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TROPICAL DISEASES RESEARCH
REPORT ON THE JOINT COORDINATING BOARD,
SPECIAL PROGRAMME FOR RESEARCH AND
TRAINING IN TROPICAL DISEASES

(Information Paper for Agenda item 17)

REGIONAL COMMITTEE DOCUMENT

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UNDP/WORLD BANK/WHO SPECIAL PROGRAMME FOR RESEARCH
AND TRAINING IN TROPICAL DISEASES

1. INTRODUCTION

The Special Programme for Research and Training in Tropical Diseases (TDR) has two interdependent objectives:

- Research and development of new and improved tools to control six major tropical diseases - malaria, schistosomiasis, filariasis, trypanosomiasis (both African sleeping sickness and Chagas' disease), leishmaniasis and leprosy; and
- Strengthening of national institutions, including training, to increase the research capabilities of the tropical countries affected by these diseases.

1.1 Seeking the Tools

The Programme's research and development efforts concentrate on the most promising results to date produced by scientists both within and outside of the Programme. Scientists from all over the world will exploit the new opportunities to bring better tools for disease control to the point of practical application in the field. An overview of a few of the opportunities before the Programme is presented below:

Malaria. The main thrusts of malaria research are in drug and vaccine development. The rapid spread of drug-resistant parasites has created an urgent need for new drugs, and TDR-supported scientists are moving forward at four levels:

- Field application - the clinical testing of a new and effective drug, mefloquine, will be completed in 1984;
- Development - mefloquine in combination with other drugs (to delay the onset of parasite resistance) is undergoing clinical testing, which should be completed in 1984;
- Chemical synthesis - compounds based on new chemical formulations, in particular the traditional Chinese medicine, Qinghaosu and its analogues, will be synthesized and tested for effectiveness; and
- Monitoring for resistance - new micro kits for monitoring parasite resistance to drugs will undergo field evaluation in many countries.

There has been more progress towards a malaria vaccine during the past five years than during the previous fifty, and the possibility of an effective vaccine has moved from a concept viewed with scepticism to a real possibility. Genetic engineering and hybridoma technology have provided the

means through which the antigens responsible for stimulating immunity can now be isolated and produced on a large enough scale to enable scientists to move ahead rapidly towards the actual development of possible vaccines. Many questions remain, but preliminary trials in animals are foreseen in the near future, and trials in humans are a real possibility within the next few years. These opportunities must be followed through as quickly as possible.

Schistosomiasis. The tools available for the control of this disease have changed dramatically over the past five years. A number of new, effective drugs developed by the pharmaceutical industry are now at the stage of application and their effectiveness at the level of village health services must be assessed. New immunodiagnostic tests are being developed to complement this work and research on the development of a possible vaccine will be pursued.

Filariasis. The most urgent need in this family of diseases is for new drugs to treat river blindness (onchocerciasis). Through an international network of collaborating laboratories, the possibilities of developing such drugs have increased over the past five years. The discovery of effective animal screens has revealed a number of promising new groups of chemical compounds. This, along with the active collaboration of the Onchocerciasis Control Programme and a resurgence of interest by pharmaceutical companies in the development of drugs against this disease, has created opportunities and the environment for success. These must now be followed up.

Leprosy. Leprosy continues to be a major public health problem in most developing countries where health services are facing growing resistance of the leprosy bacillus against dapsone, the most commonly used drug. Through major support from TDR, scientists have developed a possible vaccine against this dreaded disease. However, due to the very long period of time before the disease reveals itself in man, trials of a possible vaccine will take at least five and probably closer to ten years to complete. The first phase of testing is already under way, but the answer to whether the vaccine does indeed prevent leprosy will come only after years of sustained scientific work.

Biological Control of Vectors. TDR-supported efforts in vector control research have resulted in the development and large-scale field application of Bacillus thuringiensis, serotype H-14, to control the vector of onchocerciasis. This agent will continue to be improved for large-scale production and widespread application in many tropical countries. Other biological agents, especially those which recycle themselves in their natural environment and thus prolong their effectiveness, are also being evaluated.

Social and Economic Research. New methods to prevent and treat disease must be acceptable within the cultural, social and economic systems of the people who are to use them. The Special Programme recognizes this and is devising new techniques, linking anthropological, economic and epidemiological approaches, to measure the social and economic consequences of tropical diseases. Analyses of knowledge, attitudes and practices related to diseases in tropical population are providing a basis for the improvement of health education. The acceptability and effectiveness of

local disease control programmes are being analysed, and improvements for use at the community level are being suggested. More widely applicable methodologies for determining the cost-effectiveness of such measures are being designed. While progress is being made towards understanding human behaviour and how it relates to the tropical diseases, a great deal remains to be learned, and this knowledge is crucial to any effort to control the diseases.

1.2 Creating the Self-Reliance

In concert with the above efforts, the Programme will continue to stimulate and assist the tropical countries afflicted by these diseases to assume a leading role in the research required to identify and solve their health problems. This is being achieved together with national authorities, through the training of nationals and the strengthening of national institutions, according to national plans. For it is only through national efforts that new tools will succeed in the task for which they are designed - the prevention of disease and the healing of the sick.

While the development of individual institutions remains a major focus, activities will be expanded to stimulate even greater collaboration between institutions, to build a network of research and research training institutions in the countries where the diseases are endemic. More than 140 scientists trained by the Special Programme have already returned to their home institutions.

Interaction between efforts for the strengthening of the research capability and research and development activities is vital to the success of the Special Programme. Many research projects provide important training opportunities for scientists and technicians from developing countries. Conversely, group training activities involving scientists from a number of countries, grants to scientists to visit other institutions and financial support to institutions all enhance the opportunities for research. This coordination of activities, especially in epidemiology and field trials, prepares scientists, technicians and institutions for the final but most important step - the use of the new tools to improve health and life among the peoples of the tropical countries.

2. REGIONAL PROFILE: SOUTH-EAST ASIA REGION

This profile contains information as of 30 June 1984 on the collaboration and participation of institutions and scientists from countries in the WHO South-East Asia Region (SEAR) in the Special Programme for Research and Training in Tropical Diseases (TDR).

From its beginning in 1975 until 30 June 1984, TDR has obligated over US\$113.4 million in support of 2 175 projects in 99 Member States of the Organization. Of this amount, US\$9 567 539 has been for the support of 222 projects carried out by institutions and scientists in the South-East Asia Region (see Tables 1 and 2). Of these, 113 are for research in malaria, schistosomiasis, filariasis, leishmaniasis, leprosy, biomedical sciences, vector biology and control, and social and economic research; there are 109 projects for research capability strengthening, of which 86 are for research training and 23 are for institution strengthening grants.

TABLE 1. Summary of projects and budget since 1975,
by component

	BAN	BUR	IND	INO	NEP	SRL	THA	SEAR	Budget (US\$)
1. Research and Development									
Malaria	0	0	6	3	1	2	28	40	2 066 896
Schistosomiasis	0	0	0	0	0	0	2	2	56 160
Filariasis	0	0	5	7	0	5	2	19	662 528
Leishmaniasis	0	0	0	0	1	0	0	1	5 000
Leprosy	0	1	16	1	0	1	1	20	966 436
Biomedical Sciences	0	0	2	0	0	0	1	3	270 384
Vector Biology and Control	0	0	1	1	0	1	4	7	149 666
Social and Economic Research	0	0	1	0	0	4	5	10	306 177
Epidemiology	0	0	0	0	0	0	0	0	-
Director's Initiative Fund	0	1	1	1	0	1	7	11	110 400
Sub-total	0	2	32	13	2	14	50	113	4 593 647
2. Research Capability Strengthening									
Training	4	2	18	8	0	12	42	86	2 394 921
Institution Strengthening	1	2	8	3	0	4	5	23	2 578 971
Sub-total	5	4	26	11	0	16	47	109	4 973 892
Total	5	6	58	24	2	30	97	222	9 567 539

TABLE 2. Summary of projects in South-East Asia Region, by country

Country	Research and Development		Research Capability Strengthening		Total	
	No. of projects	Amount (US\$)	No. of projects	Amount (US\$)	No. of projects	Amount (US\$)
Bangladesh	-	-	5	160 573	5	160 573
Burma	2	72 540	4	329 144	6	401 684
India	32	1 565 490	26	1 065 110	58	2 630 600
Indonesia	13	506 634	11	654 014	24	1 160 648
Nepal	2	21 594	-	-	2	21 594
Sri Lanka	14	268 507	16	464 968	30	733 475
Thailand	50	2 158 882	47	2 300 083	97	4 458 965
Total	113	4 593 647	109	4 973 892	222	9 567 539

In addition, 335 scientists from SEAR have participated in a number of technical and/or administrative meetings sponsored by TDR, and many of these scientists serve as members of steering committees which guide the work of the Programme's Scientific Working Groups. These meetings include the Scientific and Technical Advisory Committee (STAC) which evaluates the scientific and technical activities of the Programme and makes recommendations on priorities to the Joint Coordinating Board (JCB). Also included are meetings of the Research Strengthening Group (RSG), which provides guidance on the strengthening of the research capability of the Programme and monitors the implementation of their operation.

A total of 1 576 scientists and institutions in the South-East Asia Region regularly receive the TDR Newsletter and other Programme information.

The following Governments in SEAR have held or hold membership on the Joint Coordinating Board, the Programme's highest decision-making body:

<u>Government</u>	<u>Term of Office</u>		
Burma	1978	1980 and 1984	1986
India	1978	1985	
Indonesia	1980	1982	
Thailand	1981	1986	

The South-East Asian Ministers of Education Organization Regional Tropical Medicine and Public Health Project (SEAMEO TROPMED) is currently an official observer to the JCB.

The Government of India has contributed US\$177 469 to the Special Programme.