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PROPOSAL FOR AN INTERNATIONAL TROPICAL FORESTRY RESEARCH INSTITUTE

(Item 3)

TAC SECRETARIAT

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

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Agenda Item 3.

PROPOSAL FOR AN

INTERNATIONAL TROPICAL FORESTRY RESEARCH INSTITUTE

Tropical forests occur in three major geographical areas: (1) South-East Asia; (2) Africa; and (3) South America. About one half of the world's forest area and a vast reservoir of under-utilized timber grows in these forests.

There is a paucity of information about the tropical forests. Yet enough is known to clearly indicate their great potential for making substantial contributions to the people and economy of such developed and developing nations. For example, India has 75.3 million ha. of forest land making up about 23 percent of the country's total area. And Vietnam has 12 million ha., representing about 70 percent of the country's land area. Some of the most valuable timber species of the world such as teak and sandalwood grow in these forests.

South-East Asia is experiencing rapid development in timber harvesting for international markets. This accelerating exploitation is occurring without the benefit of scientific knowledge needed for sound management of the timber as well as the other forest resources. In fact, developing countries in the tropics and sub-tropics consider some of their most important environmental problems are resulting from forest removal without appropriate management of the forest land and its multiple resources of timber, water, soil, forage, wildlife and recreation.

Forestry Research Required

In the tropical zone, vast gaps exist in the basic and applied knowledge required for growing, protecting, managing and utilizing forest land resources. A number of countries within the tropical zone have small, dedicated groups of scientists working on forestry problems. But these problems are enormous - they dwarf the present research effort.

A major international tropical forestry research effort should be undertaken promptly. The programme should be designed to provide a sound scientific base for capturing and sustaining the optimum contributions forest land and its multiple resources can make to the people of the tropics. Among the principal contributions are:

1. Economic - such as industrial development, capital investment opportunities, improved employment opportunities, product exports that yield foreign exchange and improved trade balances, and tourism;
2. Social - such as improved standards of living, more and better consumer goods at reasonable costs, greater recreational opportunities, stabilization of soil and water as well as other environmental elements.

International Institute Proposed

To meet the forestry research needs an International Tropical Forestry Research Institute is proposed. It is further proposed that the Institute be located in South-East Asia because of:

- (1) the rapid acceleration of timber harvest in the area;
- (2) research in progress within the several nations there; and

- (3) the great interest in and need for scientific forestry knowledge in South-East Asia.

Subsequently, the Institute programme could be extended to Africa and South America.

The Institute would have as an objective, leadership in formulating and carrying forth a research programme aimed at solving the most complex problems in forestry such as determining factors which regulate stand regeneration and composition, and maintenance of productivity; collection and perpetuation of germ plasm along with genetical improvement; growth and yield of certain species; characterizing of utilization factors in the most commonly occurring species; the relationship of insect, diseases, and fire to stand development and maintenance; forest soil and water relationship; range and grazing; forest wildlife; forest recreation; and forest environmental relationships. The research programme could be carried on in part through the several established research institutes such as at Dehra Dun in India; Bogar in Indonesia; in the Philippines; and elsewhere. The hard core effort, though, would be at one location. Here such basic research as genetics, physiology, and timber characterization would be emphasized. Thus, the proposed institute would be responsible not only for coordinating research among cooperating countries in the area, but also for carrying out basic research at one central location.

#### Framework for Funding

Although no precise estimates have been made of the costs for the proposed Institute, they probably would be in the range of \$ 5 million annually. Similarly, no organized effort has been made to determine sources of contributions to the proposed Institute. Possible contributors include: (1) the interested countries of South-East Asia; (2) FAO-UNDP; (3) the Consultative Group and its supporting members; (4) interested developed nations that have cooperative assistance programmes in the area such as United States, Germany, Denmark, Russia, United Kingdom, and Japan; (5) United States Special Foreign Currency Funds in the countries where available; and (6) industrial corporations involved in timber harvesting, exporting, and utilization.

#### Recommendations

It is suggested that the Consultative Group appoint and finance an International Study Committee, under the Technical Advisory Committee, to prepare for its consideration recommendations for establishing an International Tropical Forestry Research Institute in South-East Asia. The Study Committee should include in its recommendations: (1) kinds of forestry research for immediate emphasis; (2) systems for coordinating, integrating, and supporting programmes at national institutes in South-East Asia; (3) organizational structure for the Institute; (4) Institute location; (5) funding.

It is further suggested that the following be represented in the International Study Committee: (1) Asia-Pacific Forestry Commission of FAO; (2) International Union of Forestry Research Organizations; (3) Technical Advisory Committee to the Consultative Group; (4) the Government of India; and (5) the United States Department of Agriculture, through both its Forest Service and its Agricultural Research Service Office in New Delhi.

CGIAR International Centers Week

A Proposal for the Establishment of

the International Tropical Fruits Center in Thailand

Project Identification

Though the Government of Thailand pursues rubber replanting with better clones to improve productivity, the small holders who work on 80 per cent of 757,000 hectares of rubber acreage still face with enormous difficulties, not only from the availability of funds to replant a large proportion of the old planting annually, but also in processing the latex into a high quality product for sales in order to obtain higher prices. The organization and capital investment are so great that the resources at hand allow only a small percentage of rubber growers to receive the benefit annually. Deprived of the additional income to keep abreast of the rising cost of living, the subsistent growers might elect to migrate into big cities which are ill equipped to give them employment and housing. The Government would be happier to keep them in their homes in the rural areas. One of the ways to do so is to help them grow other crops to improve their income. And tropical fruit crops for export offer an approach that has a good chance of success.

The Third Economic and Social Development Plan of Thailand (1972 - 1976) has in its schedule, the establishment of the Southern Agricultural Center in 1974. If the SAC should have the support of the International Tropical Fruits Center system at the same location, its

work would be considerably strengthened in this speciality and needing to cover other crops and animal production. The International Tropical Fruits Center would also benefit from the common use of land, facilities and services. The Thai and international staff would find a favourable interaction for creative and useful research.

Southern Thailand lies principally in the humid tropics where rubber trees are the principal crop. Successfully grown also are banana, mangosteen, cashew, rambutan, durian, lansiana, pineapple cacao coconut and oil palm. Other fruit trees will be studied at sub-centers. The aims are to study methods of production of different varieties of tropical fruits, their marketing and processing problems.

#### Project Justification

1. The humid tropics encompasses large areas worldwide. The information obtained about tropical fruits in this agroclimatic condition will be useful in crop diversification in many countries.

At a later date, it is desirable to develop a sub-center in a drier area (rainfalls less than 1600 mm. per year) to experiment on other fruit trees requiring a definite dry season. Also another sub-center could be established to study sub-tropical fruit and temperate fruit trees grown at high elevations in the tropics.

2. The findings obtained by the ITFC will be useful for small rubber plantation owners who wish to diversify into tropical fruit crops culture.

3. The International Fruits Center can serve as a germ plasm pool for fruit trees introduction in the tropics.

4. With the international financial and technical support a training program for tropical fruits can be launched for technicians in developing countries.

5. The findings gained from the development of the ITFC can be used to increase tropical fruits export to developed countries which will bring foreign exchange to developing countries. The earning of foreign exchange is one of the priorities areas for action of FAO.

6. Fruit tree culture serves as one of soil erosion control methods in the tropics.

7. The approaching self sufficiency in food grain production in many countries made it logical now to devote more attention and resources to developing tropical fruits which serve as protective food of the people.

8. Nowhere in the world is there an important research center devoted to the development of tropical fruits. Thailand would be an ideal location for such a center because of its good climatic and other resources, its central location in tropical Asia, the Far East and Oceania, and its history of political stabilities.

9. Fruit culture can become a significant factor in development of Thailand's upland soils which are not now widely or efficiently exploited for agriculture.

10. Fruit culture is labour intensive. It can provide now employment opportunities for many people, not only in the rural orchard

areas, but also in packing, processing and shipping centers.

11. The Project fits into the National Development Plan of Thailand instead of having to create a new set-up in addition to the current plan.

#### Backstopping the Project

1. Land, connecting road with the national highway will be provided by the Thai Government.

2. Joint essential services can be planned for both ITFC and the Southern Agricultural Center.

3. Technical officers of the SAC will be trained to work side by side with the international staff as required.

4. Thai orchardists are competent. Not only are they ready to apply innovations for raising their income, they will provide a valuable feedback to the researchers. The presence of high quality fruits of various varieties in the market and the development of new improved varieties are examples of this competence. Fruit trees propagation by grafting is good business in Thailand now.

5. There is a wealth of wild species, those near relatives of fruit trees which can be collected for experiment as stock or for cross breeding with fruit trees to obtain desirable characters.

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CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH

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RESEARCH ON TROPICAL FRUITS - SOUTH-EAST ASIA

Supplementary note by FAO to paper by Dr. Siribongse Boon-Long  
previously distributed to members of TAC

TAC SECRETARIAT  
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS  
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Agenda item 3:                    RESEARCH ON TROPICAL FRUITS - SOUTH-EAST ASIA

Supplementary note by FAO to paper by Dr. Siribongse Boon-Long  
previously distributed to members of TAC

This paper gives some additional background information on the proposal made by Dr. Boon-Long to the Consultative Group on International Agricultural Research for the establishment of an International Tropical Fruit Centre in the Far East.

The subject has been discussed in FAO, and our opinion is that such a centre should be essentially regional for Asia, including the South-East, rather than broadly international, because of the geographical, ecological and social characteristics of the region, the marketing requirements, etc.

The TAC might wish to take the following comments into consideration in assessing the priorities for such a proposal:

a)    Justification

Research on tropical fruits in Asia has never reached high standards; programmes lack objectives, personnel and equipment. As a result of this, fruit development programmes have not been successful as they suffered from lack of information and propagative planting material for which they had to rely on the help of foreign institutions, with all the delays that this involved, i.e. long distances, plant quarantine regulations, etc.

- The income potential per unit area of land is higher for fruit crops than for most food crops, rubber trees, oil palm, etc., and for this reason fruit crops provide a good alternative in agricultural diversification schemes.
- Commercial fruit crops require intensive labour, and therefore increased production will provide additional employment opportunities for rural people.
- Fruits constitute man's richest source of vitamins and minerals and help to meet the nutritional requirements of carbohydrates and, to a limited extent, of proteins.
- The international market potential for some tropical fruits, both fresh and processed, is recognized and it is expected that in the next decade there will be a substantial increase in imports of fruits such as mango, passion fruit, papaya and guava from developing countries.

A good indication of this potential is the increasing interest shown by UN agencies in the development of the tropical fruit industry. FAO has many processing and marketing projects where tropical fruits are of prime importance - for example, the Tropical Fruit Processing Centre in Brazil. Recently, FAO published Commodity Bulletin Series No. 51: Processed Tropical Fruit. In 1971, UNCTAD and GATT also published a survey on Exotic Fruit Products. The TAC Mission to Latin America has reported a great interest in tropical fruits there.

Local consumption of fruits should also be taken into consideration. An increase of 80 to 100 percent in the rate of consumption every ten years is a reasonably realistic planning projection for countries with population increasing at between 2 and 3.5 percent per annum, plus an increase in purchasing power. Good examples of this are Brazil, Colombia, Indonesia, Thailand, Kenya, Venezuela, and Mexico.

b) Suggested objectives of the proposed research centre

1. To assemble and evaluate existing cultivars and strains of tropical fruits and to make propagative material available to other countries.
2. To conduct a research programme on various phases of the tropical fruit industry, covering: propagation, breeding and selection, pest and disease control, plant nutrition, irrigation, marketing and post-harvest physiology (for fresh fruit and processing).
3. To train junior scientists, teachers and extensionists in applied research related to the spread of advanced techniques in all phases of tropical fruit culture.
4. To collect and organize for dissemination all the readily available documentation and information on research and modern technology in tropical fruit production.

c) Feasibility

Tropical fruit production in Asia is mainly carried out on small scale peasant farms with scattered fruit trees growing among other crops; this applies especially to crops such as mango, papaya, litchi, limes, pomelos and many other at present minor crops, although a few crops such as bananas and pineapples are grown on a commercial scale. There is an almost complete lack of information on the many other tropical crops, some of which undoubtedly offer chances of commercial exploitation, and due to this lack of data it is impossible at present to evaluate their economic potential. Certainly the proposed Tropical Fruit Centre would provide the means of evaluating and influencing the potential of these numerous and neglected fruit crops and could lead to the development of a tropical fruit industry which could be expected to have very significant economic and social impact on the region.

The proposal to establish such a centre is strongly supported by the governments of three major countries of the region - and the Government of Thailand has expressed its willingness to act as host for the centre. As Thailand has suitable environmental conditions for the successful cultivation of a varied range of tropical fruit tree species and is centrally located in the region, FAO would recommend the setting up of the centre in that country.

We are of the opinion that a study of feasibility on the spot would be fully justified to clarify more concretely the benefits which could accrue from a regional research centre and delineate the scope of such an undertaking.