provide reliable radio telecommunication in the Philippines at cheaper cost.
6. Scope of Work: This project involves the progressive manufacture of radio equipment with increasing utilization of local

content or import substitute components. Initial project studies indicate that 70% local content could be achieved within five years from the start of operations.

The plant will be constructed at the property of Philcox (Philippines) Inc. at Paranaque along the Manila South Expressway. The initial floor area requirement will be 1,000 sq. m. and will be doubled after the third year.

Capital equipment and equipment standards will be imported from Hallcrafters Co. of USA which has extended a licensing agreement with the sponsor.

7. Time Required: One year after the start of the project.
8. Project Cost: Foreign in US\$278,000
Pesos 1,340,000
9. Phasing of Expenditures:

<u>Item (major)</u>	<u>Period</u>	<u>US\$ (thousand)</u>	<u>Peso (thousand)</u>
Property (approx. 1 hectare)	1 mo		240
Building initial	1 yr	37	350
expansion	3-5 yrs	43	300
Capital equipment	1 yr	65	150
	3-5 yrs	75	300
Training	1 yr	8	
Equipment standards	1 yr	5	
Technical assistance	1-2 yrs	45	
	TOTAL	278	1,340

10. Justification:

- (1) To provide Philippine customers two-way communication equipment manufactured to specific and individual needs with quicker deliveries scheduled to meet customer requirements.
- (2) To build up local capability in the important communication equipment field - to be less reliant on foreign sources for equipment critical to the development and security of the Philippines.
- (3) To expand the Philippine economy, through employment of people, contribution in taxes, reduction of imports and increase in exports.
- (4) To improve local availability of materials, parts and assemblies required in the electronics industry. This will tend to encourage a broader range of electronics equipment manufacturing companies.
- (5) To generate employment of more professionally and trained people, to increase utilization of their talents and to upgrade the level and status of the middleclass.
- (6) To reduce the cost of communication equipment and with the increased skills to be acquired to provide a better and more efficient communication system.

11. Other Pertinent Information:

A project study is now in progress.

1. Name of Project: Mindanao Telecommunications Development
2. Location: Mindanao
3. Proposed Sponsor: Bureau of Telecommunications
4. Description: The project is divided into two parts:

Part I

- (1) Establishment of high quality multi-channel microwave radio equipment for backbone links and Ultra High Frequency (UHF) or Very High Frequency (VHF) radio equipment for feeder links.
- (2) Establishment of five (5) telegraph switching exchanges (100 links each) and five (5) telephone (Zone Switching Center) trunk switchers (50 lines each) in the cities of Davao, Cotabato, Zamboanga, Butuan, and Cagayan de Oro.

Part II

Establishment of fully automatic Transportable Telephone Exchanges (300 lines each) in thirty five (35) cities, provincial capitals, and major towns.

5. Objectives:
 - (1) To modernize and develop telecommunications facilities in the various cities, provincial capitals and major towns in Mindanao and Sulu archipelago through the provision of high quality multi-channel radio equipment, automatic telephone exchanges and automatic telegraph switching centers.

(2) The network when completed will provide telephone long distance dialing including telegraph facilities in Mindanao and Sulu. It will then have access to the rest of the Nation-wide Telecommunications Expansion and Improvement (NTEI) network.

(3) To generate employment.

6. Scope of Work:

Field survey and propagation tests will have to be conducted, the latter to be conducted in conjunction with the detailed engineering which will have to be done by the contractor retained for the project.

7. Time Required:

8. Project Cost Estimates:

Foreign Exchange - US \$ 11.0 million
Peso Cost - P 19.6 million

9. Phasing of Expenditure:

10. Project Justification:

A well-developed and efficient telecommunications network system is an indispensable factor in the economic development of any country. The completion of the project will mean greater accessibility among the major cities, towns, and provincial capitals in Mindanao and Sulu archipelago and to the rest of the National Telecommunications Expansion and Improvement (NTEI) network.

1. **Name of Project:** Nationwide Telecommunications Expansion and Improvement Project, Phase II.
2. **Location:** Luzon and Visayas Area
3. **Project Sponsor:** Bureau of Telecommunications
4. **Description:** The project is the continuation of the first phase now being completed by ITT designed to expand and provide additional telephone and automatic telegraph facilities in Luzon and the Visayas and to extend the telegraph service to selected municipalities and cities. Involved are the establishment of microwave radio links capable of carrying multiple voice channels including one television channel as an addition to the backbone circuit from Manila to Baguio as well as to the South up to Cagayan de Oro; HF-SSE National backup circuits for uninterrupted service even if there is major breakdown of the backbone system; extension of the microwave links using phased out microwave equipment; development of existing toll switching centers for automatic direct dialing; improvement of motorpool facilities of the Bureau; expansion of existing facilities established under NTEI-1 through provision of additional channel-end equipment teleprinter machines, telephone and telex; and establishment of telephone and telegraph exchanges in the Export Processing Zone area in Mariveles, Bataan.

5. Objective: To integrate the present fragmented pattern of the Government and private communications systems.
- To complete the nationwide telecommunication expansion and improvement project started in 1963.
6. Scope of Work: Civil work;
Acquisition and installation of equipment.
7. Time Required: 3 years (1973-1975).
8. Project Cost:

	<u>(thousands)</u>	
	<u>Foreign Exchange</u>	<u>Peso</u>
Amount -	US\$19,582	23,552
9. Phasing of Expenditures:
10. Justification: Phase II of the NTEI Project will further expand the communication facilities set-up in Phase I. This will complete the entire project which is the core of the four-year development program in telecommunications.
11. Other Pertinent Information: Pre-feasibility studies completed by the Bureau of Telecommunications.

1. Name of Project: Manufacture of Teleprinters
2. Location: Export Processing Zone (formerly FTZ)
Mariveles, Bataan
3. Proposed Sponsor: Clavecilla Electronics and Telecommunications Corporation (CETCO)
4. Description: Establishment of a teleprinter manufacturing plant in the EPZ, Mariveles, Bataan as a progressive manufacturing scheme. The plant will initially engage in the assembly of imported component parts, then proceed to the manufacture of basic parts on a progressive scale until a full local manufacturing capability is achieved. From the start of the project, there will be progressive introduction of local content or import substitute materials every year until full local content is achieved in 10 years.
5. Objectives:
 - (1) To meet the local demand for teleprinters.
 - (2) To provide employment.
 - (3) To earn and conserve dollars for the country.
 - (4) To develop other equipment-related industries.
6. Scope of Work: The project involves the following:-
 - (1) Acquisition or lease of factory site in (EPZ) Mariveles, Bataan (approved by the EPZA Board).
 - (2) Construction of factory building.
 - (3) Setting up of equipment assembly and manufacture of teleprinters.
7. Time Required: 1975 1985

8. Project Cost: Foreign Exchange in US\$: \$5.5 million
Peso : P7.5 million

9. Phasing of Expenditure:		<u>US\$ (mil)</u>	<u>P (mil)</u>
(1)	Construction of building and plant facilities	0.5	7.0
(2)	Acquisition, installation and test of equipment	5.0	0.5

10. Justification: Telecommunication plays a vital role in the economic development of the country. Presently there is no manufacturer of teleprinters in the Philippines and in Southeast Asia. Market projections based on ECAFE-ITU studies indicate its financial viability. Being a labor and export oriented industry, the plant would fit in well in the Export Processing Zone in Mariveles, Bataan where maximum incentives are provided for industries of this nature.

On account of the existing low cost of labor in the Philippines, the teleprinters to be manufactured would be competitive with other foreign brands. Numerous business and commercial as well as Government firms could then afford to have teleprinters in the conduct of their operations.

11. Other Pertinent Information: A Feasibility Study covering the economic, financial, and technical aspects of the project has been completed.

Projected annual production output:-

1st year	2000 units
2nd year	2250 units
3rd year	2500 units

-235-

4th year	3000 units
5th year	3500 units
6th year	4500 units
7th year	5200 units
8th year	5654 units
9th year	6000 units
10th year	6000 units

APPENDIX 7

Singapore

S I N G A P O R E

All major RTS identified transport projects are now under implementation. These include the expansion of inter-continental airport facilities and the expansion of facilities to handle conventional and container cargo at Jurong. In addition, the planning for improvements to the urban transportation system is well underway.

Opportunities for collaboration between Singapore/US interests in transport and communications projects as well as in other sectors of the economy can be expected to be identified in the briefings to be given to the Mission by Singapore officials.

APPENDIX 8

Thailand

T H A I L A N D

PROJECT PRESENTATION

1. Future Mass Transport System in Bangkok
2. Development of Industrial Estates
3. Mineral Resources Development

1. Name of Project: Future Mass Transport System in Bangkok
2. Location: Metropolitan Area of Bangkok/Thonburi
3. Proposed Sponsor: Ministry of Communications, Department of Land Transport or Minister of Interior, Office of Policy and Planning or Toll Road Authority
4. Description:

The most suitable kind of public transportation system for Bangkok seems to be an elevated system used in the first stage by buses and later, if need arises, by rapid trains. Although subway construction would be technically feasible, the cost compared with an elevated system, would be between two to four times higher depending on the type of construction. Other disadvantages of such an elevated system are:

 - (1) nearly no land acquisition is necessary;
 - (2) no traffic disturbance during construction;
 - (3) no imports since all the parts, pre-stressed pre-cast reinforced concrete units can be produced in Thailand;
 - (4) high flexibility by using buses during the first stage.
5. Objective:

In the future, transportation needs in Bangkok cannot be met by constructing roads alone. An efficient mass transportation system will be necessary. In spite of a considerable further increase in the number of private cars, about 5.5 million people will continue to depend on public transportation modes in 1990. Besides the environmental problems caused by the use of too many vehicles in urban areas, higher capacity and less demand of surface area are too important advantages of public transportation.

6. Scope of Work: Final design and construction.
7. Time Required: Assuming construction can start in 1974 about 100 kilometers of the network, even partly underground, could be completed in the year 1990.
8. Project Cost: Assuming a unit price of 20 to 25 million baht per kilometer of an elevated system and about 100 to 120 million baht per kilometer of an underground system the entire project costs up to the year 1990 would amount to three billion baht. The foreign exchange cost could roughly be estimated to be 20% or about US\$30 million.
9. Phasing of Expenditure: The total sum should be equally distributed between the years 1974 and 1990. Thus, about 180 million baht annually would be necessary.
10. Justification: A general transportation plan, including a mass transport network for the Greater Bangkok Area is at present in preparation by the Office of Metropolitan Traffic Planning. The overall plan will be finished in 1974.

1. Name of Project: Development of Industrial Estates
2. Location: Throughout Thailand
3. Proposed Sponsor: Industrial Estates Authority of Thailand (IEAT)

The Head Office of the Authority is located at the Ministry of Industry where further information including feasibility studies of the estates can be obtained.

4. Description: The Thai Government is placing high priority on the development of industrial estates as a means for accelerating industrial growth and for helping to solve the problems of urban congestion, the scarcity of industrial sites, the high cost of land and various difficulties in arranging for appropriate power, water, sewage and other facilities.

5. Objective: The main functions of the Authority are:

- (1) to provide and improve land for the establishment of manufacturing plants through construction of the necessary infrastructure (roads, water supply, sewerage, telephones and so on);
- (2) to lease such land to industrialists;
- (3) to supervise the development and maintenance of the estates so established.

Consideration is being given to the setting up of Free Trade Zones for industrial purposes in the near future.

6. Scope of Work: IEAT presently manages one industrial estate at Bang Chan, 30 km east of Bangkok. 15 plants are under operation (mechanical, chemical, ancilliary motor assembly establishments); about 10

plants are under construction while more than 30 other applications are under review.

By 1976 it is expected that the whole estate will be completely occupied by 50 - 100 plants employing an estimated 2,500 - 5,000 people.

Total capital investment will amount to 31 million Baht or US\$1.5 million.

Income from rental and services will be:

7 million Baht a year between 1972/
75; reaching
58 million Baht a year in the 1990s.

It is planned to establish the following new industrial estates:

Klongdan: 50 kms S.E. of Bangkok on the coast. It will cater for chemical, food processing, and other industries with pollution problems. This project requires an area of about 2,000 rai and US\$12 million of capital investment.

Prapadang: near Bangkok on Chao Phraya River. It will cater for shipbuilding, heavy steel fabrication and mechanical industries, etc. This project covers an area of about 800 rai and requires a capital investment of about US\$6 million.

Listed below are a number of "additional estate project possibilities":-

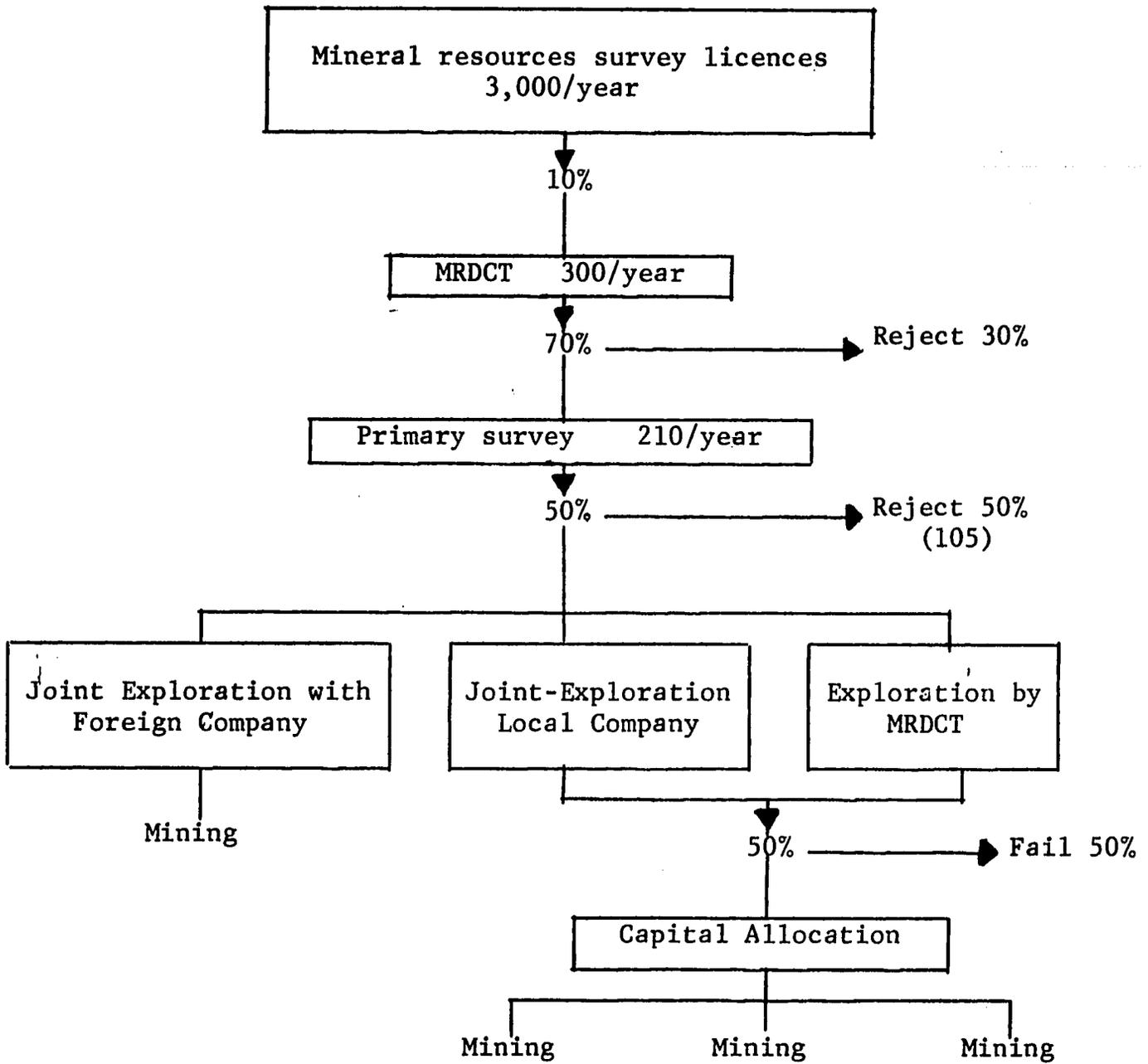
<u>Location</u>	<u>Type</u>
Sattahip	Industrial free zone (free port) for assembly type export oriented industry.
Chon Buri	Industrial estate and free port.
North Bangkok Area	New town including industrial estate.
Laem Chabang	Deep water harbour, free port and industrial estate.

Pre-investment studies on all the above will shortly be undertaken.

1. Name of Project: Mineral Resources Development
2. Location: All of Thailand
3. Proposed Sponsor: Mineral Resources Development Corporation of Thailand (MRDCT)
4. Description: The Corporation is an autonomous authority with responsibility for accelerating mining development in the country in consonance with the recommendations of an IBRD expert group and the 3rd Development Plan of the Thai Government.
5. Objective: The main functions of the Corporation are:
 - (1) to join with private firms in exploring minerals within the country on a participating basis through equity, capital assistance, equipment, technicians, etc.
 - (2) to provide technical know-how to private industry including new technology for mining exploration;
 - (3) to lease mining machinery and equipment to private mining enterprise.

The proposed work program is currently under official discussion. It is intended that implementation of the work program will begin in fiscal year 1974.
6. Scope of Work:
 - (1) Primary surveys
 - (2) Exploration for assessment
 - (3) Contributions of equity and loan capital to private enterprises - local and foreign.

A schematic illustration of the scope of work is shown below:



APPENDIX 9

Vietnam

V I E T N A M

A. TRANSPORT AND COMMUNICATIONS

1. Port of Danang and Danang-Savannakhet Road Link-Up
2. Establishment of a City-wide Bus System
3. Brief Notes on Other Transport and Transport Related Projects

B. INDUSTRIAL BRIEFS

1. Cement Plant
2. Flat Glass Plant
3. Kraft Pulp and Paper from Pine Wood
4. Sodium Chloride from Sea Water by Solar Evaporation
5. Soda Ash and Caustic Soda from Sea Salt and Limestone
6. Saw Mill and Wood Preserving Plant
7. Shrimp Trawler Project
8. Canned Food Processing Plant
9. Sugar Mill
10. Fertilizer Plant
11. Can Making Plant
12. Drydock
13. Ceramic Tableware Plant
14. Coir-Fiber Processing Plant
15. Fish Meal Plant

16. Press Molded Glassware Plant
17. Plywood Plant
18. Cassava Starch Making Plant
19. Fruit Juice Plant
20. Match Plant

1. Name of Project: Port of Danang and Danang-Savannakhet road link-up.
2. Location: Northern part of the Republic of Vietnam.
3. Proposed Sponsor: Directorate General of Commercial Ports (Port improvement) and Directorate General of Roads and Bridges (Road improvement).
4. Description: Improvement of the Port of Danang and rehabilitation and improvement of Route 1 and Route 9 to Laos.
5. Objectives: To use Danang as a transit port for Laos. To stimulate the economic development of the northern part of the Republic of Vietnam.
6. Scope of Work:
- On the ground reconnaissance
 - Engineering study
 - Construction
7. Time Required: Two years.
8. Project Cost:
- | | US\$ (million)
<u>Total</u> | Local currency
<u>equivalent</u> | Foreign
<u>exchange</u> |
|--|--------------------------------|-------------------------------------|----------------------------|
| Port Cost: | 3.0 | 1.4 | 1.6 |
| Road rehabilitation
and improvement | 16.4 | 10.5 | 5.9 |
| Total | <u>19.4</u> | <u>11.9</u> | <u>7.5</u> |
9. Phasing of Expenditure:
- 1973: US\$ (million) 0.9 (Study)
1974: US\$ (million) 18.5 (construction)
10. Justification:
- Transport cost savings for Laos.
 - Stimulation of economic development in the northern part of the Republic of Vietnam.

11. Any Other Pertinent
Information:

Port improvement consists of the construction of a finger pier and a breakwater.

1. Name of Project: Establishment of a City-wide Bus System.
2. Location: Saigon
3. Proposed Sponsor: - Municipality of Saigon (supervision)
- Private enterprise (management and operation)
4. Description: The population of the Metropolitan area in Saigon is 2.5 million. Before 1968, there was one bus company owned by the Government operating 241 buses and transporting 60 million passengers per year on 17 routes. However, this operation was terminated in 1969 due to mismanagement. In place of a bus system, public transport in Saigon has been provided by:
- Lambros (4,500) taxicabs (4,700)
and motor tricycles (2,430).
- The resulting traffic congestion has reached serious proportions.
5. Objective: To provide the city with 2,000 buses needed for public transportation. Traffic congestion is expected to lessen by reduction in the number of vehicles in the City (47,000 private automobiles, 250,000 motor-bikes under 50 c.c., 4,500 lambros, etc...)
6. Scope of Work:
- | | | | |
|--------|------|-----|-------|
| Year 1 | 1973 | 400 | buses |
| Year 2 | 1974 | 500 | " |
| Year 3 | 1975 | 500 | " |
| Year 4 | 1976 | 300 | " |
| Year 5 | 1977 | 300 | " |
7. Time Required: 5 years.
8. Project Cost:
- | | | |
|--|-------|------------|
| a - Vehicles | US \$ | 35 million |
| b - Equipment and maintenance
(warehouse, workshop, etc...) | | 5 million |
| | | <hr/> |
| | US \$ | 40 million |

9. Phasing of
Expenditure:

	US\$ (million)
1973	8
1974	10
1975	10
1976	6
1977	6

BRIEF NOTES ON OTHER TRANSPORT AND TRANSPORT RELATED PROJECTS

1. Development of the Port of Vung Tau

USAID will be providing assistance for a study to define the technical problems that would be involved in developing a deep water port, a general cargo port, or a fishing port.

The object would be to determine the size of the problem involved in providing land access, fresh water, electric power, dredging, land fill, water-front construction, etc. and the potentiality to damage of the recreation beaches at Vung Tau under various development possibilities.

2. Rehabilitation of the Rail System

The railway network of South Vietnam stretches from Dong Ha in the north to Saigon in the south. Substantial parts of the system have been damaged by the war. The estimated cost of rehabilitation is some US \$120 million. The program includes repairs to track lands, steel bridges, concrete bridges, telecommunications and signalling systems, rolling stock, etc. The proposed rehabilitation is phased into repairs which have to be undertaken during the next 6 months and 12 months as well as repairs and modernization over the next 5 years.

3. Reconstruction of Bridges and Highway System

The largest program for infrastructure development now being financed by USAID is the reconstruction and improvement of the highway system. Contracts will shortly be let for the design and preparation of contract documents for the reconstruction of about 250 bridges and approximately 300 kms of war damaged highway. Work will go forward in nearly every province of the country and the program is anticipated to run through 1975.

4. Establishment of Industrial Parks and Export Processing Zones (EPZs)

Industrial parks and export processing zones are being established to promote industrial development. Accordingly, action is underway to investigate the expansion of existing industrial park at Long Binh; the possible creation of additional parks at Cam Tho and Cam Ranh Bay and the establishment of EPZs at Long Binh, Cam Ranh Bay and other possible locations.

One set of studies will focus on the economic aspects of establishing one or more EPZs in Vietnam. Under the auspices of USAID a Long Binh site is now being studied while arrangements are being made for evaluating the feasibility of an EPZ at Cam Ranh Bay and/or other possible sites in Vietnam.

Another set of studies deal with the engineering requirements of EPZs at Cam Ranh Bay and Long Binh plus industrial parks at these two locations and also at Cam Tho. These studies will develop a plan for implementation of accelerated installation of necessary infrastructure including roads, utilities and drainage.

1. Name of Project: CEMENT PLANT
2. Location:
 - a/ Clinker Mfg Plant in Kien Luong (Kien-Giang Province)
 - b/ Cement Grinding and Packing Plants in Thu-Duc (suburb of Saigon) and in Can-Tho.
3. Proposed Sponsor: Hatien Cement Company (Government Corporation) or Joint-Venture between the above and foreign investors.
4. Description: It is an expansion project of the Ha-Tien Cement Company, consisting of:
 - a/ Expansion of the existing Clinker Mfg plant in Kien Luong from 240,000 T/year to 850,000 T/year.
 - b/ Expansion of the existing cement grinding and packing plant in Thu Duc from 300,000 T/year to 600,000 T/year.
 - c/ Construction of new cement grinding and packing plant in Can Tho with a production capacity of 300,000 T/year.
5. Objectives: The total demand of cement in Vietnam is about 1,300,000 T/year, and 3/4 of which are consumed in the Southern part of the Republic of Vietnam. The existing production capacity of the Ha Tien Cement Plant is only 300,000 T/year. So there is a need to increase the production capacity to 900,000 T/year to cover the domestic market.
6. Scope of Work:
 - Preinvestment study: completed
 - Planning, construction, etc. . . : to be carried out.
7. Project cost (estimated): US \$30 million + VN \$4 billion.

8. Time Required: About 45 months.

9. Phasing of
Expenditure:

10. Justification: - Foreign Exchange Savings: US \$6 million/
year
- Employment for 400-500 persons
- Valorization of the local limestone.

1. Name of Project: FLAT GLASS PLANT
(Fourcault Process)
2. Location: Bien-Hoa Industrial Estate (30 Km from Saigon)
3. Proposed Sponsor: Joint-Venture between local and foreign investors
4. Description: : The production capacity is 7,000 Mt/year
Thickness of glass sheets ranges from 2mm to 5mm.
5. Objectives: The purpose of the project is to produce flat glass to meet the domestic demand (about 5,000 MT/year)
The surplus production (2,000 MT/year) is planned for export.
6. Scope of Work:
 - Local raw materials survey (silica sand, limestone, . . .): Completed
 - Other phases of the project: to be carried out.
7. Time required: 30 months
8. Project cost: US \$2.4 million + VN \$400 million.
9. Phasing of Expenditure:
 - 1st year: US\$ 1 million + VN \$50 million
 - 2nd year: US\$ 1 million + VN \$250 million
 - 3rd year: US\$.4 million + VN \$100 million
10. Justification:
 - Foreign exchange savings and earnings: US \$500,000/year
 - Employment for 180 persons
 - Utilization of local raw materials.

1. Name of Project: KRAFT PULP and PAPER from pine wood
2. Location: Tuyen Duc - Phan Rang area
3. Proposed Sponsor: Joint-venture between the government agency and foreign investors
4. Description: This project will exploit the present pine forest at Dalat-Tuyen Duc- Lam Dong for the production of unbleached Kraft pulp and paper. The production capacity is 250 T/day.
5. Objectives: The project aims to meet the total domestic demand of Kraft paper (estimated at 24,000 MT in 1980) and to export the 2/3 of its production.

There exists a large market in many Asian countries for paper and pulp, especially pulp with long fibers. The Philippines, Thailand, Malaysia, Singapore, Cambodia, Laos, and Indonesia can offer a potential market for this proposed Kraft paper mfg. project.
6. Scope of Work: - Raw materials and facilities survey: Completed
- Other phases: To be carried out.
7. Time required: 4 years
8. Project cost: US \$23 million + VN \$3.5 billion.
9. Phasing of Expenditure: 1st year: US \$1 million + VN \$300 million
2nd year: US \$8 million + VN \$800 million
3rd year: US \$8 million + VN \$1,400 million
4th year: US \$6 million + VN \$1,000 million
10. Justification: - Foreign exchange savings and earnings about US \$7 million/year.
- Employment for 400 persons.
- Better utilization of local pine wood.

1. Name of Project: SODIUM CHLORIDE FROM SEA WATER BY SOLAR EVAPORATION
2. Location: Ba Ria (Phuoc Tuy Province)
3. Proposed Sponsor: - Joint venture between Vietnamese and foreign investors.
4. Description: The plant capacity is 250,000 MT/year of crude salt from solar ponds and washed undried salt.

The production process is divided into six steps:
 - a) Concentrating Ponds.
 - b) Crystallizing Ponds.
 - c) Product Harvesting.
 - d) Washing Plant.
 - e) Stock Piling.
 - f) Reclaiming.
5. Objectives: The objective of the project is to establish a modern solar salt plant in Vietnam to produce high quality salt at a cost low enough to be useful to the chemical industry in Vietnam and overseas markets (particularly Japan).
6. Scope of Work:
 - Preinvestment study: completed
 - Planning: to be carried out
 - Construction: to be carried out
7. Time Required: The first salt production will be from thirty to thirty-six months after the project starts, depending upon the project schedule and timing in relation to the rainy season.
8. Project Cost: US \$1,000,000 (Equipment & Spare parts)
VN \$720,000,000 (Buildings, Site, improvement & Ponds).

9. Phasing of
Expenditure:

1st year: VN \$672,000,000
2nd year: VN \$34,000,000 + US \$80,000
3rd year: VN \$14,000,000 + US \$920,000

Total VN \$720,000,000 + US \$1,000,000

10. Justification:

- Vietnam has all the basic conditions necessary for a modern solar salt industry.
- The potential in-country and export markets (particularly Japan) are large enough for more investments.
- The venture will be highly profitable to investors, repatriation of generated cash is favorable to a foreign investor.
- Recommended position of financing and ownership of the venture is fifty per cent. by Vietnamese and fifty per cent by foreign investors.

1. Name of Project: SODA ASH and CAUSTIC SODA from SEA SALT and LIMESTONE.
2. Location: Ba Ria (Phuoc Tuy Province)
3. Proposed Sponsor: Joint-venture between Vietnamese and foreign investors.
4. Description:

The plant production is 83,300 MT/year of Soda Ash by the Solvay process from salt and limestone and 32,000 MT/year of Caustic Soda by the lime-soda process from soda ash and lime.

The salt is produced from sea water by solar evaporation process in Vietnam. The other raw material, limestone, is produced from natural deposits in the Ha-Tien area.
5. Objectives:

The purpose of this project is to produce Soda Ash and Caustic Soda, 2 basic raw materials, for local demand in various industries: Glass industry, Chemical industry . . .
6. Scope of Work:
 - Preinvestment study: completed
 - Planning, construction: to be developed
7. Time required: 2 years.
8. Project cost: US \$6,500,000 + VN \$300,000,000
9. Phasing of Expenditure:

1st year: VN \$120,000,000 + US \$2,500,000
2nd year: VN \$200,000,000 + US \$4,000,000

Total: VN \$360,000,000 + US \$6,500,000
10. Justification:

a) All the necessary raw materials can be made available in Vietnam without imports, except for supplies which include coke, fuel, ammonia, and sodium sulfide.

- b) Imports of Soda ash and caustic soda can be eliminated thus reducing the US dollar volume of imports into Vietnam (about US \$4,300,000/year).
- c) The potential in-country markets for soda ash and caustic soda are large enough to support an economic size plant.
- d) The venture will be reasonably profitable to investors on a rather conservative basis.
- e) Repatriation of generated cash is favorable to a foreign investor.

1. Name of Project: SAW MILL & WOOD PRESERVING PLANT
2. Location: Bien-Hoa Industrial Estate or in the Central Highland
3. Proposed Sponsor: Joint venture between Vietnamese and foreign investors.
4. Description: The project requires a log-yard and treatment factory fully equipped with bark stripping, trunk sawing, and treating equipment at a production capacity of 40,000 M3/year (20,000 M3 treated wood and 20,000 M3 of untreated wood). Sawmill operating 8 hrs/day x 300 days/year. Treating plant operating 24 hrs/day x 300 days/year.
5. Objectives: The project aims to lower transportation cost which are very high for transporting logs from forests to log yards to be processed over a distance that sometimes stretched over a hundred kilometers. The chemical treatment of low quality woods of the project renders them insect proof and adequate drying, these woods would become valuable resource. The low quality woods are abundant in Vietnamese forests and very cheap; though colorful, they are rarely used for furniture or decoration.
6. Scope of Work:
 - Preinvestment study: completed
 - Planning, construction, etc...: to be carried out
7. Time required: About 24 months
8. Project cost: US \$800,000 + VN \$250 million
9. Phasing of Expenditure:
 - 1st year: US \$300,000 + VN \$100 million
 - 2nd year: US \$500,000 + VN \$150 million
10. Justification: - Foreign Exchange Savings: US \$2,620,000

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- Employment for 115 persons
- Exploiting the abundant low quality wood resource of the country
- Possessing export potential

1. Name of Project: SHRIMP TRAWLER PROJECT
2. Location: Saigon, Rach-Gia, Phan-Thiet, Vung-Tau
3. Proposed Sponsor: Joint venture between Vietnamese and foreign investors
4. Description: It is a new project, consisting of ten 100 Ton shrimp trawlers equipped with finders, selectors, freezing equipment, ... net trawl cable, etc...
5. Objectives: The project aims to export frozen shrimps to foreign markets. The production capacity is estimated as follows:

10 GT/trip x 30 trips/trawler-year x 10 trawlers = 3,000 GT/year
6. Scope of Work:
 - Preinvestment study: completed
 - Planning, construction, etc...: to be carried out
7. Project cost: US \$2 million + 100 million
8. Time required: 6 months
9. Phasing of Expenditure
10. Justification:
 - Foreign Exchange Earnings: US \$7,000,000
 - Employment for 114 persons
 - Exploiting the local fishery

1. Name of Project: CANNED FOOD PROCESSING PLANT
2. Location: Bien Hoa Industrial Estate.
3. Proposed Sponsor: Joint venture between foreign and Vietnamese investors
4. Description: The proposed project is planned to produce 20,000,000 cans per year.
5. Objectives: In the first year of operation, the products will be sold in the domestic market, while overseas markets will be actively explored.

It is anticipated that 20% of the production can be exported in the second year, and 40% or more in the following years of operation.
6. Scope of work:
 - Preinvestment study: completed
 - Planning, construction: to be developed
7. Time required: 2 years
8. Project cost: US \$1,200,000 + 200,000,000
9. Phasing of Expenditure:
 - 1st year: VN \$70,000,000 + US \$400,000
 - 2nd year: VN \$130,000,000 + US \$800,000
10. Justification:
 - a) Value of import substitution and export earnings is about US \$2,000,000 per year.
 - b) The potential domestic and overseas markets for the canned food products are large enough to support an economic size plant.
 - c) The venture will be reasonably profitable to investors on a rather conservative basis.

1. Name of Project: SUGAR MILL
2. Location: Phan-Rang
3. Proposed Sponsor: Joint venture between the government agency and foreign investors
4. Description: The project is to establish one sugar mill to process 4,000 MT/day of sugar cane to produce white sugar.

Thanks to the extended dry season at Phan-Rang, the mill can operate 250 days/year and produce 100,000 MT of white sugar.
5. Objective: This project aims to cut down the import of raw sugar by producing more sugar from canes to meet the domestic demand.
6. Scope of Work:
 - Feasibility study and area survey: completed by the Japanese Nippon Koei
 - Other phases: to be carried out
7. Time required: 4 years
8. Project cost: US \$16.5 million + VN \$2 billion
9. Phasing of Expenditure:
10. Justification:
 - Foreign Exchange Savings: US \$20 million/year
 - Employment for 1,000 persons (sugar mill) and 25,000 persons (sugar field)

1. Name of Project: FERTILIZER PLANT
2. Location: Can-Tho or Cam Ranh
3. Proposed Sponsor: Joint venture between the Vietnam Fertilizer Industry Company (government corporation) and foreign investors.
4. Description: The proposed plant has a production capacity of 600 MT/day of ammonia and 1,000 MT/day of urea from imported naphtha.
5. Objectives: The production of this project will substitute the imports that increase greatly year by year.

The demand of urea is estimated to be:

270,000 MT/year in 1975 and
425,000 MT/year in 1980
6. Scope of work: - Preinvestment study: completed
- Other phases: to be carried out
7. Time required: 4 years
8. Project cost: US \$50 million + VN \$5 billion
9. Phasing of Expenditure:
10. Justification: - Foreign Exchange Savings: about US \$13 million/year
- Support the self-sufficient rice program.

1. Name of Project: CAN MAKING PLANT
2. Location: Saigon - Bien-Hoa area
3. Proposed Sponsor: Joint venture between Vietnamese and foreign investors.
4. Description: The proposed plant has a production capacity of 40 million cans of all types per year.
5. Objectives: The project aims at supporting the local canning industry.
6. Scope of Work:
7. Project cost: US \$1 million + VN \$200 million
8. Time required: 15 months
9. Phasing of Expenditure:
10. Justification:
 - To support the local canning industry
 - Employment for 80 persons.

1. Name of Project: DRYDOCK
2. Location: Saigon River sides
3. Proposed Sponsor: Joint venture between Vietnamese and foreign investors.
4. Description: The proposed drydock will be fully equipped with sheet working shop, machine shop, foundry, etc.. for repairing annually 40 boats of all types up to 2,000 GT.
5. Objectives: This project is proposed to offer adequate repair facilities for the local fishing and cargo fleet which, until now, have to go abroad for repair.
6. Scope of work:
7. Project cost: US \$2 million + VN \$500 million
8. Time required: 30 months
9. Phasing of Expenditure:
10. Justification:
 - Foreign Exchange Savings: US \$1 million/
year
 - The large number of steel fishing boats and small cargo vessels in Vietnam is sufficient for a modern drydock to operate in full capacity.

1. Name of Project: Ceramic Tableware Plant
2. Location: Bien Hoa Industrial Estate
3. Proposed sponsor: Private Sector
4. Description: Raw materials (quartzite, feldspar, kaolin, clay, talc, lime, dolomite, etc.) are blended in a prescribed ratio, afterwards they are crushed into a fine powder. After moulding, they are dried and fired into products. They are then colored with inorganic pigments.

The manufacturing process may be summed up as follows:
 - a) Washing of stony materials
 - b) Crushing
 - c) Moulding
 - d) Drying
 - e) Glazing
 - f) Firing
 - g) Decoration
5. Objectives: The purpose of the plant is to produce 1,300 MT/year of ceramic tableware for local demand and export markets in neighboring countries.
6. Scope of work:
 - Preinvestment study: to be developed
 - Planning : -id-
 - Construction : -id-
7. Time required: 2 years
8. Project cost: US\$520,000 + VN\$100,000,000
9. Phasing of expenditure:
 - 1st year: VN\$70,000,000 + US\$120,000
 - 2nd year: VN\$30,000,000 + US\$400,000
10. Justification: a) The great part of the raw materials required is available in the country.

- b) Domestic manufacture of ceramic tableware contributes to economizing on foreign currency.
- c) The local market is potentially large enough to support an economic size plant.

1. Name of Project: COIR-FIBER Processing Plant
2. Location: My Tho area
3. Proposed sponsor: Joint-venture between Vietnamese and foreign investors
4. Description: The capacity of the plant is:
 - 60 tons of bristle fiber/month
 - 100 tons of mattress fiber/month
 - 100 tons of curled rope/monthWorking hours: 24 hrs/day, 25 days/month
5. Objectives: The plant offered here is designed to turn out industrial products from coir-fibers available from coco-husk which are very cheap and until now not fully utilized.
6. Scope of work: Under study
7. Time required: 12 months
8. Project costs: (estimated)
 - US\$215,000 (Equipment, machinery, and spare parts)
 - VN\$25,000,000 (Building, site...)
9. Phasing Expenditure:
10. Justifications:
 - Full-utilization of abundant and cheap coco-husk
 - Offering jobs for 100 local labors
 - Possessing export potential and foreign exchange savings.

1. Name of Project: Fish Meal Plant
2. Location: Important fishing ports
3. Proposed sponsor: Private sector
4. Description:

The plant capacity is 5 tons of product/day
Working hours: 8 hrs/day, 300 days/year
The production process is divided into 4 steps:

 - Preliminary treatment
 - Cooking
 - Drying
 - Grinding
5. Objective:

The plant is to turn out fish meal used as food for poultry and hogs farming from trash fish which are abundant and cheap in Vietnam. Although there are already a few fish meal plants operating in the country, the consumption still exceeds current production. Each year the Republic of Vietnam has to import a considerable quantity of fish meal for animal husbandry.
6. Scope of work:
 - Preinvestment study: completed
 - Planning and construction: to be carried out
7. Time required: 12 months
8. Project cost: US\$200,000 + VN\$40,000,000
9. Phasing of Expenditure
10. Justification
 - Foreign exchange savings: US\$250,000/year
 - Employment for 30 persons
 - Substituting import of fish meal

1. Name of Project: Press Molded Glassware Plant
2. Location: Saigon - Bien-Hoa area
3. Proposed Sponsor: Private sector
4. Description: The plant has a production capacity of 10 million pieces/year.
5. Objectives: The product is for local and export markets.
6. Scope of work: To be developed
7. Project cost: US\$400,000 + VN\$100 million
8. Time required: 2 years
9. Phasing of expenditure:
1st year: US\$200,000 + VN\$40 million
2nd year: US\$200,000 + VN\$60 million
10. Justification:
 - Exploiting the abundant and cheap but high quality local silica sand
 - Possessing export potential

8. Project cost: VN\$200,000,000 † US\$1,300,000
9. Phasing expenditure: 1st year: VN\$100,000,000 † US\$300,000
2nd year: VN\$100,000,000 † US\$1,000,000
10. Justification:
- a) The great part of the raw materials required is available in Vietnam.
 - b) Local manufacture of Plywood contributes to economizing and earning of Foreign Exchange.
 - c) The potential export market of Plywood is large enough to support an economic size plant.
 - d) The venture will be reasonably profitable on a rather conservative basis.
 - e) Repatriation of generated cash is favorable to foreign investors.

1. Name of Project: Plywood Plant
2. Location: Bien Hoa Industrial Estate
3. Proposed sponsor: Joint-venture between Vietnamese and Foreign Investors
4. Description: The plant is planned to produce 4,000 sheets per day (8 hrs) of plywood (4' x 8' x 4mm). The production process may be summed up as follows:
 - (A) Preparation of Logs
 - 1 - Cutting of logs
 - 2 - Cooking or steaming
 - (B) Veneer Manufacturing
 - 1 - Veneer cutting
 - 2 - Green veneer clipping
 - 3 - Veneer drying
 - 4 - Veneer preparation
 - (C) Manufacture of Plywood
 - 1 - Glue mixing
 - 2 - Glue spreading
 - 3 - Pre-pressing
 - 4 - Hot pressing
 - (D) Finishing
 - 1 - Dimensioning
 - 2 - Sanding
 - 3 - Grading and inspection
5. Objectives: The purpose of the project is to establish a Plywood Making Plant for export markets.
6. Scope of work:
 - Preinvestment study: to be developed
 - Planning : -id-
 - Construction : -id-
7. Time required: 2 years

1. Name of project: Cassava Starch Making Plant
2. Location: Tay Ninh area
3. Proposed sponsor: Private sector
4. Description: The plant has a production capacity of 4,000 MT/year of starch.
5. Objectives: The product is for domestic market (paper, textile, food industries) and even for export.
6. Scope of work:
 - Raw materials survey : completed
 - Other phases : to be carried out
7. Time required: 16 months
8. Project cost: US\$300,000 + VN\$80 million
9. Phasing of Expenditure:
10. Justification:
 - Exploiting an abundant and cheap cassava
 - Offering jobs to 40 persons (plant)
1,000 - (plantation)
 - Possessing export potential

1. Name of project: Fruit Juice Plant
2. Location: Bien-Hoa Industrial Estate
3. Proposed sponsor: Private sector
4. Description:

The project is planned to produce 800 KGS/day of concentrated juice or 8 MT/day of natural juice (orange, pineapple, grapefruit, tomato, tangerine, guava, etc.)

The production process may be summed up as follows:

 - a) Cleaning
 - b) Water heating
 - c) Peeling and trimming
 - d) Juice extraction
 - e) Preheating and cooling
 - f) Centrifugalization
 - g) Deaeration
 - h) Vacuum concentration (for concentrated juice)
 - i) Seasoning
 - j) Sterilization
5. Objectives: The purpose of the project is to establish a Fruit Juice Making Plant for the local market.
6. Scope of work:
 - Preinvestment study: to be developed
 - Planning, etc. : -id-
7. Time required: 2 years
8. Project cost: US\$190,000 † VN\$50,000,000
9. Phasing of Expenditure:
 - 1st year: VN\$30,000,000 † US\$60,000
 - 2nd year: VN\$20,000,000 † US\$130,000
10. Justification:
 - a) The great part of the raw materials required is available in the country.
 - b) Domestic manufacture of Fruit Juice contributes to economizing on foreign currency.

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c) The potential local market is large enough to support an economic size plant.

1. Name of Project: Match Plant
2. Location: Bien Hoa Industrial Estate
3. Proposed sponsor: Joint-venture between Vietnamese and foreign investors
4. Description: The plant is to produce 144,000 boxes/day 24 hrs/day (one box contains 50 matches)
5. Objectives: There is, now, only one manufacturer in South Vietnam which only satisfies less than 65% of the domestic demand. Therefore there exists the remaining 35% of local demand to be met. In the first year of operation, 80% of the production will be sold to the domestic market. It is anticipated that 30% of the production can be exported in the following years of operation.
6. Scope of work:
 - Preinvestment study: completed
 - Planning, construction: to be carried out
7. Time required: 24 months
8. Project cost (estimated): US\$220,000 (equipment) †
VN\$45,000,000 (buildings,..)
9. Phasing of Expenditure:
10. Justification:
 - Satisfying the demand for matches in the local market
 - Offering jobs to 80 persons
 - Possessing export potential
 - Earning an estimated amount of foreign exchange: US\$250,000/year