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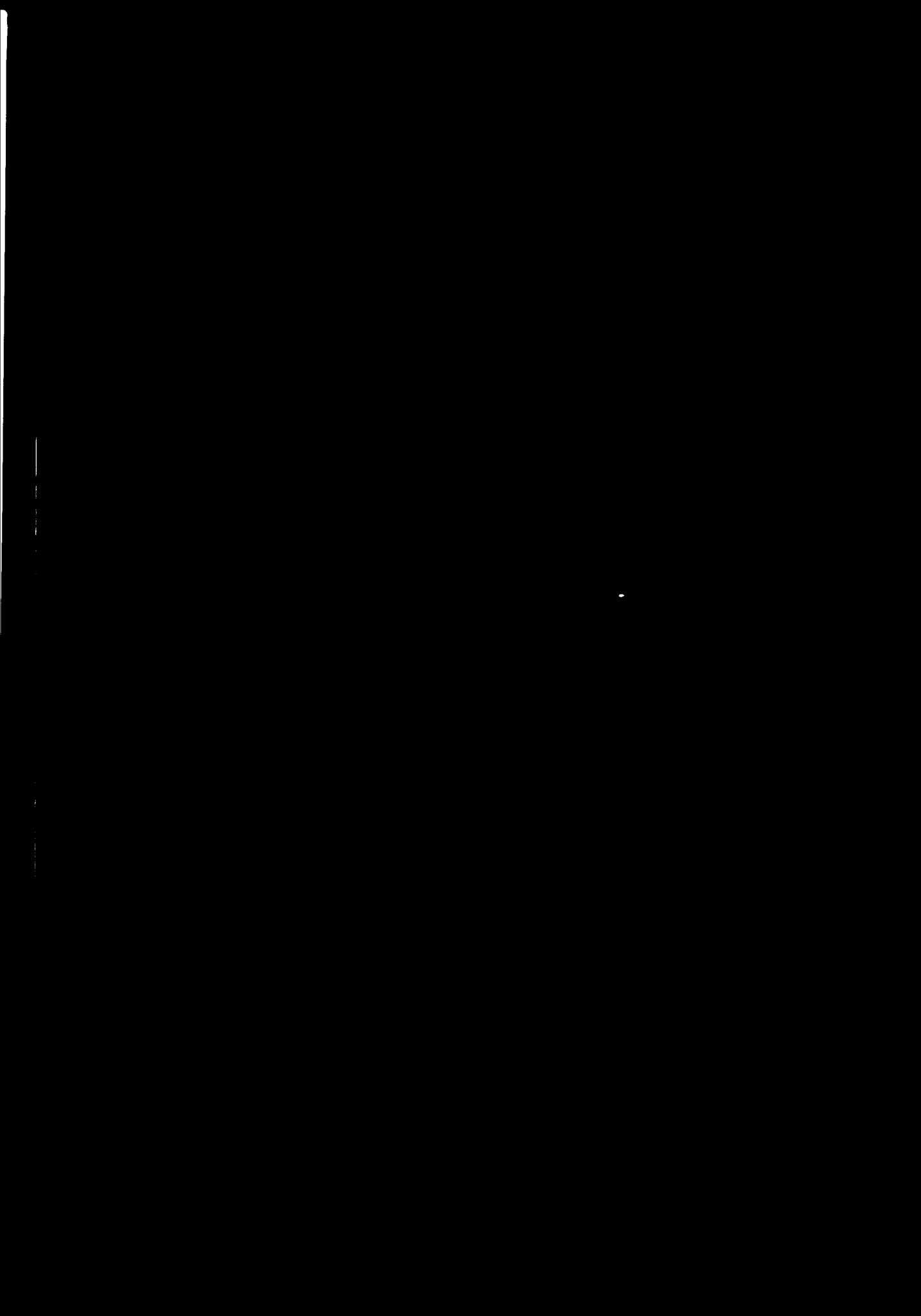
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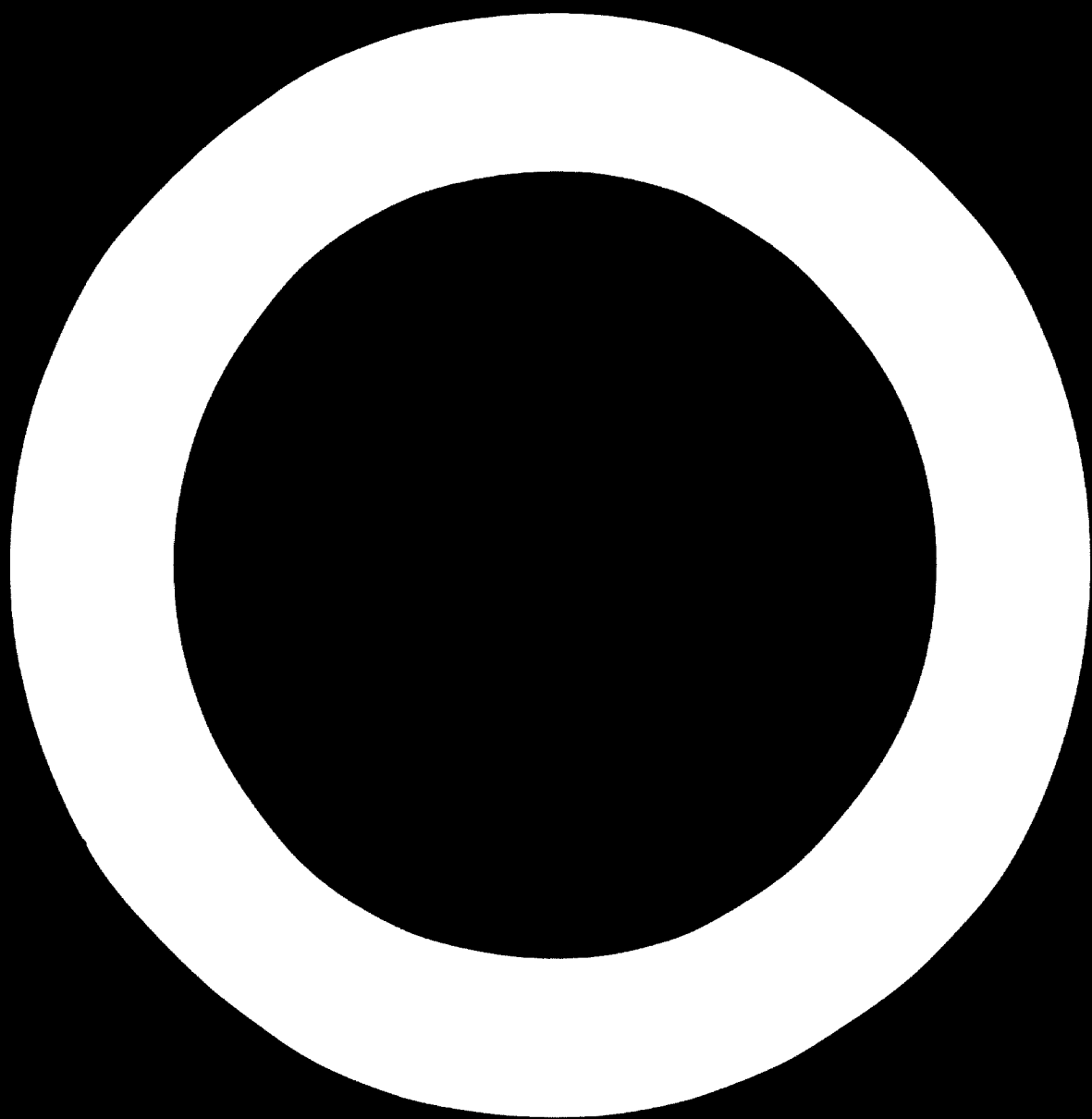
REVIEW OF EXISTING CO-OPERATIVE ARRANGEMENTS
AMONG THE DEVELOPING COUNTRIES WITH SPECIAL
REFERENCE TO THE NEWLY INDUSTRIALIZING COUNTRIES ¹

by

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1. Importance of co-operation among nations

1.1 According to theorists' views, co-operation among nations occurs when nations face problems that defy national solutions and when nations experience penalties or frustrations if they fail to solve these problems competitively.

1.2 Karl O. Doehlich holds that states are generally reluctant to make decisions to solve problems in those areas where the probability of action promises the greatest expectation of reward and the least expectation of penalty.

1.3 Even functional theorists went a step further to suggest that the spirit of co-operation endeavoured by providing incentives could solve international conflict and the fields in which nations could find easily common denominator for co-operation are those of cultural, economic and social activities.

1.4 Although most developing countries are still primarily agricultural, they do realize that their future is linked with the industrialization of the 20th century which requires large scale production, long-term investment and the organization of the movement of man-power. It could be said that co-operation among nations should be the yardstick to measure the will of these countries to create industries. To create a protected market is to sustain industries. To create industries is to breed a network of large spaces. The second method considered as the better is still pursued by the most developing countries.

1.5 The importance of these vast spaces of exchanges and contacts among countries has been stressed in many international meetings and mostly at the sixth and seventh special Assembly of the United Nations. The Lima Declaration on industrial development and co-operation adopted by the Second General Conference of UNIDO has created 2 special commissions to co-operation among countries - one to co-operation among developing countries and the other to co-operation between developed and developing

countries - among the five chapters of recommended measures set forth in its plan of action. Much emphasis has been given to regional or sub-regional co-operative action. The general assumptions for regional joint action are that it would:

1. increase the efficient use of the total regional - physical and human - resources;
2. increase the region's collective bargaining power in an attempt to redirect economic gain in transactions with the rest of the world;
3. to create environmental conditions favourable to attract foreign capital either in the form of private investments or international loans and aids.

(In this paper the terms "regional or sub-regional" would be used indifferently covering all groupings of more than 2 countries in the region. Co-operation is defined as an act of working together towards one end).

1.6 In Asia, government officials and experts recognise more and more that problems of development in each country in the region are increasing in complexity while resources remain inadequate to meet the problems. Because of these, policy makers believe that problems are better solved through co-operative methods. The will of co-operation among countries in the region could be observed by the number of the existing international organizations in the region which, according to the Union of International Associations, has grown at a more rapid rate than that of any other region in the world during the past two decades, from the oldest in the region which is the Colombo plan created in 1950 to the newest which are the Action Groups on steel and fertilizers whose creation has been agreed upon by member countries of the region following the Meeting organized by the ESCAP secretariat in May 1975 of Top Planners and Government Executives, Entrepreneurs and Representatives of financial institutions to discuss the implementation of projects identified by the Asian Industrial Survey for regional co-operation.

1.7 Some of these organizations have been already mentioned in Dr. Haq's paper. This paper shall be restricted to co-operative

/arrangements

arrangements in the region sponsored by the UN system mainly the Mekong Project and to identify opportunities to promote co-operative activities among countries in the region from these gained experiences.

1.8 The Mekong project represents the first example of joint institutionalized planning and co-ordination of a multinational river basin while other river commissions such as those of the Rhine and the Danube are more concerned with navigation regulation. The salient feature of this project is that 25 countries outside of the area, not only advanced countries but also developing countries extended assistance to the project and despite participants' deep political differences, material accomplishment of mutual benefit has been achieved.

1.9 ECAP^{1/} has been instrumental in the creation of an appropriate institutional framework for a co-ordinated development of the lower basin of the Mekong river in supporting the creation of the Mekong Committee in 1957.

2. The International Mekong River Development Project

2.1 The Basin, its Resources and Requirements

2.11 The lower Mekong Basin covers more than 600,000 km² comprising almost the whole of Laos, Cambodia, one-third of Thailand and two-fifths of the Republic of South Vietnam.

It is inhabited by a population of 30 million representing about half the total population of these four countries. By comparison with other Asian river basins, the lower Mekong is not densely populated so that resources of land, forest and water are relatively plentiful. All four riparian countries have agricultural economies in which a single wet season rice crop is the most significant element. Ninety per cent of the basin's population are employed in agriculture and have a standard living of US\$ 90 - 150 per year.

2.12 Historically, the increase in food production is being derived from the expansion of the cultivated area which now amounted to 15% of the total basin's area or about 10 million ha. Further increase in production will be progressively more difficult to obtain by this method, and would require the control of flood during the wet season, the supply of water for irrigation and the control of salinity intrusion in the delta during the dry season.

/The total

^{1/} Now called the Economic and Social Commission for Asia and the Pacific

The total area actually covered by irrigation projects amounts only to 200,000 ha. or two per cent of the total cultivated area and would have to be expanded to 2 to 3 million ha in order to meet the agricultural expansion required to support the economic development of the four countries projected for the year 2000.

Out of the annual yield for the lower basin of 380,000 million m^3 of water, present utilization of water for irrigation and public water supply is only 6 per cent of the total available surface flow.

2.13 The theoretical potential for the lower basin is 900 billion kWh and a hydro electric potential capacity of 58,000 Mw. A technical potential roughly estimated at 30% of the theoretical capacity is comparable to technical potential of hydro power resources of France.

The investigations undertaken by the Mekong Committee have identified so far seventeen possible mainstream projects and eighty seven possible tributary projects totaling over 15,000 Mw. Out of these projects only 14 dams have been built on the tributaries, 5 for irrigation purpose and 9 for irrigation and power with a total installed capacity of 150 Mw or 1% of the identified potential.

With such a huge potential of electric power the possibility exists that the Mekong power could be exported to North Vietnam, China, Malaysia and Singapore.

A larger scheme of co-operation including the upper Mekong Basin in Delta would double the hydro-electric potential of the Mekong Basin.

2.14 According to the Report on Indicative Basin Plan completed in 1970, the total investment required for the comprehensive development of the lower basin would amount to 12 billions US\$ and divided as follows:

| <u>Programme</u> | <u>Investment</u> | <u>Local cost</u> | <u>Foreign exchange</u> |
|--------------------------|-------------------|---------------------|-------------------------|
| | | <u>US\$ million</u> | |
| Short range (1971-80) | | | |
| Water Resources projects | 1,428 | 906 | 926 |
| Complementary programs | 427 | 161 | 265 |
| Sub-total | 1,855 | 667 | 1,189 |
| Long Range (1980 - 2000) | | | |
| W.R.P. | 7,496 | 3,310 | 4,186 |
| C.P. | 2,537 | 974 | 1,562 |
| Sub-total | 10,033 | 4,284 | 5,748 |
| Total Investment | 11,887 | 4,951 | 6,937 |

The complementary programmes are outlined as follows:

Table V - 21

Summary of investment of an indicative complementary programme (in millions US\$)

| Sector | Short-term 1971-1980 | Long-term 1981-2000 | Total | Foreign exchange component |
|---|-------------------------|------------------------|--------------|----------------------------------|
| Agricultural programmes | | | | |
| Food crops | 83 | 330 | 413 | 92 |
| Fibre | 2 | 10 | 12 | 2 |
| Tractors | 30 | 166 | 196 | 176 |
| Other (research) | 3 | - | 3 | 1 |
| Livestock | 13 | 44 | 57 | 11 |
| Fishery | 7 | 24 | 31 | 3 |
| Industrial programmes | | | | |
| Power-oriented industries | - | 699 | 699 | 527 |
| Agriculturally related industries | 108 | 447 | 555 | 444 |
| River transport-oriented industries | 6 | 30 | 36 | 29 |
| Mining | 3 | 5 | 8 | 4 |
| Transportation and water supply programmes | | | | |
| Navigation | - | 70 | 70 | 35 |
| Transport other than navigation | 69 | 499 | 569 | 369 |
| Water supply | 90 | 100 | 190 | 75 |
| Physical planning | 19 | 35 | 50 | 10 |
| Social development programmes | | | | |
| Resettlement | 9 | 20 | 29 | 2 |
| Public health | 9 | 20 | 29 | 12 |
| Manpower training | 29 | 75 | 100 | 30 |
| Total | 427 | 2,537 | 2,965 | 1,828 |

✓ Investments in agricultural programmes relate to project areas determined on the basis of secretariat estimates.

✓ Exclusive of investment on irrigation system

✓ This does not include investment on items such as land reform, social institutions, etc.

✓ All figures are rounded.

2.19 The industries identified by the Indicative Main Plan are those in basic areas where industrial and river development will have a maximum positive effect on each other. These are:

- (a) Electro-process industries based on the availability of low cost power from the Peking power system. Mineral processing: Aluminium, Ferro-alloys, Iron and Steel, etc.

/(b)

- (b) Industries related to large-scale agricultural development resulting from water control and irrigation within the basin - fertilizers, pesticides and other chemicals, farm tools and machinery, water pumps, agro-industries, etc.
- (c) Industries which depend on river transportation either for supply of raw materials or distribution of final products to regional or overseas markets.

Other related indirect investments such as in industries using the product of power-oriented industries as raw materials, in trade, transportation, in housing, services industries, etc., which accompany the investment in water resource development would increase the total investment to nearly 30 billion USD in 30 years. Such an investment would represent an average of 14% of the national income of the four riparian countries and would be beyond the capabilities of member countries.

2.16 According to UN statistics only Thailand has achieved a rate of domestic savings of 21% of the GDP during the first years of the seventies meanwhile the Indochina countries have a negative rate of domestic savings.

However, the magnitude of the investment requirements indicates clearly the necessity for a closer co-operation among the four countries in their development effort.

2.2 History of co-operation among the four countries

2.21 There always have existed historical, cultural and social links between the four countries of the Lower Basin of the Mekong. Inter-marriages between royal families of the four countries were a usual tradition to express the close co-operation among the four countries. However, formal international agreements dated back only to 1856 between Siam and France (for its colonies known as French Indochina) governing navigation and trade between the two contracting parties.

After the World War II, agreements between France and the three newly independent states (Cambodia, Laos, Vietnam) provided a framework for immigration, foreign trade, customs, post telegraph, monetary affairs and development plans. Co-ordination among the four countries

would be achieved by periodical conferences. The port of Saigon would be placed under Vietnamese sovereignty, but Laos and Cambodia would be granted the use of certain facilities. A Mekong Advisory Committee was set up to regulate and co-ordinate the international traffic on the Mekong River. Although these agreements were no longer enforced after the Geneva treaty in 1954, the Mekong Advisory Committee is still operational until today.

2.22 The present Mekong Committee called the "Committee for co-ordination of Investigation of the Lower Mekong basin" was created by the four riparian countries in 1957 following the water resource development studies undertaken by UNCTAD. It is composed of plenipotentiary representatives of the four countries and serviced by the United Nations Secretariat called the "Secretariat of the Committee for co-ordination of Investigation of the Lower Mekong Basin". The functions of the Committee are to promote, co-ordinate, supervise and control the planning and investigation of water resources development projects in the lower Mekong basin.

Since its creation, the Mekong Committee has been successful in channelling international aid and technical assistance to the four countries promoting joint programmes of planning and investigations of water resources development projects, of training and of technical assistance, etc. Total resources contributed or pledged to the Committee or to projects sponsored by the Committee amounted to nearly US\$ 300 million by the end of 1974 and divided as follows:

| |
|---|
| US\$ 190 million by donor countries |
| 115 " by the four riparian countries |
| 25 " by international organisations and |
| 10 " by ALB and IBRD |

The Committee has been successful in devising original schemes of co-operation among the riparian countries which are still operational today in spite of the differences in their political systems.

2.3 Schemes of Co-operation among Countries in the Mekong Project

2.31 It is noted that the Mekong Committee has provided some new framework for regional co-operation in the following forms:

- (1) Agreement on a number of decisions of principle on the use of water and on the building of bridges on the mainstream. All bridge crossing the main stream should meet the specifications agreed by the Committee for international ocean-going traffic

/and the

and the Committee shall consider ways and means of meeting the cost differential between such a bridge and the one built merely to facilitate the crossing of the Mekong by land vehicles. Such a decision has impeded the development of the transport system in the Republic of South Vietnam but Vietnam has respected the agreement and is still looking for additional finance to build the bridge across the Mekong.

- (2) Applied flood forecasting system. The programme has been conducted annually during the high water period since 1970. Information data are received by the Secretariat of the Mekong Committee from 17 hydrologic stations, three weather radar stations and 47 rainfall stations installed in the four countries. Forecasts are disseminated by telephone and radio to the four national Mekong Committees each working day. This programme is still going on during this year from June to October in spite of the cutting of communication links between Thailand and two countries Cambodia and Vietnam.
- (3) The implementation of the Nam Ngum project in Laos and the Prek Thnot project in Cambodia. These projects have received international technical assistance, in the form of expertise, grants or loans during the investigation and implementation phases.

The particular features of the Nam Ngum projects are that during phase I of the project, the World Bank acted as Co-ordinator of the Investment Fund contributed by Australia, Canada, Denmark, France, Japan, the Netherlands, New Zealand and United States totaling to US\$ 30 million. Thailand has given credit to Laos for cement used in the construction of the Nam Ngum dam and for electric power provided to Vientiane and to the Prek Thnot project during the construction phase I. This credit would be paid back to Thailand with electric power generated from the exploitation of the dam. Some years after its operation, the cement and power loan has been fully repaid with electric energy in October 1974. The portion of the transmission line across the Mekong River is property of the Mekong Committee.

2.32 Such a scheme of co-operation has paved the way to the building of other underwater cables connecting two southern towns of Laos to the northeast Thailand districts (Savannahet to Mukdahan and Thakhek to Sakon Nakhon) thus giving to the two Laotian towns the cheap energy

/from the dam

from the dam of the northeastern part of Thailand. Such a power exchange scheme is still operating in spite of recent border incidents between the two countries.

It has equally led to the realization of the second phase of Nam Ngum which would increase the installed capacity from 30 MW to 110 MW at a cost of US\$ 43 million. The Asian Development Bank acted as co-ordinator. In October 1975, 12 countries including India have agreed to provide the necessary funds for the project.

2.37 The Prek Thnot project has been financed by Cambodia and 12 co-operating countries including India, Pakistan and the Philippines. UNDP acted as co-ordinator of the project. The construction has been progressing satisfactorily up to April 1975 the date from which UNDP has stopped its activities in Cambodia.

2.4 From these experiences it could be concluded that co-operation among countries would enable to optimize the use of natural resources. If the Nam Ngum project was to supply power to Laos alone, it could not yet be started. In 1970 the peak demand in Vientiane was only 10 MW and grew to 15 MW in 1974, meanwhile the Nam Ngum phase I has an installed capacity of 30 MW. Thailand has benefited cheap energy from the collaboration. It has purchased the electricity at the marginal price of US\$ 4.5 mill per kWh, from June 1971 to October 1975. In October 1975 the price was increased to US\$ 10.5 mill per kWh.

Co-operation among developing countries has increased the potential of these countries for obtaining international aid. The success of co-operation in the Nam Ngum phase I has been conducive to international aid to the Nam Ngum phase II amounted to 40 million US\$ in spite of the change of political alliance of some donor countries.

Another benefit of the co-operation among countries is that it has improved the potential of attracting foreign investors in the region. Some foreign enterprises have invested in Bangkok not only for the prospect of the market in Thailand but equally for the potential of the regional market.

3. Co-operation among the ASEAN countries - Achievement and Prospects

The fact that the ASEAN Committee is still in operation for nearly two decades in spite of changes and upheavals occurring in the

Indochina peninsula denotes the success of the regional co-operation schemes. This success could be accounted for by four factors.

3.1 (i) The will and the decisiveness of member countries to promote regional co-operation. The representatives of member countries are highly qualified technicians and occupy key posts in the Governments. The national committees are usually under the supervision of the Prime Minister's offices (except in Vietnam where the local committee is under the Ministry of Public Works and Communications) which could co-ordinate and mobilize efforts of all other governmental agencies in supporting the development programme of the Mekong Committee. It is noteworthy that in spite of budgetary difficulties of the Indochina countries during the last two decades, the four countries have always met their full share in the expenses of the Mekong Committee which amounts yearly to more than US\$ 60,000.

3.2 (ii) The strong support of the world community. As it is shown in Annex III, the Mekong Committee has received nearly US\$ 150 million from 25 countries including the developing countries such as Egypt, Hong Kong, India, Indonesia, Pakistan and Philippines. UNR institutional support to the Mekong Committee amounted on average to nearly US\$ 1.3 million per year. International aids have always played an important role in the development of regional co-operation. The success of the OECB, Central American Common Market, Latin American Free Trade Association could not be fully explained without reference to the Marshall's aid plan of the Alliance for Progress Programs. In Asia, the Mekong project and the Asian Development Bank have been operating thanks to external aid and support, meanwhile the Association of Southeast Asia (ASA) created in 1961 by three countries (Thailand, Malaysia, Philippines) and later enlarged to five countries in 1968 with Indonesia and Singapore under the name of Association of South East Asian Nations (ASEAN) has not been active on the projects building due to the lack of international aid.

3.3 (iii) The generous type of aid

As it is shown in Annexes I and II, all aids are nearly untied under the form of grants or loans.

3.4 (iv) The establishment of a permanent staff. supported by the UN

/system

system which continuously identifies opportunities for regional co-operation and helps the countries in finding resources for the implementation of those opportunities.

3.5 Up to now, the Mekong Committee has been successful in implementing projects on the tributaries of the river which are of local interest to one or two countries as in the case of Nam Nam project. For the project on the mainstream, according to a recent seminar organized by the Mekong Committee, it is felt that the institutional arrangement for the construction of such mainstream project should be based on the principle of integrated development, the equitable sharing of costs and benefits and respect for sovereign rights of the riparian states. It is pointed out that the construction and operation should be preceded by:

- (1) a basic agreement concerning the project among the basic states;
- (2) a special agreement among the territorial states concerned; and
- (3) the establishment of an authority to construct, operate and administer the enterprise.

It is a fact that actually the Indochina countries are undergoing deep political and social changes.

Although the potential of the benefits derived from an integrated development of the Mekong basin resources is considerable, yet, in order that the regional co-operation ventures could survive, it is necessary that these countries make greater efforts to seek "regional co-operation for economic and social progress towards self-reliance" and not to consider the Mekong Project as a marginal means to obtain additional aid. The future of the Mekong Committee would lie in its flexibility to provide new concepts of development and co-operation and to devise appropriate technology and framework to implement these concepts. Such flexibility will perhaps make the Committee acceptable to the countries.

/s. Conclusio

4. Conclusion

4.1 The experience of the Mekong project has shown that the existence of a permanent staff and concentrated actions by the world community have helped the development of the basin resources of the Mekong in spite of political differences between the four riparian countries. The development of the basin has provided a mechanism for determining the points of collective action in those areas where multinational action can be taken without impinging on the integrity of national plans. However, this form of co-operation has its limitations in the promotion of regional industries which require a large space of exchanges and a greater co-ordination in the developmental effort of the countries in the region which is a long and arduous process.

4.2 Some recent developments indicate the will and the decisiveness of developing countries to move forward to closer economic co-operation. Joint ventures to develop mutually complementary products which were usually promoted in developing countries by the multinational corporations are now undertaken by the countries themselves. There are already examples where two countries of the region are now developing complementary petrochemical plants, each of which will serve the market of both countries with a different specialized product. The foreign exchange costs of constructing the plants have been covered by long-term loans from the Asian Development Bank.

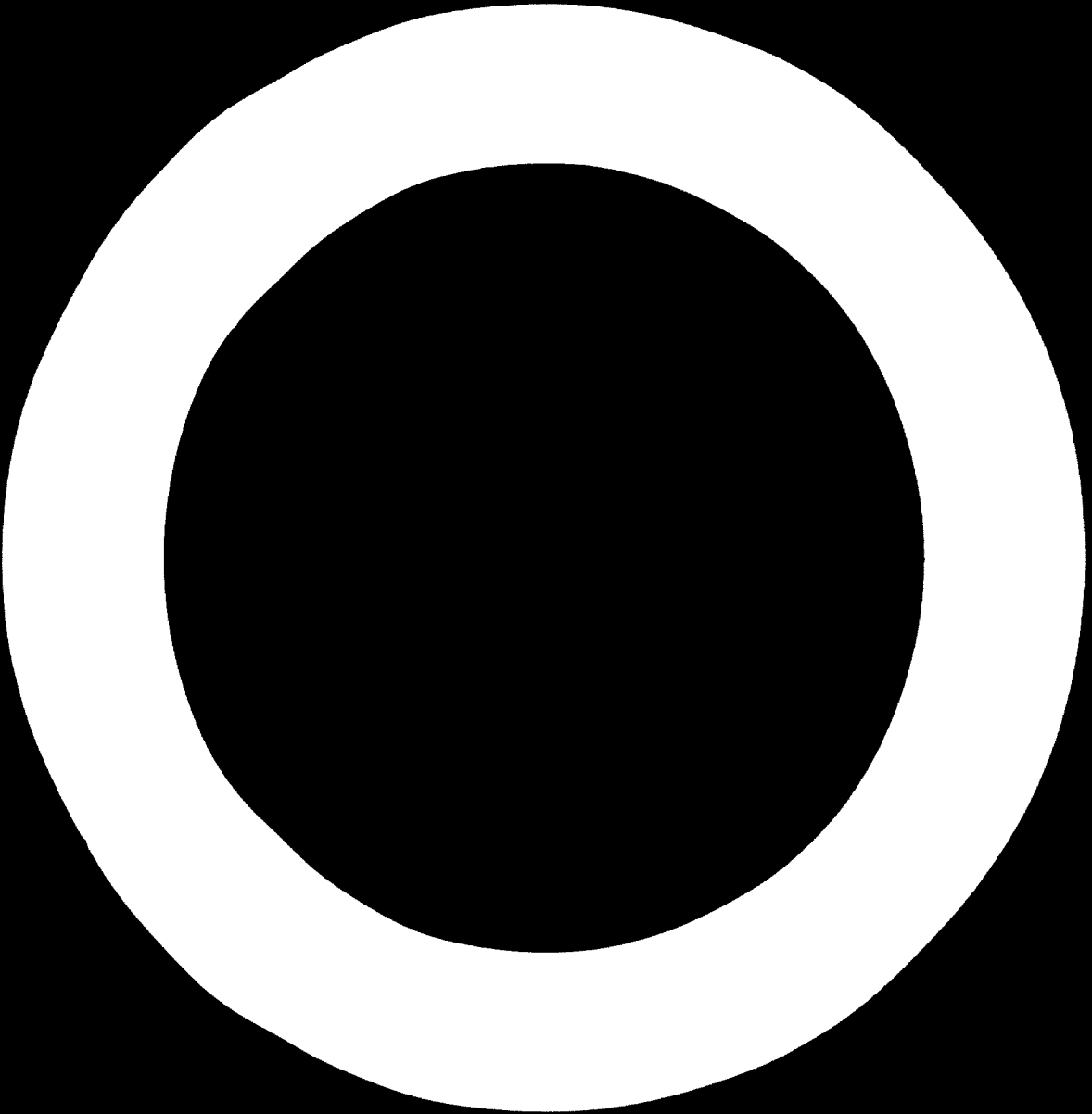
Bilateral agreements for such joint projects can be quickly reached and implemented because these are specific and have limited impact on the economy of the interested countries. For joint ventures among a number of countries, such agreements become more difficult. It would necessitate the identification of more industries in order that each country within the scheme would have a share in the benefits generated by the scheme. The "package approach" advocated by the Asian Industrial Survey (AIS) which has been mentioned in some detail in the ICGP's and Dr. Haq's papers is an original approach to promote co-operation between a group of countries (9) for a group of industrial projects (10).

The main drawbacks of such a scheme are that the number of industries has to be increased to give each country a share in the scheme,

/then

then the amount of investment required would increase and the interdependence of all these products does not necessarily coincide with the requirements of national plans. Secondly the implementation of such a package approach and the related measures would necessitate a restructuring of the economies for which most of the countries are not yet ready. However, the idea has gained wide acceptance among member countries who have participated in the Meeting of 20 members sponsored by the AECF secretariat in May 1975. In order to speed up the process, the meeting agreed to consider smaller packages for a smaller number of countries. The meeting have agreed to form Action Groups for the most needed products in the region which are steel, fertilizers, and pesticides. Another scheme which seems to be of interest to the ASEAN group is the multi-complementarity approach such as the progressive car components manufacturing programme and the ship-building project. In the Mekong countries, joint ventures in the mineral processing and the wood industries have been envisaged in the national plans of the Indochina countries once transportation links between these countries are developed. Such a multiplication of joint ventures leading to the creation of a network of economic interdependence and to complementarities in economic structures among countries seems to be conducive towards a larger scheme of co-operation.

4.3) Country visits and international meetings have shown that developing countries are eager to have international technical assistance and international or preferably regional co-operation in some aspects of industrial development which were usually the concern of individual countries. Such aspects are the new people-oriented industrialization and the development of integrated industries. The implementation of such schemes of people-oriented and integrated industries, the sponsoring of a network system in which countries would promote and exchange experiences in the field of industrialization and permanent contacts between countries and UNIDO, could break new grounds in moving regional co-operation in the field of industry a step closer towards concrete achievements.



ANNEX I: Report from the Mekong Committee

THE NAM NGUM PROJECT

1. NAM NGUM PROJECT

1.1 Project Location:

The Nam Ngum project, situated 70 km north of Vientiane, comprises a 475 m long and 75 m high concrete gravity dam, with an effective storage capacity of 4,700 million m³. The spillway of 4,000 m³ sec capacity has 4 radial gates, each 11.5 m wide and 9.5 m high. The power station has 2 turbogenerators of 17,000 KW (phase I) and three 40,000 KVA units in the final stage. The 115 kV transmission line transmit the energy from Nam Ngum to Vientiane and to Nong Khai and Udon in Thailand.

1.2 Investigations:

Feasibility investigations were made by Nippon Koei Co. Ltd. financed in part by the United Nations Special Fund and in part by Japan under Japan/Laos Economic and Technical Co-operation Agreement in 1962.

At the request of the Mekong Committee and the United States in 1965 the Edison Electric Institute assessed the power market. Also in 1965 Israel accepted to undertake comprehensive planning of the first phase 5,000 ha irrigated area, and in 1969 New Zealand agreed to complete this work by preparing construction designs for main canals and pumping stations.

1.3 Finances:

Following the indications of pledges made at the 28th and 29th Mekong Committee sessions in May and August 1965, Australia, Canada, Denmark, Japan, the Netherlands, New Zealand and the United States in May 1966 confirmed their pledges to a total of US\$ 22,815,000 for the construction of the project. Thailand contributed a credit in the amount of US\$ 1 million for the purchase of cement to be repaid by Laos in the form of electric energy after the completion of the project. France added 3 million Francs equivalent to US\$ 607,649.

The Nam Ngum Development Fund Agreement was signed by the countries contributors, by Laos and by the International Bank for Reconstruction and Development (World Bank) as the Administrator of the Development Fund in May 1966. The signature of the Development Fund Agreement was

/preceded

preceded by the signature of the agreements between Laos and Thailand for the supply of cement and for the international exchange of energy in April 1966 and in August 1965 respectively.

In 1968 further contributions were pledged by Australia (US\$ 128,541), Denmark (US\$ 180,000), Japan (US\$ 962,000), the Netherlands (US\$ 470,000), Thailand (US\$ 250,000), credit for cement, and the United States (US\$ 3,500,000), bringing the total to US\$ 29.9 million equivalent. In 1969 New Zealand increased its contribution by US\$ 82,860.

1.4 Construction:

The commencement of construction was on 5 February 1967. The project was inaugurated on 2 December 1971.

The Canadian firm, Acres International Ltd., has been appointed as Managing Engineer and the Japanese firm, Nippon Koei Co. Ltd., was responsible for the preparation of construction designs and bidding specifications and, as consulting engineer, is responsible for the supervision of construction. The Toyo Menka Co. obtained in 1967 the contract for the construction of the 115 kV transmission line between Udon in Thailand and Vientiane in Laos, and of the substations at Udon, Nong Khai and Vientiane. The contractor for the main civil works, Hazama Gumi Mitsui Joint Venture Association, began work at the site in November 1968.

1.5 Power Exchange

A significant feature of the Nam Ngum project is the provision made, for the first time in the lower Mekong basin, for the inter-connexion of two national electric power transmission systems of two Mekong Committee countries, thus permitting the international exchange of electric power. The exchange is realised by means of a 115 kV transmission line between Udon in Thailand and the Nam Ngum power station via Nong Khai and Vientiane. During the construction Thailand supplied power to Vientiane and the Nam Ngum construction site from the Mekong tributary projects on Nam Pong and on Nam Pung in Thailand, supplemented by a 15 MW gas turbine at Korat. A protocol for the implementation of the Convention, was signed by Laos and Thailand in April 1966, the Mekong Committee Members for Cambodia and Vietnam,

/the Executive

the Executive Secretary of ACFE and the Executive Agent signed a separate protocol expressing satisfaction at the arrangements provided for.

In 1968 the first section of the transmission line between Udon and Vientiane was completed, and power supply to Laos began in October 1968. Their Majesties the Kings of Laos and Thailand formally inaugurated the first international transmission of electric power on 16 December 1968 at a ceremony in the middle of the Mekong river. At the ceremony the Executive Secretary of ACFE, at the invitation and on behalf of the countries contributing to the Nam Ngum Development Fund, made a statement presenting the transmission line; the Prime Minister of Thailand in the name of his Government accepted the section of the line between Udon and the Mekong river, the Prime Minister of Laos in the name of his Government accepted the section between the Mekong river and Vientiane, and the Chairman of the Mekong Committee accepted the link across the Mekong river as the property of the Mekong Committee.

An agreement to assure the utilization of the full capacity of the Nam Ngum power production was signed between the Electricite du Laos (EDL) and the Electricity Generating Authority of Thailand (EGAT) in June 1971. In October 1974 the cement and power loan from Thailand for the construction of Phase I was fully repaid under the form of electric energy generated by Nam Ngum. Thereafter EGAT purchased the energy from EDL under the June 1971 agreement at the unit power rate of US\$ 4.5 mill per kwh.

This agreement was revised on October 1975 to increase the power rate from US\$ 4.5 mill per kwh to US\$ 10.5 mill per kwh.

As of March 1975 the total hydro energy production from Nam Ngum Phase I had reached 765,000 GWh of which EDL had exported 513,000 GWh to EGAT.

2. NAM NGUM PHASE II

2.1 Investigations:

The completion of the Nam Ngum Phase I and the power sale agreement between EDL and EGAT paved the way for the realisation of the Nam Ngum Phase II expansion of the project.

The World Bank, in close collaboration with the Asian Development Bank (ADB) undertook an evaluation study of the Phase II. The study completed in May 1973 provided essential information such as updated cost estimates, quantity estimates for civil works, technical specification for equipment and terms of reference for all detailed engineering and preparation of contract documents. Additionally the study updated and expanded the project operation studies, evaluated the downstream benefits and reviewed the power load forecasts. The World Bank's study was funded by contributions from the United States, Japan, Australia, the Netherlands and New Zealand.

2.2 Project Features:

The main works of the Nam Ngum Phase II are to include:

- installation of 4 radial spillway gates,
- civil works for the extension of the powerhouse to accommodate three additional 40 Mw generation units,
- installation of two of the three generating units,
- construction of an additional double circuit 115 kV transmission line from the powerhouse to Vientiane and to Nong Khai to connect additional transmission facilities to be constructed in Thailand,
- electrification of six villages in the vicinity of the Nam Ngum reservoir.

2.3 Finance:

On 14 June 1973 the Board of Directors of ADB approved a proposal, based on a request from the Government of Laos to ADB, to assist in mobilising resources and act as co-ordinator for the implementation of the Phase II project. In September 1973 ADB completed a project review which gave an updated cost estimate of US\$ 23.9 million, excluding interest during construction.

During 1974 nine countries - Australia, Canada, Federal Republic of Germany, India, Japan, the Netherlands, New Zealand, United Kingdom and the United States pledged a total of US\$ 24.3 million.

The Second Nam Ngum Fund Agreement was initiated by Laos, Thailand, the ADB and the nine countries contributors at a meeting organised by

ADB at its headquarters in Manila on 17-18 April 1974. The signing of the Agreement took place on 26 June 1974.

In November 1974 ADB as administrator of the Fund reported the problem of cost overrun to the contributor countries. The revised total cost was estimated at US\$ 39,095,000.

In September 1975 the need of additional funds became critical following the withdrawal of the United States commitments of US\$ 5 million to the fund.

To resolve these problems, a meeting of contributors was held at the headquarters of the ADB in Manila on 17-18 September and on 28-30 October 1975. Total pledges and commitments amounted to US\$ 43,600, equivalent including the pledge from France for a tied loan of US\$ 5 million equivalent the use of which has to be reviewed. (See detail on page 6).

While France and Switzerland became contributors, the United States withdrew from participation in the project.

2.4 Construction

During 1975 Motor Columbus of Switzerland as Consulting Engineer continued to assist ADB in preparation and issuance of tender documents for contracts. The bidding process for these contracts was completed in early May 1975. The technical and commercial evaluation of bids and recommendations for award of contracts were finalized in early June 1975. Detailed drawings for spillway gates were approved and manufacturing of equipments is proceeding on schedule. The field survey for the transmission line component has been completed and tender documents are under preparation.

However, negotiations for most of the contracts were withheld until October 1975 because additional funds have to be found to finance the cost overrun of the project and the withdrawal of the United States commitment.

Late on October all contracts were signed and construction work had continued for completion scheduled for early 1978 following the successful meeting for additional financing as mentioned above.

Note: Details of contribution to Second Nam Nam Development Fund
as of October 1975

| <u>Country</u> | <u>Contributions (US\$ 1,000 equivalent)</u> |
|--------------------------|--|
| Australia | 2,382 |
| Canada | 2,439 |
| France | 100 |
| Federal Republic Germany | 13,723 |
| India | 165 |
| Netherlands | 1,168 |
| Japan | 17,199 |
| New Zealand | 1,023 |
| United Kingdom | 163 |
| Switzerland | 190 |
| Laos | <u>97</u> |
| <u>Total</u> | <u>38,609</u> |
| France (tied loan) | <u>5,000</u> |
| <u>Grand Total</u> | <u>43,609</u> |

Contributions are in the forms of grants except those from Canada, Japan, and Federal Republic of Germany, which are in the form of loans.

ANNEX II: Report from the Mission's Study

THE PREK THNOT PROJECT IN CAMBODIA

1. Project Features

The Prek Thnot scheme is a multi-purpose river project designed to provide a mean year output of 50 million kwh from an installed capacity of 18 mw, an effective storage capacity of 670 million cu, irrigation for 5,000 ha (first stage), flood control, and other benefits. The irrigation system will be extended progressively to 18,500 ha (second stage) and 70,000 ha (final stage) in Kompong Speu, Kandal, and Takeo provinces.

The Prek Thnot project will generate power for industries and other consumers in the Kompong Speu area and eliminate the hazards of drought and flood suffered by the region's farmers.

2. Investigations

The Prek Thnot project was singled out by the Japanese Hydrographic Survey Team in 1961 as being worthy of immediate further study. A feasibility survey of the dam and power project was begun by a Japanese team in 1961, and in the following years Israel began the investigation of the irrigation scheme.

These contributions were followed by Australian assistance under which the Snowy Mountains Authority prepared construction drawings and bidding specifications for the dam, power station, and diversion weir. In 1967 assistance from the Philippines (US\$ 80,000) enabled the preparation of a 1:50,000 scale map of 38,000 ha of the irrigation project area. Collaboration between Israel and Cambodia also resulted in the establishment of the Prek Thnot Experimental Farm.

In 1966 a technical working party composed of representatives of Cambodia, the Japanese, Australian, Israel project teams, and the Mekong Secretariat integrated the team's reports and prepared a pre-construction report. Subsequent to the preparation of this report, it was decided to limit the initial stage of construction of the irrigation project to 5,000 ha.

3. Finance

In 1967 Cambodia accepted the offer of the Secretary General of

/the United

the United Nations to use his good offices to obtain the external financing required to implement the Prek Thnot project.

The efforts of the Secretary General were successful in obtaining pledges of financial assistance for the project at a meeting of co-operating countries held at Phnom Penh on 9-10 September 1968.

On 13 November 1968 at the United Nations headquarters in New York, a multilateral agreement was signed by Australia, Cambodia, Canada, the Federal Republic of Germany, India, Italy, Japan, the Netherlands, Pakistan, the Philippines and the United Kingdom, Denmark and France subscribed later to the agreement in April 1969.

Under the terms of the agreement Cambodia is providing the local cost of the project, estimated at US\$ 9 million equivalent. The foreign currency costs are being provided in the form of loans and grants by Australia (US\$ 2,075,000), Canada (US\$ 2,000,000), Denmark (US\$ 500,000), France (US\$ 1,000,000), Federal Republic of Germany (US\$ 1,000,000), India (US\$ 200,000), Italy (US\$ 1,000,000), Japan (US\$ 8,430,000), The Netherlands (US\$ 1,000,000), Pakistan (US\$ 190,000), the Philippines (US\$ 90,000), and the United Kingdom (US\$ 1,000,000), in conformity with terms defined in bilateral agreements concluded during 1969.

The multilateral agreement also provided for management of the project by the Societe Nationale des Grands Barrages of Cambodia, construction supervision by the Snowy Mountains Authority of Australia, and the appointment by the Secretary General of the United Nations of a co-ordinator of foreign assistance for the project. The project co-ordinator, Mr. A.F. King, began work in Cambodia during June 1968.

The UNDP, with FAO as executing agency, is providing under separate agreement with Cambodia the general irrigation system design for 35,000 ha on the left bank of the Prek Thnot and the detailed design, up to the stage of preparation of tender documents for 5,000 ha of this area at a cost of US\$ 810,900.

4. Construction

Under the Australian assistance the Snowy Mountains Authority in April 1968 submitted the technical documents for the storage dam, power station and diversion weir.

/The Societe

The Societe Nationale des Grands Barrages of Cambodia in July 1969 awarded the contract for the construction of the storage dam, power station and diversion weir to Messrs-Tomon of Japan at the price of \$50,334,000 equivalent. The contractor started his temporary works in August and the permanent works in November 1969.

Tahal Ltd. of Israel was at the end of 1969 awarded the contract by F.O. for the design of the irrigation system; the project manager appointed by F.O. took up his duties in September 1969.

During 1970 the contractor's camp and construction facilities were completed; at the main dam site 10% of the embankments, 25% of the spillway excavation, and 60% of the power house excavation were also completed. Some 70% of the concrete was placed for the diversion weir where work continued throughout the year.

However, from June 1970 local conditions at the main dam site limited activity to inspection, maintenance and work preparatory to resumption of construction.

Despite many difficulties, good progress was made on the irrigation scheme in 1973. The diversion weir, the canal-head regulator for the main irrigation canal and related works were completed in May 1973. Work on the first stage irrigation system continued without major interruption until late August 1973 when there was an attack on the site of the diversion weir causing some damage to installations and bringing to a halt work in the surrounding area where irrigation facilities were being constructed.

Work on the irrigation facilities was resumed, however, in September and by late 1973, 5.3 km of main canal and the first lateral canal had been completed.

In 1974 construction of the irrigation system progressed well and the diversion weir was repaired. Land levelling, canals and drains, and land distribution had been finished for two blocks covering a total of 98 ha. The Snowy Mountains Engineering Corporation of Australia continued to provide advisory services for the project. Under the Mekong Committee's pioneer agricultural programme to which the Prek Thnot irrigation project was added in 1973 the Tahal consultant's report on a pioneer project for the 5,000 ha system was submitted for approval and the World Bank completed the preparation of its review memorandum.

/During the first

ANNEX III: 1974 Investment Report

Table II.1 OVERSEAS INVESTMENT IN CONSTRUCTION, 1974

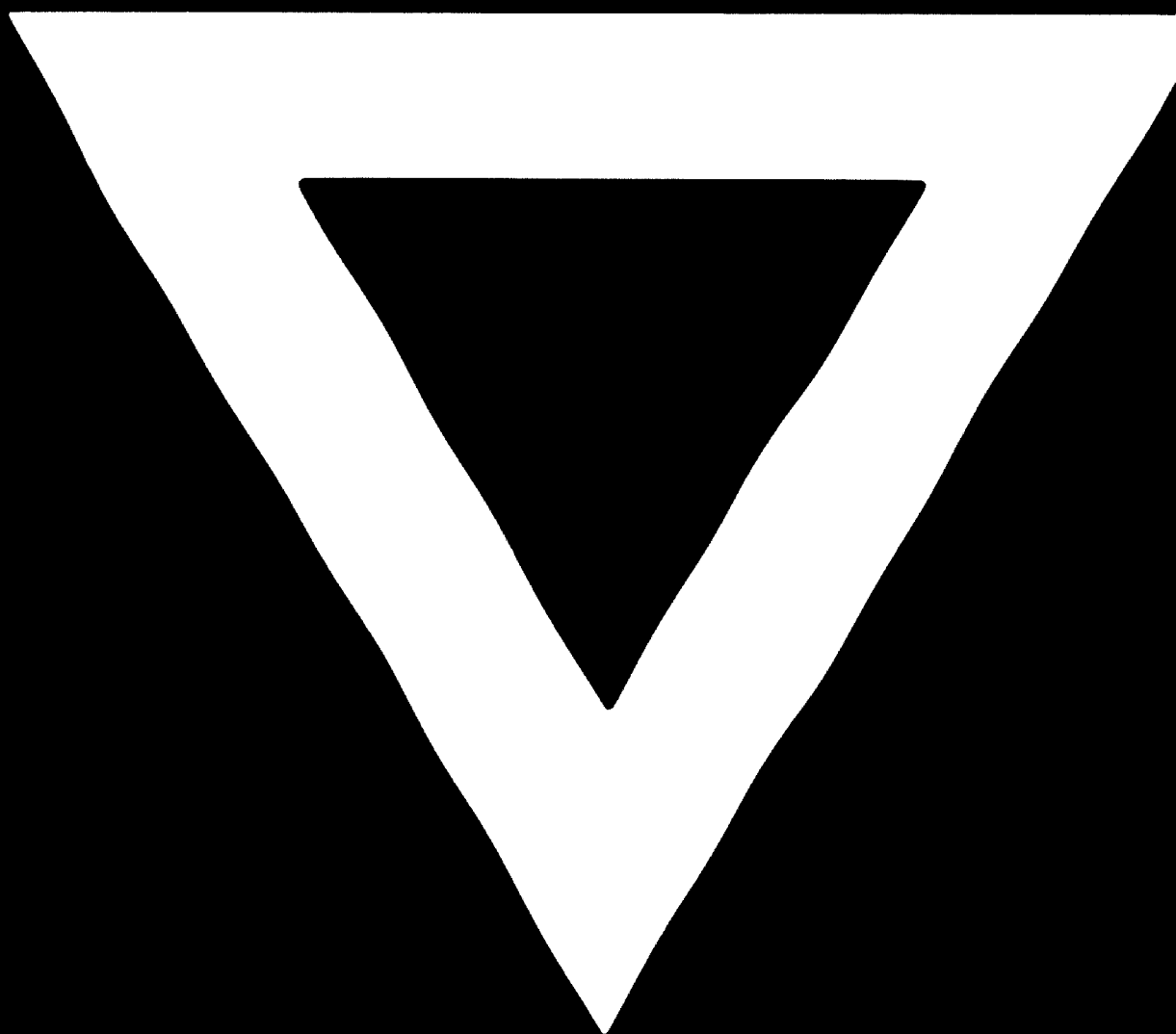
| | <u>Pre-investment Investigations and Planning</u> | <u>Investment for Construction</u> | <u>Total</u> |
|------------------------|---|--|----------------|
| | (US\$ 1,000 equivalent) | | |
| Australia | 1,037 | 4,202 | 5,239 |
| Austria | 75 | | 75 |
| Belgium | 562 | | 562 |
| Canada | 1,065 | 7,577 | 9,442 |
| Denmark | 10 | 1,217 | 1,227 |
| Egypt | 5 | | 5 |
| Finland | 10 | | 10 |
| France | 2,112 | 9,464 | 7,977 |
| Germany (Fed. Rep. of) | 594 | 21,475 | 22,029 |
| Hong Kong | 20 | | 20 |
| India | 610 | 353 | 963 |
| Indonesia | 30 | | 30 |
| Iran | 352 | | 352 |
| Israel | 317 | 867 | 1,184 |
| Italy | 62 | 1,000 | 1,062 |
| Japan | 1,964 | 26,981 | 28,945 |
| Netherlands | 4,414 | 7,001 | 11,416 |
| New Zealand | 384 | 1,146 | 1,530 |
| Norway | 10 | | 10 |
| Pakistan | 100 | 190 | 290 |
| Philippines | 390 | 80 | 470 |
| Sweden | 20 | | 20 |
| Switzerland | 475 | 310 | 785 |
| United Kingdom | 1,190 | 2,291 | 3,489 |
| United States | <u>25,192</u> | <u>25,259</u> | <u>50,401</u> |
| Sub total | <u>41,734</u> | <u>105,328</u> | <u>147,062</u> |
| Euro Republic | <u>5,257</u> | <u>9,328</u> | <u>14,535</u> |
| Less | <u>4,780</u> | <u>1,143</u> | <u>5,924</u> |
| Thailand | <u>14,378</u> | <u>69,298</u> | <u>77,676</u> |
| Viet-Nam | <u>4,759</u> | <u>11,300</u> | <u>16,140</u> |
| Sub total | <u>29,106</u> | <u>85,150</u> | <u>114,296</u> |

1950-1951

(Cont'd)

| | Investment for Development | Investment for Restriction | Total |
|----------------------|-------------------------------|-------------------------------|---------------|
| | (Costs, or equivalent) | | |
| UNDA | 21,430 | 810 | 22,241 |
| UNEF | 205 | | 205 |
| UNEP | 452 | | 452 |
| UNESCO | 17 | | 17 |
| UNIDO | 86 | | 86 |
| WHO | 140 | | 140 |
| IAEA | 45 | | 45 |
| ILO | 13 | | 13 |
| UNEP | 36 | 136 | 172 |
| UNEP | 8 | | 8 |
| UNEP | 45 | | 45 |
| | <u>21,991</u> | <u>946</u> | <u>22,937</u> |
| UNEP | | 7,100 | 7,100 |
| UNEP | | 3,550 | 3,550 |
| | | <u>10,650</u> | <u>10,650</u> |
| Asia Foundation | 35 | | 35 |
| Ford Foundation | 600 | | 600 |
| Geography Foundation | 10 | | 10 |
| Others | <u>253</u> | <u>67</u> | <u>321</u> |
| | <u>858</u> | <u>67</u> | <u>925</u> |
| | <u>22,849</u> | <u>21,143</u> | <u>43,992</u> |





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