

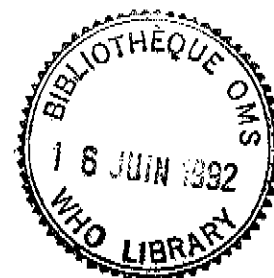


UNDP/WORLD BANK/WHO SPECIAL PROGRAMME FOR
 RESEARCH AND TRAINING IN TROPICAL DISEASES (TDR)

THIRTEENTH SESSION OF THE JOINT COORDINATING BOARD (JCB)

WHO Headquarters, Geneva, Switzerland
26 and 27 June 1990

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1. INTRODUCTION

Representatives of 25 governments - elected members of the Joint Coordinating Board (JCB) - and of the three co-sponsoring agencies of the Special Programme for Research and Training in Tropical Diseases (TDR), met as JCB(13) at WHO headquarters, Geneva, on 26 and 27 June 1990. Representatives of 13 governments and 13 organizations participated in the session as official observers. The JCB members and observers participating in the session and the names of their representatives are listed in Annex 1 [document TDR/JCB(13)/90.2 Rev.1].

The session was opened by Dr R. H. Henderson, Assistant Director-General of WHO and Special Programme Coordinator, on behalf of Dr H. Nakajima, Director-General of WHO. A summary of his statement to JCB(13) is contained in Annex 2.

The Chairman of JCB(13) was Professor A. S. Muller, Professor of Tropical Health, University of Amsterdam and Director, Department of Tropical Hygiene, Royal Tropical Institute, Amsterdam, Netherlands, who had been elected in 1989 as Chairman of the Board for two years, for JCB(12) and JCB(13). JCB(13) elected Dr N. Kere, Director, Medical Research and Training Institute, Ministry of Health and Medical Services, Honiara, Solomon Islands, as Vice-Chairman until its Fourteenth Session in 1991.

The Board adopted the Agenda attached as Annex 3 [document TDR/JCB(13)/90.1 Rev.1].

JCB(13) approved the Report of the Twelfth Session of the Joint Coordinating Board [document TDR/JCB(12)/89.3].

2. TDR IN THE 1990s

JCB(13) considered the challenges facing the Programme with regard to setting priorities in the 1990s, based on the background document on TDR in the 1990s [document TDR/JCB(13)/90.5, attached as Annex 4]. The five key issues for consideration by the Board were:

- (i) priorities among TDR target disease and trans-disease areas;
- (ii) the relative emphasis among basic research, product development and operational (or health systems) research;
- (iii) priorities for research and development/product development;
- (iv) the establishment of a Product Development Unit within TDR [outlined in document TDR/JCB(13)/90.12]; and
- (v) approaches and priorities for research capability strengthening, including the Study of TDR Research Training Grants.

The Board received an overview of the main issues for the future by Dr T. Godal, Director TDR. A summary of Dr Godal's comments is contained in Annex 5.

In addition, JCB(13) examined the Report of the Twelfth Meeting of the Scientific and Technical Advisory Committee (STAC) (document TDR/STAC-12/90.3), and the challenges facing STAC in setting priorities for the 1990s, which were introduced by Professor B. R. Bloom, Chairman STAC. A summary of Professor Bloom's statement is included in Annex 5.

The Board also received a presentation on the Report of the Commission on Health Research for Development and its implications for TDR, by Professor E. Ezzat, member of the Commission and Dean of the Faculty of Medicine, Suez Canal University, Ismailia, Egypt. A summary of the Commission's findings and recommendations, and their implications for TDR's activities as presented by Professor Ezzat, is contained in Annex 6.

The Board received technical presentations on four themes relating to TDR in the 1990s - basic research, product development, behavioural and operational research, and strengthening developing country capacities. Summaries of the presentations as listed below are contained in Annex 7.

<u>Presentation</u>	<u>Presenter</u>
The role of TDR in basic research	Dr C. M. Morel, Head, Department of Biochemistry and Molecular Biology, Oswaldo Cruz Institute, Oswaldo Cruz Foundation, Rio de Janeiro, Brazil; Chairman of the TDR Research Strengthening Group
The role of TDR in product development	Dr P. Reeve, former Executive Vice-President, Research and Development, Invitron Corporation, Redwood City, California, United States of America
The role of TDR in behavioural and operational research	Dr M. A. Lansang, Head, Department of Epidemiology and Biostatistics, Research Institute for Tropical Medicine, Metro Manila, Philippines; currently Coordinator of the TDR Programme on Field Research Networks in Asia
Research capability strengthening in health-related social sciences: challenges for TDR	Professor M. B. Concepcion, Professor of Demography, Population Institute, University of the Philippines, Diliman, Quezon City, Metro Manila, Philippines

In connection with its discussion on strengthening developing country capacities, the Board reviewed TDR's training activities and their impact on research capability strengthening. In 1988, JCB(11) had requested that an analysis be carried out of TDR's training activities and their impact on research capability strengthening for presentation to JCB(13). As a result of this request, a study had been made on TDR's research training grants [contained in document TDR/JCB(13)/90.6]. Dr J. Hashmi, Responsible Officer for Research Capability Strengthening, TDR, presented the major findings of the study and described the recent policy changes which had affected TDR's research training activities. A summary of Dr Hashmi's remarks is included in Annex 7.

Following the presentations, Mr V. Rajagopalan, Vice President for Sector Policy and Research, The World Bank, Washington, D.C., USA, made a statement on behalf of the World Bank. A summary of Mr Rajagopalan's statement is included in Annex 7.

JCB(13) made the following comments on the five key issues for TDR in the 1990s and on general issues:

2.1 Priorities Among TDR Target Disease and Trans-disease Areas:

2.1.1 Agreed with the current priorities among TDR target disease and trans-disease areas; specifically endorsed the high priority given to malaria; and agreed that

research and development work being carried out outside the Programme on the target diseases was an important consideration to be kept in mind in setting the Programme's priority activities.

2.1.2 Re-emphasized the importance of social and economic research activities and the need for adequate support of this component.

2.1.3 Noted the close affinity between leprosy and tuberculosis, and urged WHO to explore, through closer collaboration between the relevant programmes, possibilities for the development of drugs, other control tools and operational research towards the control of both diseases.

2.2 The Research Spectrum:

2.2.1 Recognized that the research process was a continuum from basic research to product development and operational (or health systems) research.

2.2.2 Agreed that basic research should continue to receive adequate attention within the Programme, and expressed strong support for greater involvement of TDR in operational research on the target diseases, including economic aspects of disease control tools.

2.2.3 Encouraged close collaboration, particularly in relation to operational (or health systems) research, between TDR and the newly established Division of Control of Tropical Diseases, other relevant WHO programmes, the WHO Regional Offices, and relevant agencies, including nongovernmental organizations.

2.3 Priorities for Research and Development/Product Development:

2.3.1 Stressed that attention should be given to those products and lines of research mostly likely to be successful and most urgently needed for disease control, and which could be applied in a sustainable way.

2.3.2 Endorsed the list of priorities for research and development/product development but requested that new diagnostic tools for malaria be included; and noted that this list would continuously change in the light of further developments. (The revised list of priorities is included in Annex 4 - Table 3 on page 35.)

2.3.3 Requested the Programme to exploit all possible opportunities for the novel use of existing drugs.

2.4 Product Development Unit (PDU):

2.4.1 Agreed on the establishment of a Product Development Unit within TDR, based on existing resources, and noted that detailed proposals for the Unit would be contained in the proposed Programme budget for the 1992-1993 biennium.

2.4.2 Stressed that the activities and products selected for the priority attention of the Unit would be determined by TDR's existing mechanisms for establishing priorities and approving activities for the Programme as a whole.

2.4.3 Noted that the PDU would facilitate and stimulate increased collaboration with industry and would assist in bridging gaps in the development of products which were of crucial importance for tropical disease control.

2.4.4 Emphasized the need to promote product development in the developing countries.

2.4.5 Noted that TDR's product development activities would continue to be guided by the policy of the World Health Organization with regard to intellectual property rights and collaboration with the private sector, and that special attention would continue to be paid to the protection of the public interest.

2.4.6 Urged close collaboration between the PDU and the Division of Drug Management and Policies, and other relevant programmes in WHO.

2.4.7 Noted that the PDU could provide potential for innovative funding of specific stages of product development, in collaboration with contributors including their bilateral assistance programmes.

2.5 Research Capability Strengthening:

2.5.1 Emphasized the need for appropriate geographical distribution of institution strengthening and training activities.

2.5.2 Requested that a policy paper on the Programme's research capability strengthening activities be presented to JCB(14) in 1991, and should include details on the:

(i) balance and linkages between institution strengthening and training activities;

(ii) strategy with regard to the least developed countries, including the FIELDLINGS programme, with a view to strengthening support to these countries;

(iii) comparison of costs of training in the developed and developing world; and urged that greater efforts be made for training to take place in the developing countries with only short periods abroad to acquire the specialized skills not available in these countries;

(iv) number of female trainees; and urged that greater efforts be made to increase their number;

(v) priorities in respect of the level of training supported by TDR; and

(vi) assistance to developing country researchers to prepare and present sound research proposals for funding; and urged strengthening of this assistance.

2.6 General Issues:

2.6.1 In view of the many challenges facing TDR in the 1990s, recognized that the Programme could not aim at involving itself in all the possible research issues relevant to tropical disease control; apart from being a doer, TDR should capitalize on its role as a catalyst and a coordinator.

2.6.2 Stressed the need for TDR to pay greater attention to the priorities of the disease-endemic countries, and recognized that at the same time these countries should play a crucial role in ensuring the application of the tools developed with TDR support. A true partnership and constant dialogue between TDR and the disease-endemic countries were of the greatest importance.

2.6.3 Suggested that Master's of Public Health graduates be involved in social science activities, and emphasized that social scientists should be involved at an early stage of project planning.

2.6.4 Welcomed the establishment of the WHO Division of Control of Tropical Diseases which would facilitate TDR's collaboration with the relevant health services oriented activities within WHO.

2.6.5 Recognized that operational (or health systems) research and social and economic research were not unique to TDR and were of concern to other WHO programmes, and stressed the importance of collaboration among the various programmes involved in such research.

2.6.6 Welcomed the opportunity to contribute to determining the Programme's priorities for the 1990s. Looked forward to receiving next year details of the review by STAC of

TDR's research and development components in relation to the distribution of resources, and the proposed plan of action and Programme budget for the 1992-1993 biennium, in the preparation of which the views expressed by the JCB would be taken into account.

2.6.7 Expressed its appreciation of the work and recommendations of the Commission on Health Research for Development and its gratitude to Professor E. Ezzat for her presentation to the JCB of the Commission's report. Noted the significance of the Commission's findings for TDR and the contribution which the Programme could make towards implementing the recommendations of the Commission.

2.6.8 Expressed its appreciation of the presentations by Director TDR and the Chairman of the Scientific and Technical Advisory Committee on TDR in the 1990s, and the presentations on basic research, product development, behavioural and operational research, and research capability strengthening.

3. REPORT OF THE STANDING COMMITTEE

The Board reviewed the issues raised in the Report of the Standing Committee [document TDR/JCB(13)/90.4].

JCB(13):

(i) Agreed that the Programme could accept contributions in non-convertible currencies, provided these did not replace contributions to TDR in convertible currencies and were subject to prior agreement between WHO and the government of the country concerned. In the event that it would not be possible for WHO to accommodate a proposed contribution, a similar arrangement would be discussed with the United Nations Development Programme.

(ii) Re-emphasized that parallel funding arrangements must be based on TDR's priorities.

(iii) Emphasized the importance of TDR's Communications activities and the need to produce information tailored to the requirements of the various audiences, including in appropriate languages.

(iv) Welcomed the discussion on TDR at the WHO Executive Board and the World Health Assembly and encouraged greater use of the Health Assembly as a forum for presentation of the Programme's progress in non-budget years. [The resolution adopted by the Forty-third World Health Assembly on Tropical Disease Research (document WHA43.18) is included in Annex 2.]

(v) Agreed, in principle, on the new mode of collaboration with the Onchocerciasis Control Programme in West Africa concerning research for a macrofilaricide, and requested that specific proposals on the mechanisms for collaboration, including the financial implications, be presented to JCB(14) for approval.

4. FINANCIAL MATTERS

4.1 Opinion of the External Auditor of WHO and Financial Report for the 1988-1989 Biennium

Following their introduction by Dr P. Ladouceur, Responsible Officer for Programme Management, TDR, the Board reviewed and accepted the Opinion of the External Auditor of the World Health Organization and the Status of Funds Statement for the Trust Fund for the Special Programme for Research and Training in Tropical Diseases as at 31 December 1989 [document TDR/JCB(13)/90.7] and the Financial Report for the 1988-1989 Biennium [document TDR/JCB(13)/90.8].

Details on the Programme's financial status in 1988-1989 are contained in Annex 8.

4.2 Financial Status in the 1990-1991 Biennium, and Financial Requirements and Prospects for the 1992-1993 Biennium

The Board received details of the actual financial status in the 1988-1989 biennium, the estimated financial status in the 1990-1991 biennium and forecasts for 1992-1993, contained in Annex 8 and in document TDR/JCB(13)/90.9. Based on the Secretariat's assessment of contributions expected during the current biennium, there would be a gap of US\$ 1.75 million in the funds required to meet the level of the approved Programme budget of US\$ 72.9 million for 1990-1991. TDR was in fact currently operating on the basis of a working budget of US\$ 1.75 million less than the approved budget. The estimated closing balance at the end of the current biennium was US\$ 1 million, compared to the opening balance of US\$ 8.2 million. This low closing balance would have a major impact on the total estimated funds available in the 1992-1993 biennium.

The Board reviewed three scenarios for the Programme's financial status in 1992-1993, as shown in Annex 8. On the assumption that contributions would remain at the same level as in the current biennium, including meeting the "funding gap" of US\$ 1.75 million, and with interest and other income totalling US\$ 3 million, the total estimated funds available to TDR in 1992-1993 would be US\$ 66.8 million. The Programme had to allow for a minimum closing balance of US\$ 1 million. Taking these factors into account, the three scenarios for the 1992-1993 budget were:

(i) a budget level of US\$ 65.8 million - would not create a "funding gap" but would represent a decrease of US\$ 7.1 million (9.8%) from the approved budget of US\$ 72.9 million for the 1990-1991 biennium;

(ii) a budget level of US\$ 73 million - the same level as the 1990-1991 budget - would create a "funding gap" of US\$ 7.2 million; and

(iii) a budget level of US\$ 78 million - representing an increase of 6.9% over the level of the 1990-1991 budget - would create a "funding gap" of US\$ 12.2 million.

A proposed plan of action and Programme budget for the 1992-1993 biennium would be presented to JCB(14) in 1991.

Financial contributors were invited to take into account the Programme's anticipated financial requirements in 1992-1993 when considering the level of their future contributions to TDR.

The Board noted the estimated financial status for the current biennium and the forecasts for the 1992-1993 biennium. Sixteen JCB participants indicated continued financial support for the Programme.

5. SELECTION OF ONE MEMBER OF THE JCB ACCORDING TO PARAGRAPH 2.2.3 OF THE MEMORANDUM OF UNDERSTANDING

JCB(13) followed the selection procedures established during its previous sessions and adhered to the 60-day deadline for the receipt of applications for JCB membership under paragraph 2.2.3 of the Memorandum of Understanding. The Board selected the Government of Nigeria for JCB membership for a period of three years from 1 January 1991.

The list of members of the Joint Coordinating Board as of 1 January 1991 is attached as Annex 9.

6. MEMBERSHIP OF THE SCIENTIFIC AND TECHNICAL ADVISORY COMMITTEE

JCB(13) endorsed the proposed membership of the Scientific and Technical Advisory Committee as of 1 January 1991, attached as Annex 10. The Board requested that in future more female scientists be considered for inclusion in the Committee.

7. DATE AND PLACE OF THE FOURTEENTH SESSION OF THE JCB

JCB(13) decided that, in principle, the Fourteenth Session of the Joint Coordinating Board would take place at WHO headquarters, Geneva, Switzerland, from the afternoon of Monday 24 June to Wednesday 26 June 1991.

The Board requested the Standing Committee to examine the possibility of changing the timing of the JCB sessions as there were many other important international meetings taking place in June each year.

8. CLOSURE OF THE SESSION

On behalf of the JCB, the Chairman thanked the TDR Secretariat for the opportunity to comment now on the Programme's future activities in the 1990s which had prepared the Board for its review next year of the proposed plan of action and Programme budget for the 1992-1993 biennium. The Board was pleased with the Programme's progress and had appreciated the presentations made to JCB(13) by the scientists, the Chairman of the Scientific and Technical Advisory Committee and the Programme Director. The Chairman thanked the JCB participants for their cooperation, the support staff for their excellent preparation of the session and the interpreters for their valuable contribution.

The JCB participants expressed their gratitude to Professor Muller for his excellent chairmanship of the Board over the past two years.

THIRTEENTH SESSION OF THE JOINT COORDINATING BOARD

WHO headquarters, Geneva, 26 and 27 June 1990
Executive Board Room

TDR/JCB(13)/90.2 Rev.1

LIST OF PARTICIPANTS

BELGIUM

Monsieur le Docteur Jean BURKE, Conseiller auprès de l'Administration générale de la
Coopération au Développement, Bruxelles

Monsieur Marc GEDOPT, Premier Secrétaire, Mission permanente de la Belgique auprès de
l'Office des Nations Unies et des Institutions spécialisées à Genève

BRAZIL

No representative able to attend

CANADA

Mr Martin SOUTTER, Deputy Director General, Multilateral Technical Cooperation Division,
Canadian International Development Agency (CIDA), Hull

Dr Jean R. LARIVIERE, Senior Medical Advisor, Division of International Health Affairs,
Intergovernmental and International Affairs Branch, Department of National Health and
Welfare, Ottawa

Dr S. SIMON, Director, Health Division, Professional Services Branch, Canadian
International Development Agency (CIDA), Hull

Mr Philip M. MACKINNON, Counsellor, Permanent Mission of Canada to the United Nations
Office and International Organizations at Geneva

CHINA

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DENMARK

Ms Birte POULSEN, Head of Division DM.III, Danish International Development Agency
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et de la Protection sociale, Paris

Monsieur le Docteur Denis MREJEN, Chef du Bureau de la Coopération sanitaire en Afrique
de l'Ouest et Petites Antilles, Direction du Développement, Ministère de la Coopération
et du Développement, Paris

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Mr Horst MÜLLERS, Assistant Head, Health Section, Federal Ministry for Economic Cooperation, Bonn

Dr Alfred MERKLE, Deputy Chief, Department of Health, Population and Nutrition, German Agency for Technical Cooperation, Eschborn

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Dr Thomas VERGHESE, Director, National Institute of Communicable Diseases, New Delhi

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ISRAEL

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MEXICO

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NETHERLANDS

Mr Karel P. M. DE BEER, Head, UN - Aid Section, Multilateral Development Cooperation Department, Ministry of Foreign Affairs, The Hague

Professor Alexander S. MULLER, Professor of Tropical Health, University of Amsterdam, and Director, Department of Tropical Hygiene, Royal Tropical Institute, Amsterdam

NICARAGUA

Monsieur le Docteur Jaime ESPINOSA, Ministère de la Santé, Managua

Mrs Myrna MONCADA, Third Secretary, Permanent Mission of Nicaragua to the United Nations Office and other International Organizations at Geneva

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NORWAY

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Professor Bjarne BJORVATN, Professor of Medicine, Chairman, Institute of International Health, University of Bergen, Haukeland Hospital, Bergen

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Monsieur le Docteur Augustin NTILIVAMUNDA, Directeur général de l'Epidémiologie et de l'Hygiène publique, Ministère de la Santé publique et des Affaires sociales, Kigali

SAO TOME AND PRINCIPE

Monsieur le Docteur Fernando DA CONCEIÇÃO SILVEIRA, Coordonnateur national du Programme de Lutte contre le Paludisme et les autres Endémies, et Responsable adjoint du Programme de Lutte contre le SIDA, Ministère de la Santé, Sao Tomé

SOLOMON ISLANDS

Dr Nathan KERE, Director, Medical Research and Training Institute, Ministry of Health and Medical Services, Honiara

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Ms Hellen OHLIN, Research Officer, Health and Nutrition, Swedish Agency for Research Cooperation with Developing Countries (SAREC), Stockholm

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Dr Lennart FREIJ, Research Officer, Swedish Agency for Research Cooperation with Developing Countries (SAREC), Stockholm

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Monsieur le Professeur Léo JENNI, Directeur adjoint de l'Institut tropical suisse, Bâle

TURKEY

Professor Güler KANRA, Professor of Paediatrics, and Director, Infectious Disease Unit, Faculty of Medicine, Hacettepe University, Ankara

Monsieur Akin ALGAN, Conseiller, Mission permanente de la Turquie auprès de l'Office des Nations Unies à Genève et des autres Organisations internationales en Suisse

UNITED KINGDOM

Dr David N. NABARRO, Chief Health and Population Adviser, Health and Population Division, Overseas Development Administration, London

Miss E. Carol ROBSON, First Secretary, United Kingdom Mission to the United Nations Office and other International Organizations at Geneva

UNITED STATES OF AMERICA

Dr A. Dennis LONG, Environmental Health Engineer, Office of Health, Bureau for Science and Technology, Agency for International Development, Washington, D.C.

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Dr Dennis CARROLL, Science Advisor, Office of Health, Bureau for Science and Technology, Agency for International Development, Washington, D.C.

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Dr Dennis JOHNSEN, International Health Attaché, United States Mission to the United Nations Office and other International Organizations at Geneva

Ms Paula FEENEY, First Secretary, United States Mission to the United Nations Office and other International Organizations at Geneva

YEMEN

No representative able to attend

ZAMBIA

Dr Evarist K. NJELESANI, Permanent Secretary and Director of Medical Services, Ministry of Health, Lusaka

UNITED NATIONS DEVELOPMENT PROGRAMME (UNDP)

Mr Timothy S. ROTHERMEL, Director, Division for Global and Interregional Programmes, UNDP, New York, USA

Mr Frank HARTVELT, Senior Programme Officer (Health, Water and Waste Management, Urban Development), Division for Global and Interregional Programmes, UNDP, New York, USA

THE WORLD BANK

Mr Visvanathan RAJAGOPALAN, Vice President, Sector Policy and Research, The World Bank, Washington, D.C., USA

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WORLD HEALTH ORGANIZATION

Regional Office for the Eastern Mediterranean

Dr G. E. RIFKA, Director, Eastern Mediterranean Special Programme, Geneva, Switzerland

Regional Office for South-East Asia

Dr LIM TEONG WAH, Medical Research Officer, Special Programmes, New Delhi, India

Onchocerciasis Control Programme in West Africa (OCP)

Dr Ebrahim M. SAMBA, Director, OCP, Ouagadougou, Burkina Faso

Headquarters

Dr Ralph H. HENDERSON, Assistant Director-General/Special Programme Coordinator

Dr Tore CODAL, Director, Special Programme for Research and Training in Tropical Diseases

Dr José A. NAJERA-MORRONGO, Director, Division of Control of Tropical Diseases

Dr Paul LADOUCEUR, Responsible Officer for Programme Management, Special Programme for Research and Training in Tropical Diseases

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Mr W. L. EWING, Deputy Director of External Audit

Mr Peter S. JONES, Chief, Office of Internal Audit

Mr René M. MARTI, Chief, Finance

Mr Thomas S. R. TOPPING, Senior Legal Officer

Advisers

Professor Mercedes B. CONCEPCION, Professor of Demography, Population Institute, University of the Philippines, Diliman, Quezon City, Metro Manila, Philippines: Technical Presenter

Dr Mary Ann LANSANG, Head, Department of Epidemiology and Biostatistics, Research Institute for Tropical Medicine, Metro Manila, Philippines; currently Coordinator of the TDR Programme on Field Research Networks in Asia: Technical Presenter

Dr Carlos M. MOREL, Head, Department of Biochemistry and Molecular Biology, Oswaldo Cruz Institute, Oswaldo Cruz Foundation, Rio de Janeiro, Brazil; Chairman of the TDR Research Strengthening Group: Technical Presenter

Dr Peter REEVE, Former Executive Vice-President, Research and Development, Invitron Corporation, Redwood City, California, USA: Technical Presenter

Professor Barry R. BLOOM, Chairman, Department of Microbiology and Immunology, Albert Einstein College of Medicine of Yeshiva University, New York, USA: Chairman of the TDR Scientific and Technical Advisory Committee

Professor Esmat EZZAT, Dean, Faculty of Medicine, Suez Canal University, Ismailia, Egypt: Member of the Commission on Health Research for Development

OBSERVERS

African Development Bank

Mr C. T. SARR, Deputy Director, Agricultural and Rural Development Department, Region I, African Development Bank, Abidjan, Côte d'Ivoire

Australia

Dr David DE SOUZA, Minister (Health), Australian High Commission, London, United Kingdom

Mr Kerry F. KENEALLY, Director, Development Research and Sector Agencies, Australian International Development Assistance Bureau, Department of Foreign Affairs and Trade, Canberra, A.C.T.

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Council of Directors of Institutes of Tropical Medicine in Europe (TROPMEDEUROP)

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Monsieur Paul DUHR, Représentant permanent adjoint, Mission permanente du Luxembourg auprès de l'Office des Nations Unies et des Organisations internationales à Genève

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TDR/JCB(13)/90.3

ANNEX 1

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United Nations Industrial Development Organization (UNIDO)

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THIRTEENTH SESSION OF THE JOINT COORDINATING BOARD

Geneva, 26 and 27 June 1990

SUMMARY OF THE OPENING STATEMENT TO JCB(13)
BY DR R. H. HENDERSON, ASSISTANT DIRECTOR-GENERAL, WHO
AND SPECIAL PROGRAMME COORDINATOR,
ON BEHALF OF DR H. NAKAJIMA, DIRECTOR-GENERAL OF WHO,
AND RESOLUTION BY THE FORTY-THIRD WORLD HEALTH ASSEMBLY
ON TROPICAL DISEASE RESEARCH (DOCUMENT WHA43.18)

Dr Henderson referred to the important task of the Thirteenth Session of the Joint Coordinating Board, which was to suggest a framework for TDR's activities in the 1990s, when the Programme would face great challenges. The views of the JCB were sought on five key issues:

- priorities among the Programme's target disease and trans-disease areas;
- the relative emphasis among basic research, product development and operational/health systems research;
- priorities for research and development/product development;
- the establishment of a Product Development Unit within TDR; and
- approaches and priorities for research capability strengthening.

These issues should be examined in the context of four developments outside TDR itself. Firstly, the findings of the Commission on Health Research for Development had implications for the Programme. These were described in the Commission's report and would assist the Board's discussions on the work of TDR in the 1990s.

Secondly, the Executive Board of WHO and the World Health Assembly had reviewed TDR in 1990. In its resolution on the Programme (copy attached) the Assembly had expressed its appreciation of the Programme's accomplishments, endorsed TDR's plans as adopted by the Joint Coordinating Board and requested the Director-General of WHO "to ensure the continuation of the Special Programme's global leadership role in tropical disease research". The Assembly had thanked the international community for its support to the Programme, and the research institutions and scientists who had contributed their skills for the achievement of TDR's objectives. The Assembly had also urged the tropical disease endemic countries to intensify their efforts to control the diseases, and requested multilateral and bilateral agencies to provide greater assistance for research and control of tropical diseases.

Thirdly, a new Division of Control of Tropical Diseases (CTD) had been established within WHO, in which the diseases were grouped just as they were in TDR. This should increase coordination between TDR and control workers, facilitate the development of effective new control tools and speed their transfer to the field.

Lastly, WHO had considered the recommendation made by the JCB in 1989 that the Organization examine the product development efforts of its various programmes, with a view to strengthening their coordination and the optimal use of resources. WHO was following with interest TDR's innovative approaches to the management of product development, which would serve as a spearhead for the Organization's activities in this area.

TROPICAL DISEASE RESEARCH

The Forty-third World Health Assembly,

Recalling resolutions WHA30.42, EB71.R10 and EB77.R4;

Noting the report of the Director-General on the UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases;

Appreciating the accomplishments of the Special Programme to date in the development and testing of a number of important new disease control tools, many of which are already in operational use, as well as the innovative and pioneering approaches taken in strengthening research capability in developing countries where tropical diseases are endemic;

Recognizing, however, that the target diseases of the Special Programme (malaria, schistosomiasis, filariasis (including onchocerciasis), African trypanosomiasis, Chagas disease, leishmaniasis and leprosy) continue to be major public health problems in many tropical countries, especially in the least developed countries, not only in rural areas but also, increasingly, in urban areas;

Aware that in some of these countries, notwithstanding the efforts that have been made, tropical diseases and especially malaria have continued to escalate, to the extent that malaria is once again one of the leading causes of morbidity;

Aware that during the next decade further challenges need to be addressed with respect to:

- (a) translating current advances in basic biomedical research into practical disease control tools, such as recombinant and synthetic vaccines;
- (b) increasing the commitment of the pharmaceutical industry to the development of new drugs and vaccines for tropical diseases;
- (c) identifying strategies for preventing the most serious consequences of these diseases, such as childhood mortality from malaria;
- (d) promoting applied research in economics and social sciences to identify the most cost-effective methods of utilizing new tools;
- (e) strengthening field and operational research in the least developed countries in a sustainable manner;

1. ENDORSES the thrusts and priorities of the Special Programme as adopted by the Joint Coordinating Board, which focus on: intensified strategies for the development of products in selected areas, such as new drugs for malaria, vaccines for leishmaniasis, malaria and schistosomiasis, and a macrofilaricide for filariasis; the implementation of new vector control methods for Chagas disease; operational research aimed at optimizing multidrug therapy for leprosy; and the use of specific projects and research results as a basis for research capability strengthening;

2. THANKS the international community, multilateral and bilateral agencies, nongovernmental organizations, foundations and companies for their support to the Special Programme, and in particular UNDP and the World Bank, the co-sponsors of the Programme,

and the research institutions and scientists throughout the world who contribute their talents and skills for the achievement of the Programme's objectives;

3. APPEALS to the pharmaceutical industry to increase research and development in tropical diseases and to intensify its collaboration with the Special Programme in the development of new and more effective tropical disease control tools and in ensuring that these tools are accessible and affordable for the populations affected;
4. REQUESTS multilateral and bilateral agencies to place greater emphasis on the provision of assistance both for research and for control of tropical diseases in endemic countries;
5. ENCOURAGES biomedical and social science research institutions to devote greater attention to tropical diseases and to establish appropriate links among themselves and with tropical disease control programmes in endemic countries;
6. WELCOMES the Director-General's decision to integrate WHO's various programmes for the control of tropical diseases;
7. URGES those Member States in which tropical diseases are endemic to intensify their efforts to control them by making full use of newly-developed technology and developing targeted national control strategies, especially for the diseases for which affordable and effective tools are now available;
8. REQUESTS the Director-General to ensure the continuation of the Special Programme's global leadership role in tropical disease research by:
 - (1) strengthening collaborative efforts in academic and industrial research and in disease control activities;
 - (2) fostering further the commitment of endemic countries to research;
 - (3) mobilizing additional contributions to the Special Programme, in collaboration with UNDP and the World Bank, the co-sponsoring agencies, to enable the Programme to achieve its objectives more rapidly.

Fourteenth plenary meeting, 17 May 1990
A43/VR/14

Copies of the report of the Director-General on the Special Programme (document A43/7), referred to in this resolution, can be obtained from the Communications Office, TDR, WHO, Geneva.

TDR/JCB(13)/90.1 Rev.1

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

THIRTEENTH SESSION OF THE JOINT COORDINATING BOARD

WHO headquarters, Geneva, 26 and 27 June 1990
Executive Board Room

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TDR/JCB(13)/90.1a |
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| 5. | TDR in the 1990s | TDR/JCB(13)/90.5 |
| | 5.1 Director's Report and Introduction | |
| | 5.2 Report by Chairman, Scientific and Technical Advisory
Committee: To Include Prospective Thematic Reviews
on Directions and Organization of TDR's: | TDR/STAC-12/90.3
TDR/JCB(13)/90.12 |
| | - Research and Development Related to Drugs; and | |
| | - Research on Vectors and Vector Control | |
| | 5.3 Basic Research | |
| | 5.4 Product Development | |
| | 5.5 Behavioural and Operational Research | |
| | 5.6 Strengthening Developing Country Capacities | |
| 6. | TDR Training Activities and Their Impact on Research
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| 7. | Report of the Standing Committee: To Include | TDR/JCB(13)/90.4 |
| | - Observer Status at JCB Sessions | |
| | - Follow-up Action Taken on the Recommendations
of the JCB <u>Ad Hoc</u> Committee on TDR's Financial
Prospects Approved by JCB(12) | |
| | - Onchocerciasis Chemotherapy Project | |

Reference Documents

- | | | |
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| 8. | Financial Matters | |
| 8.1 | Opinion of the External Auditor of WHO for the 1988-1989 Biennium | TDR/JCB(13)/90.7 |
| 8.2 | Financial Report for the 1988-1989 Biennium | TDR/JCB(13)/90.8 |
| 8.3 | Financial Status in the 1990-1991 Biennium | TDR/JCB(13)/90.9 |
| 8.4 | Financial Requirements and Prospects for the 1992-1993 Biennium | TDR/JCB(13)/90.9 |
| 9. | Selection of One Member of the JCB According to Paragraph 2.2.3 of the Memorandum of Understanding | TDR/JCB(13)/90.10
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Memorandum of Understanding -
TDR/CP/78.5/Rev.88 |
| 10. | Membership of the Scientific and Technical Advisory Committee | TDR/JCB(13)/90.11 |
| 11. | Date and Place of the Fourteenth Session of the JCB | TDR/JCB(13)/90.4 |
| 12. | Other Business | |
| 13. | Closure of the Session | |

TDR/JCB(13)/90.5

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

THIRTEENTH SESSION OF THE JOINT COORDINATING BOARD

WHO headquarters, Geneva, 26 and 27 June 1990
Executive Board Room

TDR IN THE 1990s

This document is intended to provide introductory material for the discussion in the Joint Coordinating Board on the role and development of the Special Programme for Research and Training in Tropical Diseases in the 1990s. After a general overview of TDR and its evolution (section 1), the document highlights key issues for TDR in the 1990s concerning which the views of the Board are sought:

- priorities among TDR target disease and trans-disease areas (section 2);
- the relative emphasis among basic research, product development and operational/health systems research (section 3);
- priorities for research and development/product development (section 4);
- the establishment of a Product Development Unit within the TDR Secretariat (section 5); and
- approaches and priorities for research capability strengthening (section 6).

It is not expected that the Board will necessarily arrive at precise and definitive conclusions on all these issues. Nonetheless, general views and indications of preferences and priorities by JCB participants will serve to guide the Programme, including the Scientific and Technical Advisory Committee and the TDR Secretariat, in the years to come, for example in the development of the proposed Programme budget for the 1992-93 biennium (which will be presented to the Board at its Fourteenth Session in June 1991).

In addition to this document, JCB participants may find it useful to consult the following publications (copies of which are available on request from the Secretariat):

- Tropical Disease Research: A Global Partnership: TDR Eighth Programme Report (WHO, 1987)
- Report of the Second External Review Committee (1988) [document TDR/JCB(11)/88.6 Rev.1]
- Tropical Diseases: Progress in International Research, 1987-1988: TDR Ninth Programme Report (WHO, 1989)
- Tropical Diseases Research: Proposed Programme Budget for the 1990-91 Biennium and Estimates for 1992-93 (1989) (document TDR/PB/90-91)
- Tropical Diseases 1990, (1990) (document TDR-CTD/HH90.1)
- Report by the Commission on Health Research for Development, Health Research: Essential Link to Equity in Development, (Oxford University Press, 1990)

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1. TROPICAL DISEASES AND TDR

The UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases (TDR) was created in the mid-1970s in response to the enormous burden that tropical infectious diseases impose on developing countries and to the lack of adequate measures to control these diseases. Scientists and health service planners believed that the application of modern biomedical and social science advances to the problems of tropical diseases would result in improved methods to prevent, diagnose and cure tropical diseases and in strengthened capacity of developing countries to conduct research on these diseases. This could be accomplished by bringing together scientists in industrialized and developing countries, disease control personnel, international organizations, industry, bilateral and multilateral funding agencies, foundations and nongovernmental organizations in a new global undertaking focusing on major tropical diseases.

This concept underpinned the establishment of the Special Programme, pursuant to a resolution of the World Health Assembly in 1974 requesting the Director-General of the World Health Organization (WHO) to intensify WHO research activities on the major tropical parasitic diseases. Programme activities were initiated in 1976 and the formal structures of the Special Programme were put in place in 1978, under the co-sponsorship of the United Nations Development Programme (UNDP), the World Bank and WHO, with WHO acting as the Executing Agency.

Since the late 1970s, TDR has developed worldwide networks devoted to research and development of new and improved means to control the target diseases and has assisted scientists and institutions in developing countries to improve their research skills and capabilities. This has been made possible by the talents and commitment of the many thousands of scientists who participate in the research and development activities, by generous contributions from many sources, especially from multilateral and bilateral development assistance agencies, and by the assistance of industry. This has resulted not only in the vast increase of knowledge about the diseases, the parasites which cause them, and their vectors, but also in the development of new disease control tools, many

of which are in disease control use or are undergoing clinical or field trials. (Detailed information on TDR's activities is contained in the biennial Programme Reports; see especially the Eighth Programme Report (1987) which reviews progress in the first ten years, and the Ninth Programme Report (1989) which covers the 1987-88 biennium.)

Since its inception, the Programme has had, in addition to on-going scientific and technical reviews carried out by the Programme's own scientific advisory bodies, two external reviews sponsored by the senior management body, the Joint Coordinating Board (JCB). The first review, carried out in 1981-82, focused on the broad goals of the Programme and its scientific and administrative structures and procedures, since the Programme had only recently been established and insufficient time had elapsed to assess scientific results. The mandate of the second review, carried out in 1987-88, strongly emphasized assessment of the progress of the Programme in relation to its objectives and its future role and activities. This second review, in addition to highlighting the achievements and progress of TDR, found that the continuing enormous health and economic burden of tropical diseases compellingly justified the continued existence of the Programme and that there was a clear need for the Programme to continue for at least ten years (Report of the Second External Review Committee (1988), document TDR/JCB(11)/88.6 Rev.1).

As TDR enters the 1990s, it faces new challenges. Prime among these is the need to transform the results of research supported by the Programme into usable disease control tools - the process known as "product development". Although product development has always occurred in the Programme, the number of potential disease control tools or products and the costs of development are now such that priorities and allocation of resources among competing uses are critical issues. This includes the need to maintain an appropriate balance within the research spectrum - among basic research, product development and operational research. The scale of resources required to meet the demands of product development and the complexity of the development process itself for many of the potential products are such that new management approaches are required. In addition, growing demand and opportunities for strengthening the tropical disease research capabilities of developing countries are placing added strains on available resources. In short, in a situation of limited or only slowly expanding resources, priorities must be assigned among TDR Programme Areas, the target diseases, the research spectrum and the many potential disease control products.

2. PRIORITIES AMONG TDR TARGET DISEASES

TDR's research and development activities (Programme Area II) are organized on the basis of components, each component having a scientific Steering Committee and personnel and financial resources (see TDR Programme Budget for 1990-91 for details). There are both disease-specific components and trans-disease components. Most diseases have a single component, but malaria has three (chemotherapy, immunology and field research) and leprosy has two (chemotherapy and immunology). Although TDR was established with six target diseases, African trypanosomiasis and the American form, Chagas disease, are considered as distinct diseases. (In addition, of course, there are major variations within most of the other diseases, some of which, such as the different filarial infections and the various types of leishmaniases, are themselves considered distinct diseases.) There are currently ten disease components and two trans-disease components - biological control of vectors and social and economic research. In addition, the component General Activities includes activities which cut across the components, such as the Director's Initiative Fund.

A major issue for TDR in the 1990s is the reassessment of priorities among the disease and trans-disease activities. A number of factors bear on this issue, including the importance of the disease from a health perspective, the nature of existing disease control tools and methods, opportunities for the development of new tools, and attention paid to a particular disease by tropical disease research programmes other than TDR. Some of these factors are examined in a broad context in the Report of the Commission on Health Research for Development (Health Research: Essential Link to Equity in Development), especially chapter 4, Research Priorities.

Malaria is the most important of the TDR target diseases from a public health standpoint. Nearly half of the world's population is at risk from malaria - a staggering 2100 million people (Table 1 on page 33). The number of people infected is estimated at some 270 million, with 250 million in Africa. Malaria also has the highest mortality among the TDR target diseases, with an estimated 1-2 million deaths per year (Tropical Diseases 1990, document TDR-CTD/HH90.1). Mortality among children in Africa is very high. Among the major problems facing health services in malaria control are the resistance of mosquitos to some insecticides and resistance of the malaria parasite to chloroquine and other antimalarial drugs. A full array of new malaria control tools - vaccines, drugs, diagnostics and vector control methods - is urgently required. Because of the scale of the malaria problem, malaria has attracted attention outside TDR to a greater extent than the other diseases, although much of the research effort in the past decade has been devoted to vaccines, with some emphasis on drugs.

Schistosomiasis is also extremely widespread, with an estimated 200 million people infected. Although the mortality rate is much lower than for malaria, schistosomiasis causes severe debilitating disease in millions of people. Schistosomiasis can be prevented by proper sanitation and avoidance of water contaminated by infected snails. In addition, an effective drug, praziquantel, is available. The major problem for schistosomiasis control lies in the high rate of reinfection because of inadequate sanitation. This could be overcome by an effective vaccine or an integrated programme of education, improved sanitation and the use of praziquantel, especially among key target groups, such as school children.

Filariasis includes two distinct major diseases, lymphatic filariasis and onchocerciasis (river blindness). Lymphatic filariasis has been spreading in recent decades, with some 90 million estimated cases. Mortality from neither disease is very high, but they are debilitating and disfiguring diseases (elephantiasis and blindness respectively), and lead to social dependence and stigma. Vector control can be effective against these diseases and the Onchocerciasis Control Programme in West Africa has successfully interrupted transmission of the disease over large areas of West Africa through the use of intensive larvicidal spraying against the blackfly vector. No effective cures are available for either disease, although existing drugs, some of which are difficult to administer and have unpleasant side-effects, can eliminate or greatly reduce microfilariae. The new drug ivermectin has proven to be safe and highly effective against onchocerciasis microfilariae and is now being evaluated against lymphatic filariasis. The major problem is the lack of a macrofilaricide to kill the adult worms, which have a long lifespan in the human body and continue to produce microfilariae, thus requiring repeated, long-term application of microfilarial drugs such as ivermectin.

African trypanosomiasis is a severe and invariably fatal disease if untreated. A large proportion of the population of sub-Saharan Africa - some 50 million people - are at risk of contracting the disease. Some 25 000 cases a year are reported, but epidemics, which are costly and difficult to control, may occur as a result of a breakdown in medical surveillance and vector control, for example because of civil strife or lack of resources. The risk of epidemics makes the disease a major health problem in sub-Saharan Africa. Current control strategy emphasizes regular diagnosis, vector control and treatment of the affected population. Research has concentrated on the development of sensitive diagnostic tests, safe and effective drugs and tsetse control tools such as traps and screens.

Chagas disease is widespread in the Americas, with 16-18 million estimated cases. Vector control, through the use of insecticides and improved housing, combined with health education, can be very effective in controlling the disease, which has no effective cure. Improved methods of vector control, such as insecticidal paints and fumigant canisters, could also be applied on a larger scale. In addition, more effective methods are required to detect and treat infected blood supplies, an important source of transmission.

Leishmaniasis is now known to be more widespread than was first thought when TDR was established. The various forms of leishmaniasis are spread over 80 countries and the

estimated number of cases is 12 million. Leishmaniasis detection, control and treatment are difficult. Existing drugs require numerous injections and are expensive and toxic, and resistance is beginning to appear. Simple diagnostic tests, to replace spleen or bone biopsy for parasite identification, and safe, effective and affordable drugs are urgently needed. In addition, development of a protective vaccine against cutaneous leishmaniasis is promising.

For the first time in history, the number of registered cases of leprosy is now declining, from 5.8 million in 1987 to 3.9 million in 1989, thanks to effective multidrug therapy. However, the total number of cases is still estimated at 10-12 million, with many of the unregistered cases occurring in Africa. In addition, large numbers of registered cases are not receiving multidrug therapy, but only the less effective monotherapy (dapsone) - or none at all. Research is required on new drugs to shorten further the duration of treatment and to replace any drugs in the existing multidrug regimens to which the leprosy bacillus develops resistance. Leprosy vaccines, now undergoing large-scale trials in several countries, offer promise for prevention of the disease.

The trans-disease component on **Biological Control of Vectors (BCV)** has concentrated on the development of biological agents against blackflies, the vector of onchocerciasis, and against mosquitos, the vectors of both malaria and lymphatic filariasis. Research and development has progressed on two agents in particular, Bacillus thuringiensis H-14, which is now used extensively by the Onchocerciasis Control Programme against blackflies and, to a more limited extent, in other parts of the world against mosquitos, and B. sphaericus, which is being developed primarily against mosquitos. More recently the BCV component has launched a search in developing countries for new candidate toxic agents and has initiated exploration of genetically-altered organisms. The TDR Scientific and Technical Advisory Committee has recommended that TDR, through the BCV component, initiate a major research programme on the molecular genetics of mosquitos.

The **Social and Economic Research (SER)** component is developing new research activities focused on the application of disease control tools developed with TDR support, as well as on other areas such as women and tropical diseases. In addition to continuing the analysis of the economic implications of tropical diseases, increased emphasis will be placed on social and economic aspects of different approaches to disease control. The SER component is also involved in the strengthening of field research capabilities in endemic countries.

An indication of the relative priority accorded to the target diseases can be found in the allocation of financial resources to the different diseases. Table 2 on page 34 presents the obligations incurred for the TDR disease and trans-disease components from 1980-81 to 1988-89, with budget figures for 1990-91, in both dollars and percentage. The percentage distribution is also shown in Figure 1 on page 36. It is clear from this information that significant shifts have occurred. In particular, the percentage devoted to malaria has increased significantly, from 22.5% in 1980-81 to 32.8% in 1990-91. There have also been important increases in the amounts devoted to leprosy (from 11.9% to 14.3%) and to leishmaniasis (4.4% to 6.5%). The uneven pattern for filariasis is largely accounted for by the costly field trials of ivermectin for onchocerciasis, which began in 1987.

These increases have been sustained in part by the disestablishment in 1985 of the Biomedical Sciences component and by the transfer of epidemiology activities to the disease-specific components and to the Epidemiology and Field Research component in Programme Area III. In addition, there have been declines in the percentage of financial resources devoted to schistosomiasis (9.1% to 6.5%) and to African trypanosomiasis (11.7% to 7.2%).

The question for TDR as it enters the 1990s is whether this distribution - with occasional minor adjustments - is correct, or whether significantly increased emphasis should be given to some diseases, and if so, which diseases would receive less priority.

For example, given the growing malaria problem and the opportunities for significant progress in the development of new control tools, should an even higher percentage be devoted to malaria in the coming years? Lymphatic filariasis and several types of leishmaniasis also appear to be growing in incidence and existing prevention and control tools are markedly inadequate. In addition, TDR accounts for a significant proportion of the total global research effort devoted to these diseases. On the other hand, tools and methods for the control of leprosy and schistosomiasis have improved considerably in recent years and there are promising new possibilities for the control of African trypanosomiasis (drugs and vector control) and Chagas disease (vector control and blood screening), although considerable work still needs to be done to perfect the new tools and to ensure their widespread availability and application in disease endemic areas.

The Board is invited to express its views on priorities among TDR target disease and trans-disease areas. The Board's views will be borne in mind in the preparation of the proposed programme budget for the 1992-93 biennium, which will be considered by the Scientific and Technical Advisory Committee, the Standing Committee and the JCB itself in 1991.

3. THE RESEARCH SPECTRUM

The process of developing and applying new disease control products or methods typically involves three broad phases in a continuous process of research and development:

- basic research, involving studies of the disease, parasite and vector, including epidemiological and other basic field studies, aimed at elucidating previously unknown or poorly understood areas, as a basis for conceiving new ways of preventing or controlling the disease;
- product development, the process of transforming basic scientific knowledge into usable disease control products, including preclinical and clinical evaluations of these products, to the stage of registration or other form of licensing for utilization; and
- operational (or health systems) research, which involves multidisciplinary studies encompassing field epidemiology, social and economic research, entomology etc., aimed at studying disease control products in the actual settings of use and determining how they can be utilized most effectively and efficiently.

Viewed from this perspective, field research, broadly defined as research that requires collection of primary data from people, their communities or their environments, occurs in all three phases of research and development, but especially in operational or health systems research.

TDR's mandate and activities encompass the full range of this research spectrum, but with significant differences in emphasis and changes over time. In the initial years of the Programme, considerable emphasis was placed on basic research, to improve knowledge of fundamental aspects of the diseases, such as incidence, parasite metabolism and mechanisms of immunity, vector life cycles and distribution, resistance of the disease organisms to drugs etc. From this effort, as well as from general advances in biomedical research, came ideas for new vaccines, drugs, diagnostics and vector control tools - TDR's "products". The listing of these "products" in the TDR Eighth and Ninth Programme Reports (60 and 65 products respectively) highlighted the growing importance of product development in TDR's activities. Indeed, TDR is involved in the development of more disease control products than many medium-sized pharmaceutical companies. The Eighth and Ninth Programme Reports identified only products which had reached the stage of clinical and field trials, or were in disease control use - many other products are at earlier stages of development, such as preclinical testing for efficacy and safety. The recent establishment of a product system within TDR's management information system identified some 100 distinct products in which TDR is currently involved, as well as

other products which have been discarded or discontinued because they were found insufficiently effective, too toxic or otherwise impracticable.

The nature of TDR's involvement in particular products varies enormously, from extensive involvement in the planning and financing of research, to participation in only one aspect of the development process, such as clinical trials of new drugs or regimens, and to contributions as part of a network, with TDR often playing a central information and coordination role. TDR's partners in these undertakings include other international and national research agencies, industry and developing country institutions. It should be emphasized that product development is a high-risk undertaking and the successful launching of new disease control products typically requires a long-term commitment. Candidate vaccines, diagnostic tests and compounds for drugs may have to be abandoned after considerable investment because the proposed product failed to meet requirements for efficacy, safety, stability, reproducibility etc. at the various stages in the development process. Nevertheless, it is only by undertaking such risks that TDR will succeed in bringing new tools to the stage that they can be used for disease control.

TDR is currently devoting about 30% of the Research and Development Operations budget to the development of high-priority products. The remaining amounts are directed to basic research, other products, and operational and behavioural research. It is estimated that the percentage of the R&D budget devoted to these high-priority products could increase to 45% in the 1990-91 biennium and to 57% in 1992-93 (Figure 2 on page 36).

The emergence or anticipated emergence of many new products from the results of TDR-supported research has also increased emphasis at the operational or health systems end of the research spectrum, with its heavy emphasis on field research. Field trials are required to determine the efficacy, safety, optimal delivery systems and strategies for use of new disease control products; operational research is required to identify obstacles to the introduction and application of new tools and to promote their efficient utilization; and continued field research is required to identify new problems, targets and opportunities in the disease control process.

Social and economic research is particularly important for operational research on disease interventions, for example in cost-benefit and comparative cost analyses, acceptability of control measures, social mobilization and community participation. In this regard some disease control tools, for example community participation in diagnosis and disease prevention, will not fall under the definition of a "product".

The shift which is occurring in the "mix" of TDR's research activities raises major questions as TDR enters the 1990s: what should the relative emphasis be among basic research, product development and operational/health systems research? Given the urgent needs and the scale of financial requirements, should TDR devote greater resources than it has to date to product development and to related operational research? Product development is, however, both complex and costly. How far can TDR go in reducing its support for basic research, since basic research is the source and foundation from which future advances can be made? Guidance from the Board on these questions will assist in determining future priorities and resource allocation.

4. PRIORITIES FOR RESEARCH AND DEVELOPMENT/PRODUCT DEVELOPMENT

The TDR research management system was founded on the model of scientific research councils and was adapted to the requirements of a focused, goal-oriented global programme. It is most effective at the basic research end of the spectrum and in some aspects of the product development process, such as clinical trials in developing countries, and is increasingly effective in operational research. There are, however, major activities relating to product development, such as toxicity testing, formulation, production and packaging of new products for clinical and field trials, intellectual property considerations and registration of new products for use, for which expertise exists primarily in industry and is costly. However, industry has been withdrawing from the tropical disease area, yet it is precisely on these aspects of product development

that emphasis is required if the results of TDR-supported research are to bear fruit in the form of disease control products. In the final analysis, TDR is successful only if its activities result in new and improved tools and methods to reduce the toll of tropical diseases.

TDR should, of course, seek innovative means of reducing the costs of product development, in particular by collaborating with industry and with other funding agencies, both bilateral and multilateral. TDR has worked closely with industry in the development of a number of products, such as ivermectin, mefloquine, halofantrine, Bacillus thuringiensis H-14 and eflornithine, but in many cases industry has been reluctant to commit the significant resources required for a full-scale product development process with little or no prospect of commercial return. In some cases, however, industry is prepared to assist in limited ways or to provide services at minimal cost. In other cases certain stages of product development will inevitably be very costly, perhaps beyond TDR's normal resources. The Programme has already begun to explore possible parallel funding mechanisms, involving support from a bilateral agency for the industrial involvement. However, greater flexibility may be required in TDR's funding mechanisms than is permitted under the policy on designated funding, for example when it is clear that it would be more efficient for TDR to handle funds designated for a particular product, rather than a classical parallel funding situation. In this case it would be necessary for TDR to call on the flexibility suggested in the decision of JCB(11) in 1988 in agreeing to the continuation of the designated funding policy: the JCB requested the Director of TDR to inform the Board if, in the future, the designated funding policy prevented the Programme from accepting additional resources.

Clearly, TDR cannot develop simultaneously all of the 100 or so potential products now at different stages in the product pipeline. TDR does not have the human or financial resources to do so, nor would it be desirable, since in some cases there are intentional overlaps among potential products. In general, this has come about because of uncertainty as to which among several possible alternatives is most likely to result in the best product for a particular purpose. Nevertheless, TDR must establish priorities within its full range of potential products and concentrate resources on a relatively small number, with the aim of bringing these forward as quickly as possible. Several criteria are relevant to determine priority products:

- The urgency of the need for the product, assessed in terms of the currently-available disease control tools and the anticipated role of the new product in disease control;
- The stage which the product has reached and the likelihood of successfully completing the development process within a reasonable period of time;
- The human and financial resources required for completion and TDR's ability to provide these resources and to develop collaborative arrangements with other institutions, including industry; and
- Development of other, similar or alternative products being undertaken elsewhere.

Based on these criteria, the TDR Secretariat, in consultation with the Scientific and Technical Advisory Committee, has developed a list of possible priorities (Table 3 on page 35). The reaction and comments of the Board to this list would assist in guiding future research and development and product development activities. This list contains some 25 products: clearly, not all can be subject to intensive product development efforts and therefore further selections will have to be made of a more limited number of products for priority development.

5. NEW MANAGEMENT MECHANISMS

The management of TDR's scientific activities has been based on well-established principles of preparation of scientific workplans, and peer review of research proposals

and scientific progress by independent scientists acting in an advisory capacity to the Programme. Scientific Steering Committees exist for each component of the Programme and meet once or twice a year to review progress and project proposals. As suggested above, this mechanism has served well for the "research" stage of TDR's activities, but it is less well adapted to many aspects of the "development" process. During the past few years TDR has experimented with alternative approaches, such as a Preclinical Drug Development Team for filariasis macrofilaricides and the use of external consultants to advance particular products. In addition, TDR has promoted the strengthening in developing countries of biotechnology related to TDR's requirements. From these experiences it is concluded that there is a need for specialized in-house expertise and concentrated effort to advance selected high priority products as rapidly as possible.

For this reason it is proposed to establish a Product Development Unit (PDU) within the TDR Secretariat and to modify the Programme's financial structure to permit greater emphasis on key products. The task of the Product Development Unit would be to assist the development of selected products to the stage of regulatory approval or product "launch". The Unit would be staffed by re-deploying existing or currently vacant posts; no new posts would be required. The Scientific and Technical Advisory Committee has recommended a budget of US\$ 3 million in operational resources for the Unit's product development activities in 1992. A rigorous selection process would determine which products would be singled out for attention by the Unit, thus allowing the Programme to prioritize its product development activities across the various components. There would also be detailed development plans and frequent reviews of progress (more information on the Product Development Unit is contained in document TDR/JCB(13)/90.12 and in the Report of STAC-12, document TDR/STAC-12/90.3).

The Scientific and Technical Advisory Committee, at its twelfth meeting in March 1990, endorsed the concept of a Product Development Unit. The Board should consider the proposal and indicate its views on this approach. If the Board agrees, some steps would be taken to implement the Unit in the 1990-91 biennium, but the Unit would not be fully operational until the 1992-93 biennium; appropriate budget provisions would be contained in the proposed Programme Budget for the 1992-93 biennium, to be considered by the Board at its session in 1991.

6. STRENGTHENING DEVELOPING COUNTRY CAPABILITIES

In addition to the development of new and improved tools for tropical disease control, TDR's mandate includes the strengthening of research capability in developing countries. From the early years of the Programme, it was decided that at least 25% of the Programme Budget should be devoted to research capability strengthening (Programme Area III) - thus ensuring that a significant proportion of TDR's overall expenditure would be directed to this objective. This policy has been reiterated on several occasions over the years, notably by the First External Review Committee (1982) and the Second External Review Committee (1988), whose recommendations on this matter were endorsed by the Joint Coordinating Board.

It was never intended that the distinction between the Research and Development and Research Capability Strengthening Programme Areas be an absolute one, and indeed over time the activities of the two areas have become increasingly integrated. Thus, much of the research supported by the various components in Area II takes place in developing countries - about 38% up to the end of 1989 in terms of project funding, or 42% of the number of projects. In addition, a considerable amount of training of developing country scientists takes place in the context of research projects supported by Area II components in industrialized countries. Similarly, research capability strengthening is based on specific research activities contributing to TDR's overall objectives. This process has been reinforced in recent years through such initiatives as the TDR-Rockefeller Foundation Programme for Tropical Disease Research and the programme-based grants.

There has in fact been a considerable expansion of research capability strengthening activities in the past few years: this is clear from expenditure and budget

figures for the period 1986-87 to 1990-91. Obligations for Research Capability Strengthening (Area III) rose from US\$ 10.2 million in 1986-87 to US\$ 16.1 million in 1988-89, and the approved budget for 1990-91 is US\$ 18.9 million: an increase of US\$ 8.7 million or 85% over three biennia. In addition to the growth in institution strengthening and training activities in Programme Area III, the new Epidemiology and Field Research component has been placed in Area III in view of its close relationship with research capability strengthening activities. As a result, 25.9% of the TDR Programme budget for the 1990-91 biennium is allocated to Area III. This results in an actual increase of US\$ 3.2 million or 34.0% in the Area III budget over the revised budget for 1988-89. However, the Epidemiology and Field Research component accounts for a large part of the increase, US\$ 1.8 million, with an increase of US\$ 1.4 million for research capability strengthening activities.

Experience in the last year suggests that there will be continued and growing strong demand for support from TDR for research capability strengthening and training, a tendency which is likely to be reinforced by the report and recommendations of the Commission on Health Research for Development. This is illustrated by experience in recent years with the TDR-Rockefeller Programme, programme-based grants and training grants. In view of the increased demand for institution strengthening and training, and to reflect the increased emphasis on scientific output in research capability strengthening activities, applications for these three types of grants are assessed on a competitive basis. The following table illustrates the "demand" or competition for research capability strengthening grants from TDR:

<u>Grant</u>	<u>Initial Applications</u>	<u>Final Applications</u>	<u>Approved</u>
TDR-Rockefeller Foundation Grants (1988)	208	30	16 ^a
Programme-based Grants (1989)	79	29	15
Research Training Grants (1990)	280	166 ^b	55 ^c

- a Includes 12 partnerships supported by TDR and the Rockefeller Foundation (RF) involving 18 institutions in developing countries and four partnerships focused on non-TDR diseases supported solely by the RF.
- b Preliminary screening reduced the original 280 applications to 166 actually considered by a sub-committee of the Research Strengthening Group.
- c Fifty-five grants were approved initially and a further 10 candidates were recommended subject to availability of funds.

Another important question for TDR's research capability strengthening activities in the 1990s concerns the continued expansion of the "traditional" institution strengthening grants - normally spread over a five-year period, with assistance for the training and employment of additional staff, purchase of equipment and supplies, support for library and computer facility development etc. Up to the end of 1989, TDR had supported 98 institutions in 41 countries by means of institution strengthening and/or capital grants. Although the number of new institutions supported has declined, experience in recent years demonstrates a continued demand for this type of assistance. Yet TDR has a limited capacity to deal with an ever-increasing number of institutions through its various grant mechanisms. At the same time, many countries, especially in sub-Saharan Africa, have little or no research capacity in tropical diseases. Epidemiological data on the prevalence, morbidity and mortality of the diseases are often inadequate or lacking, and most endemic countries do not have the capacity to conduct clinical or field research to determine the optimal strategy for controlling the diseases from among available control tools. There may not be a suitable tropical disease research "institution" in the traditional sense, but individuals or small units in ministries of health, hospitals and clinics. In such cases the support which TDR could render may be extremely limited in scope - but nonetheless critical for the country to develop a minimal capacity in tropical disease research - a concept which closely corresponds with the "essential national health research" concept developed by the Commission on Health Research for Development.

In recent years TDR has thus adopted a differentiated approach to research capability strengthening:

- Traditional institution strengthening grants for institutions in countries which have the potential and interest to develop these institutions;
- "Second phase" grants (e.g. TDR-RF joint programme, programme-based grants) emphasizing research results and awarded on a competitive basis, for advanced institutions; and
- Support for field and operational research closely related to disease control activities in least developed countries.

The Board is invited to express its views on the future orientation of TDR's research capability strengthening activities. Are the current approaches adequate - or are new mechanisms required in high priority areas such as social and economic research? Should TDR continue to accept new institutions for "traditional" basic strengthening grants, or should the focus be on second-phase grants and appropriate mechanisms for least developed countries? Does the balance of emphasis and resources between research and development and research capability strengthening continue to be appropriate?

Table 1 The Global Toll of Tropical Diseases

	People infected (thousands)*	People at risk (millions)	Countries affected
Malaria	270 000	2 100	103
Schistosomiasis	200 000	600	76
Lymphatic filariasis	90 000	900	76
Onchocerciasis	17 000	90	34
African Trypanosomiasis	25	50	36
Chagas disease	16-18 000	90	21
Leishmaniasis	12 000	350	80
Leprosy	10-12 000	1 600	121**

Note: All figures provisional and subject to change if and when better data become available. Some people are infected with more than one disease.

* Figures rounded.

** Countries with more than 100 registered cases.

Source: World Health Organization, 1990.

Table 3 Priorities for TDR Research and Development/Product Development

Malaria

- Pre-erythrocytic vaccines
- Asexual blood-stage vaccines
- Transmission blocking vaccines
- Artemisinin and derivatives, especially arteether
- Field test for antimalarial drugs
- Recombinant organisms against malaria vectors
- New diagnostic tools

Schistosomiasis

- Recombinant vaccine

Filariasis

- Ivermectin for lymphatic filariasis
- Macrofilaricide
- Immunoassays and DNA probes for diagnosis
- Bacillus sphaericus for vector control

African Trypanosomiasis

- Eflornithine
- New drug (with Chagas disease and leishmaniasis)
- Antigen detection and procyclic agglutination diagnostics
- Tsetse traps and screens

Chagas Disease

- New drug (with African trypanosomiasis and leishmaniasis)
- Test for screening donor blood
- Insecticidal paints
- Fumigant canisters

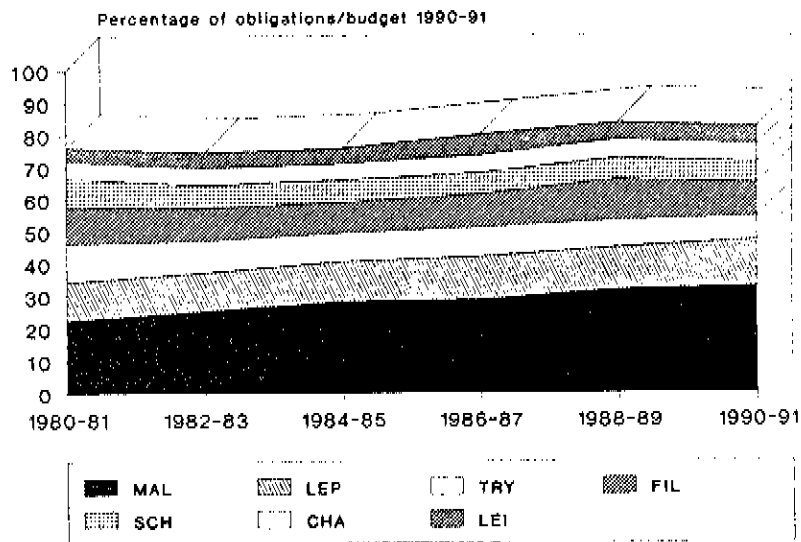
Leishmaniasis

- Whole, killed vaccine
- Recombinant vaccine
- New drug (with Chagas disease and African trypanosomiasis)
- Diagnostic for visceral leishmaniasis

Leprosy

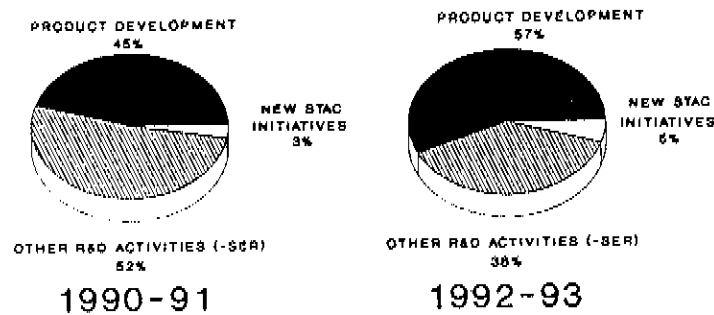
- Whole, killed vaccine
- Recombinant vaccine
- New drug combinations

Figure 1 TDR DISEASES: FINANCIAL RESOURCES



Trans-disease activities omitted

Figure 2 RESOURCE ALLOCATION FOR HIGH PRIORITY PRODUCT DEVELOPMENT



PERCENTAGE OF R&D OPERATIONS BUDGET

THIRTEENTH SESSION OF THE JOINT COORDINATING BOARD

Geneva, 26 and 27 June 1990

SUMMARY OF THE COMMENTS BY DIRECTOR TDR AND THE CHAIRMAN
OF THE SCIENTIFIC AND TECHNICAL ADVISORY COMMITTEE ON TDR IN THE 1990S

1. SUMMARY OF THE PRESENTATION BY DR T. GODAL, DIRECTOR TDR

Dr Godal referred to TDR's success in creating new opportunities for the control of tropical diseases. However, these opportunities greatly outweighed resources and pruning was therefore a key concern.

The main challenges facing the Programme in the 1990s were: to find ways to reduce further the cost of existing control tools and of their delivery; to intensify the Programme's product development efforts; and to find the right balance between research and development and research capability strengthening activities and to forge close links between the two areas to ensure the best possible output.

Cost Reduction of Existing Control Tools and Their Delivery

In leprosy, schistosomiasis, onchocerciasis, African trypanosomiasis and Chagas disease, several effective treatment or control products had become available, e.g. multidrug therapy (MDT) for leprosy, praziquantel for schistosomiasis, ivermectin for onchocerciasis, eflornithine for West African sleeping sickness, fumigant canisters and simple traps to destroy the vectors of Chagas disease. These tools were available at low cost e.g. MDT at US\$ 20-60 for curing leprosy, praziquantel at less than US\$ 1 per treatment and ivermectin free of charge, but it was important to reduce the cost of their delivery.

TDR was studying how this could be done, including through the use of local communities for disease diagnosis, and the delivery of tools against one disease with tools against other diseases. For example, children often suffered from both schistosomiasis and intestinal helminth infection, so the use of praziquantel together with a benzimidazole was being explored. Many deaths caused by acute respiratory infections (ARI) were due to bacterial infections which were clinically difficult to distinguish from malaria, so a common therapy against malaria and ARI would be very advantageous. In view of the close affinity between leprosy and tuberculosis, drugs active against both diseases would be of great benefit. Further research was required in these areas, possibly at the preclinical stage.

TDR was also examining optimal treatment schedules in connection with social and economic studies of community needs and attitudes, and taking into consideration existing and potential supply systems. The ultimate aim was to develop multiple options from which communities and disease control programmes could choose according to their needs and available resources. TDR had devoted more resources to field and operational research, and the nature of this research was moving away from descriptive work to intervention related research.

Much operational research was closely related to disease control and TDR was collaborating very closely with the new WHO Division of Control of Tropical Diseases (CTD). TDR disease component staff continued to be based in the disease control units, now under the new division. Together with CTD, the whole span of expertise required from basic research to social and economic studies of the community was covered.

The Programme was reaping the rewards from its earlier investment in basic research. Dr Godal cautioned against reducing the allocation of resources to basic research which would be TDR's most important contribution to disease control in the next century.

The question of the right allocation of resources to basic research, product development and operational research was a major challenge for TDR.

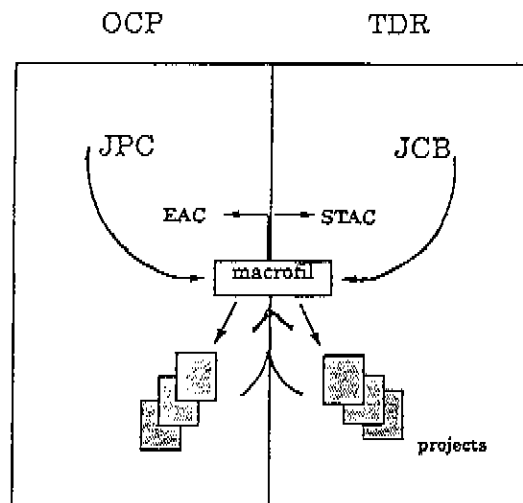
Product Development

The requirements for new approaches to product development in TDR had been under consideration for several years. Three outside consultants had assisted the Programme in reviewing its efforts in this area and a detailed proposal for the establishment of a Product Development Unit (PDU) within TDR was before the Board for its consideration [contained in document TDR/JCB(13)/90.12]. The Unit would be staffed through the reallocation of existing resources and detailed proposals for the financing of the Unit would be included in the proposed Programme budget for the 1992-1993 biennium. The Unit would help to focus TDR's product development activities and increase efficiency in this area.

TDR was currently involved in some 100 products. Even by taking the 25 top priority ones, it was estimated that the cost of their development would increase sharply by the 1992-1993 biennium. To cover the costs, cuts would have to be made in other areas of research, all of which were important. In order to maximize the use of its available resources, TDR would take advantage of and collaborate with other programmes working in relevant areas, e.g. with the Programme for the Control of Acute Respiratory Infections and the Tuberculosis Unit, as mentioned above, and with the Onchocerciasis Control Programme in West Africa, as described below.

Collaboration with the Onchocerciasis Control Programme in West Africa (OCP)

OCP was supporting work towards the development of a macrofilaricide against onchocerciasis and TDR was supporting work on the development of a macrofilaricide against filariasis. In the past these activities had been carried out under two different Steering Committees. The OCP Expert Advisory Committee (EAC) had called for closer integration of these activities into TDR, and proposals on integration mechanisms and financial implications had been developed by Director OCP and Director TDR. The plan was to form a joint macrofilaricide project partly funded by OCP and partly by TDR but the financial resources would be managed separately. The project's activities would be reviewed by one Steering Committee only, which would prepare one report for submission to both the OCP Expert Advisory Committee/Joint Programme Committee (JPC) and the TDR Scientific and Technical Advisory Committee/Joint Coordinating Board. Through this mechanism, both Programmes would be fully involved, no financial transfer would take place between them and the activities would be managed in a scientifically unified manner.



Research Capability Strengthening

TDR's research capability strengthening activities had evolved in recent years and there were now three types of activities: (1) traditional grants for new institutions, which might now become phased out as the Programme had been involved in strengthening some 100 institutions; (2) second-phase grants (TDR-Rockefeller Foundation and Programme-based grants) for relatively advanced institutions and with a strong output orientation to link up with and contribute to TDR's research and development activities; and (3) the FIELDLINGS programme which constituted TDR's initial approach to the least developed countries and essential health research. Through the FIELDLINGS programme, young scientists were trained in the context of projects of direct relevance to disease control in their own countries. This represented an important approach to developing manpower for essential health research but TDR was examining how it could contribute further to this concept, which was in line with the recommendations of the Commission on Health Research for Development.

TDR's grants had become very competitive in view of the limited resources available. By 1992-1993 there would be very little funds available for new grants. To liberate resources for new high priority initiatives, e.g. essential health research in a few least developed countries, and social and economic research, only some of the TDR-Rockefeller grants would be renewed.

Conclusion

TDR was faced with more opportunities than it could pursue even if more resources became available in the future. Pruning was essential and the determination of the right allocation of resources to get the best return on TDR's investment. Dr Godal requested the Board's guidance before transforming action into the Programme budget for the 1992-1993 biennium.

2. SUMMARY OF THE PRESENTATION BY PROFESSOR B. R. BLOOM, CHAIRMAN STAC

Professor Bloom referred to the important responsibility of STAC to ensure the scientific integrity of TDR. STAC consisted of 15-18 members who were experts in tropical diseases and/or related fields. The Programme's scientific integrity was also ensured by the collaboration of many scientists working at the frontier of research who participated in TDR's research activities and gave their time to attend meetings of Steering Committees and guide the work of the Programme.

STAC should report to the Joint Coordinating Board at two levels - on process and on substance. With regard to process, there had been a change in respect of STAC's approaches. In-depth reviews of Programme components had been discontinued. They had involved large amounts of work and had not been cost-effective. Instead, STAC members participated in Steering Committee meetings which enabled them to follow directly the application review process and to witness for themselves the commitment of the scientists, Steering Committee chairmen, members and secretaries. In addition, Prospective Thematic Reviews had been instituted to examine major trans-disease issues and approaches. These reviews brought together groups of outside experts and people within the Programme, many of whom had divergent views, to discuss options available in the given area. Two such reviews had already taken place, on drugs and on vectors and vector control. The reports (documents TDR/PTR-Drugs/89.3 and TDR/PTR/Vec/89.3) had been submitted to STAC for the Committee to elaborate future directions. STAC also received information from the Programme Director and the Steering Committee secretaries who had been asked to present STAC with options and their implications, to enable it to make recommendations among the various choices. In addition, STAC was in close contact with other relevant programmes in WHO, and some STAC members were also members of scientific committees connected with these programmes.

With regard to substance, TDR's challenges today could be compared with those facing experts in the early 1950s - whether to spend money on iron lungs for polio

victims or whether to invest in a vaccine for the future. The issue was one of balance among the allocation of resources for the delivery and testing of existing products, the rapid development of existing candidate products, and the development of new tools. Professor Bloom cautioned against the tendency to exploit only the delivery and testing of existing products. Basic research had to continue as an investment in the future and would be needed if the existing products failed to meet expectations.

Professor Bloom stressed the importance of social and economic research activities to help in understanding the problems with regard to drug delivery and compliance, and the FIELDLINGS programme which would assist in setting up the infrastructure needed in the developing endemic countries to carry out intervention studies, such as determining optimal dosage and treatment schedules for multidrug therapy for leprosy.

The Prospective Thematic Review on Directions and Organization of TDR's Research and Development Related to Drugs had recommended that the Programme focus and professionalize its product development activities; combine its efforts to develop drugs against diseases whose drug targets and enzymes might be similar; collaborate with industry; and focus on important promising areas, such as severe and cerebral malaria. Representatives from industry had participated in the review and had offered to assist TDR in solving specific technical questions, but industry was unwilling to take full responsibility for the development, delivery and free distribution of drugs against tropical diseases. Professional management was required within TDR to determine which activities the Programme could support in research laboratories, which issues were best handled by industry and to encourage the involvement of industry in these issues.

Professor Bloom strongly encouraged the JCB participants to invest in the future of TDR. He expressed the fervent hope that more funds would become available to the Programme, otherwise many opportunities could not be exploited. For example, if TDR were only able to pursue the development of 25 priority products, work would stop on the other 100 products some of which might prove to be better than the chosen 25. Cuts in areas such as research on the basic understanding of host-parasite interactions, or in operational research, or in research capability strengthening activities, would retard progress and opportunities to control the tropical diseases. By fulfilling STAC's mission to ensure the highest level of scientific accomplishment and integrity, TDR's efforts would hopefully lead to some effective interventions to justify continued and increased investment in the extraordinary and vital experiment of TDR.

THIRTEENTH SESSION OF THE JOINT COORDINATING BOARD

Geneva, 26 and 27 June 1990

SUMMARY OF THE FINDINGS AND RECOMMENDATIONS
OF THE COMMISSION ON HEALTH RESEARCH FOR DEVELOPMENT
AND THEIR IMPLICATIONS FOR TDR

Professor E. Ezzat, member of the Commission on Health Research for Development and Dean, Faculty of Medicine, Suez Canal University, Ismailia, Egypt, described the Commission's mandate, findings and major recommendations, and presented her views on their implications for TDR.

The Commission on Health Research for Development, an independent international initiative, had been formed in early 1987 with the aim of improving the health of people in developing countries. The focus had been placed on research in the belief that it had enormous - and in great part, neglected - power to accomplish that goal. The Commission's mandate had been to survey current research on the health problems of developing countries, to identify strengths and weaknesses and to propose improvements based on the greatest opportunities.

The major findings of the Commission showed that:

- The worldwide flow of resources supporting research on health problems of developing countries is very limited, and its application leaves large gaps. Greater amounts and more efficient application of resources are needed to support a major expansion and improvement of research activities and capacity within developing countries.

- The enormous diversity of health circumstances speaks to the importance of priority setting at the national and international levels. Several major health problems are receiving attention; others appear relatively neglected. Major gaps exist with regard to information, monitoring, and assessment of the evolving health picture. Greater coherence of research responses to high-priority problems at the national and international levels is needed.

- Developing-country scientists and institutions are pursuing a wide range of research activities, but greater productivity will require overcoming serious constraints - professional, institutional, and environmental. National commitment and international reinforcement for health research, specific actions to tackle constraints, and capacity building and maintenance within developing countries will all be necessary.

- Appropriate contributions from industrialized countries should be expanded, focusing on advanced training, research, technical interaction, and participation in international partnership arrangements. Rather than a system of new independent international centers, the major emphasis should be given to strengthening national centers and achieving "critical mass" and shared objectives through international networks of national centers.

- The number and type of international research promotion programs are growing. These constitute the beginnings of a worldwide health research system. Joint efforts by

References to the report of the Commission on Health Research for Development and quotations from it are reproduced by courtesy of the Commission. The report, entitled Health Research: Essential Link to Equity in Development, is published by Oxford University Press, New York, 1990.

United Nations agencies are noteworthy, and privately sponsored efforts have been productive. Stronger overall coherence is needed to reduce the fragmentation and competition induced by multiple, narrowly focused research initiatives.

• Far too little attention is being given to the critical importance of building and sustaining individual and institutional health research capacity within developing countries. To remedy this problem, leadership and commitment by national governments as well as longer-term support by international agencies will be necessary."

The Commission had made four major recommendations:

- essential national health research should be carried out in all countries, especially in the developing countries;
- the efforts of the developed and developing countries should be joined together in international partnerships to facilitate collaboration on priority health problems;
- greater financial support for research should be mobilized from international sources; and
- an international mechanism should be established to monitor progress and to promote financial and technical support for research on health problems of the developing countries.

The work of TDR was recognized by the Commission in its report. Professor Ezzat stressed that TDR's activities were in line with the recommendations of the Commission. For example, the Programme was strengthening the research capacity of the developing countries, and its efforts helped to establish career structures for researchers and encouraged them to remain in their home countries. Scientists participating in TDR's activities could have an input into determining national priorities and could assist in meeting national needs. The TDR network was a model of how scientific talent could be mobilized in the attack against common problems and the Programme had developed innovative financing strategies.

TDR's mandate only covered six major tropical diseases but within that mandate Professor Ezzat considered that the Programme could do more to help implement the Commission's recommendations. For example, the Programme might also wish to:

- strengthen activities which would support the essential national health research concept;
- pay greater attention to the priorities of the disease-endemic countries and collaborate more closely with their health services, and participate in meetings to determine national health research needs;
- take steps towards greater involvement in operational (or health systems) research;
- strengthen social and economic research activities to take into account the traditional, environmental, behavioural, educational and occupational factors and to establish closer links between the research and the populations and communities;
- promote training in the developing endemic countries, especially in the area of field research;
- through its institution strengthening activities, help to establish national centres to guide national health research activities;
- circulate more widely information about the Programme's progress and opportunities for collaboration; and
- devise innovative means to expand the Programme's activities.

THIRTEENTH SESSION OF THE JOINT COORDINATING BOARD

Geneva, 26 and 27 June 1990

SUMMARIES OF THE TECHNICAL PRESENTATIONS TO JCB(13)
ON BASIC RESEARCH, PRODUCT DEVELOPMENT, BEHAVIOURAL AND OPERATIONAL
RESEARCH AND STRENGTHENING DEVELOPING COUNTRY CAPACITIES:
INTRODUCTION TO TDR'S TRAINING ACTIVITIES AND THEIR IMPACT
ON RESEARCH CAPABILITY STRENGTHENING; AND
STATEMENT BY MR V. RAJAGOPALAN, VICE PRESIDENT FOR SECTOR POLICY
AND RESEARCH, THE WORLD BANK, WASHINGTON, D.C., USA

1. BASIC RESEARCH

Dr C. M. Morel, Head of the Department of Biochemistry and Molecular Biology, Oswaldo Cruz Institute, Oswaldo Cruz Foundation, Rio de Janeiro, Brazil; Chairman of the TDR Research Strengthening Group, described a researcher as someone who had to seek beyond the appearance of things, and stressed that ideas and leads did find practical applications. Basic research was like an iceberg. The tip of the iceberg represented the visible part of research, the part which had practical applications, but its existence was crucially dependent on the invisible part, which was basic research. It was very difficult to dissociate basic research from applied research.

Dr Morel gave examples of basic research carried out at the Oswaldo Cruz Institute which had led to practical applications. Carlos Chagas from the Oswaldo Cruz Institute had been sent to study a malaria outbreak in Brazil and instead had discovered Chagas disease. In line with the recommendations of the Commission on Health Research for Development, his work was an example of research carried out in a developing country which had direct relevance to the country and which received strong national support and prestige, e.g. by portraying on Brazilian banknotes pictures of Carlos Chagas, Oswaldo Cruz - the creator and first director of the Institute, and pictures of the Institute itself.

Researchers at the Institute had studied the Trypanosoma cruzi parasite mainly because they were fascinated by it and the research had led to practical application in the development of a method to characterize T. cruzi. Close research collaboration and linkages had been established with other institutes in the south and in the north. The new method had been recognized by TDR/WHO.

Studies at the Institute had continued on Trypanosoma cruzi and Leishmania isolates in collaboration with the University of California. As a result of the polymerase chain reaction (PCR) and of the previous work at the Institute, a method was being developed for the detection of T. cruzi in blood.

Another example was the development of a simple apparatus for feeding blood to one of the kissing bugs that transmitted Chagas disease. Using this apparatus it was possible to perform experiments on the bugs in the laboratory. Research using monoclonal antibody had led to studying the reaction of drugs on the bugs. One such drug, azadirachtin, had shown to prevent the parasite growing in the bugs.

The Oswaldo Cruz Institute followed closely developments in laboratories in the north, the results of which could be useful to the researchers at the Institute. As an example, Dr Morel referred to the system for stable transfection of Leishmania which had been developed by the group led by Dr D. Wirth at the Harvard School of Public Health, Boston, Massachusetts, USA. This system opened up a new field which would generate many new leads.

Dr Morel considered that it was impossible to separate basic research from product development, both were important and there should be close collaboration between the two

areas. The Oswaldo Cruz Institute supported both basic research and product development and a biotechnology centre was under construction. Examples of products already produced at the Institute were yellow fever vaccines (which were part of a programme in collaboration with the Rockefeller Foundation, New York, USA) and kits for the immunodiagnosis of leptospirosis.

Dr Morel emphasized that TDR should continue to support researchers who could see beyond the appearance of things to discover new realities in the areas of laboratory science, social science, field work and epidemiology. The ideas and the work of these people were crucial for future development. He also supported the statement in the Report of the Commission on Health Research for Development - "the major health problems of humanity can be addressed most effectively through the cooperative efforts of scientists around the world, and we therefore recommend that developing and industrialized countries and international agencies promote the steady growth of collaborative international research networks as the principal means for mobilizing scientific talent to attack common problems".

2. PRODUCT DEVELOPMENT

Dr P. Reeve, former Executive Vice-President, Research and Development, Invitron Corporation, Redwood City, California, USA, referred to the need to strengthen TDR's product development activities in the 1990s. Products were emerging from research and needed development but there was limited industrial support in this area - TDR had to fill the gap. He referred to the stages of product development from research to preclinical development, clinical development, registration and product delivery, and the timeframe of between 8 to 12 years for a product to reach the stage of delivery. Pharmaceutical product development was an extremely complex procedure requiring expertise and disciplines beyond those needed for research and requiring careful planning, coordination and management. It was proposed to focus this expertise in a Product Development Unit (PDU) for two reasons:

- because many research activities and product distribution were disease-specific but many features of drug development were common to more than one disease regardless of the therapeutic or prophylactic application; and
- because development was guided by strict legal, ethical and regulatory requirements which had to be followed.

The Unit would operate within the established structure of TDR. The Steering Committees would remain the key bodies to identify and provide technical resources for product development, and the PDU would coordinate and support their activities in this area, and undertake the development of a few high-priority products in close collaboration with the Committees. The Unit would manage the aspects of product development between research and product registration, plan and coordinate all the activities which comprised product development, and act as a link between the groups involved in the control of tropical diseases.

Three of the main challenges of the Unit would be: where to obtain the compounds for product development; how to select potential products, as TDR's limited resources would be unable to cover the costs of all discoveries; and how to increase the involvement of the developing countries in product development so as to lessen their dependence on the developed world.

There were several ways in which the Unit would try to reduce the cost of product development. It would take advantage of existing products which could be adapted to TDR's needs, and would continue to work closely with industrial concerns on such specific applications. Several companies had already expressed their support and interest. Wherever possible the Unit would seek those products already in advanced development which could be directed specifically towards tropical disease control. If necessary, the Unit could consider undertaking the entire development of novel products but the costs,

benefits and priorities would have to be very carefully evaluated. Different stages of the process could be done by contract. All proposals for product development would be subject to review and approval by a product development group. This would consist of appropriate external experts, TDR professional staff, with the head of the PDU acting as secretary, and the group would act in an advisory capacity to Director TDR.

Some research, screening, synthesis, clinical and field trials, registration of new products and a limited amount of product manufacturing were already being carried out in the developing countries but the Unit would take further steps to increase the involvement of these countries in product development. For example, the Unit would seek to:

- increase goal-oriented research in the disease-endemic countries;
- expand existing drug screening efforts and establish the technical resources required to develop products in tropical countries;
- use biotechnology and other scientific institutes established in the developing regions in the scale up and synthesis of products for development; and
- manufacture products for in vitro diagnostics in developing regions and expand interests in manufacturing biologicals in disease-endemic areas.

The proposed Unit would have three professional posts for (a) biotechnology (primarily vaccine development but also diagnostics); (b) drug development; and (c) biological control of vectors: a professional post for data management relating to product development; and three general service staff (secretarial posts). All these posts would be made available through reallocation of existing or vacant posts in the Programme.

To finance the costs of approved development projects, it was proposed to establish a special budget by reallocation of existing funds. The overall costs of the proposed new initiatives recommended by the Scientific and Technical Advisory Committee were US\$ 3 million for the 1992-1993 biennium, about 10% of TDR's total budget. The main thrusts of the Programme's activities would remain in the research areas but there would be a significant commitment to the tasks of product development.

Further details on the Unit are contained in document TDR/JCB(13)/90.12.

3. BEHAVIOURAL AND OPERATIONAL RESEARCH

Dr M. A. Lansang, Head, Department of Epidemiology and Biostatistics, Research Institute for Tropical Medicine, Metro Manila, Philippines; currently Coordinator of the TDR Programme on Field Research Networks in Asia, referred to the products being developed by TDR and emphasized that the products themselves were insufficient as a measure of success - TDR had to deliver them to intervention and control programmes. What would make or break the products would be the people receiving them and the people delivering them. Research studies on the social, economic and operational aspects of disease control were an important part of TDR's mandate. The new technologies had to be relevant, affordable, acceptable and applicable to the needs of the people.

Operational research was basically a multidisciplinary approach which used techniques from areas such as health economics, social sciences, epidemiology and management sciences. This type of research was most often situated in the context of the health services themselves, broadly aimed at improving the delivery of services that were already operational. In this situation, the new Division of Control of Tropical Diseases (CTD) worked closely with Ministries of Health to help correct operational problems and seek efficient and effective solutions. However there were central issues in the interface between TDR and CTD which should be addressed by TDR in collaboration with CTD and the users of TDR's products.

To illustrate some of the fundamental operational research questions which had to be answered, Dr Lansang referred to the experience gained from the use of the drug ivermectin for the treatment of onchocerciasis, as TDR had been involved in its research and development. Ivermectin was safe and could be made available at no cost to communities and control programmes. The challenge was to devise mechanisms for its delivery within the resources and capabilities of an actual health system. One country had been granted a large supply of the drug but this was nowhere near the amount required to treat all the people who needed it. Therefore questions would arise on equitable distribution and what strategy should be used. TDR should continue to support operational research using tools like modelling and economic analysis to plan and evaluate control strategies which could be used as general guidelines in such situations.

The second major area of research involved drug and service delivery. Even if the country had drugs for all the patients and the health workers to provide the health services, how would they proceed? Decisions would have to be made on such issues as the route of delivery, the type and skills of health workers needed, retreatment frequency and monitoring for side-effects.

Another important area of research involved the actual users and their interaction with the health workers. Behavioural research was clearly important in the study of beliefs and practices which would hinder or enhance the use of the health care facilities and the products, and community involvement could be improved if the health workers understood the people's views. The cost in time and money incurred by patients receiving treatment had to be taken into account. Behavioural research and cost-utility analysis could help to determine the extent to which these factors affected control programmes and what measures could reduce negative conditions.

There were of course major costs incurred on the side of the health providers. Delivery costs were considerable even if the product were provided free of charge. Some cost-recovery mechanisms could be considered, such as a minimal payment for the product, as health workers in the field had observed that people placed a higher value on treatment for which they had to pay. Demonstration projects would be useful to show whether cost-recovery schemes were achievable and what would be the overall impact on the people's health status.

In the case of ivermectin, TDR could help to set up a monitoring system to evaluate the overall impact of therapy.

Some of the questions to be answered with regard to the delivery of ivermectin against onchocerciasis were common to treatment against other diseases, e.g. schistosomiasis, but in the case of malaria the use of new control tools was different. An economic evaluation carried out in one country had shown that there were considerable manpower, supply and time costs incurred in the diagnosis of malaria in a malaria control service. However, a major area of behavioural and operational research was the health-seeking behaviour of the people once malaria had been diagnosed, whether correctly or incorrectly. In the light of growing resistance to antimalarial drugs and the significant mortality from severe malaria, continuing support was needed for research on such areas as self-medication, prompt treatment seeking, satisfaction with the health services provided and compliance with medication. Community participation programmes for integrated control strategies needed to be carried out and evaluated. It was very important to understand the people's beliefs and perceptions of malaria and to develop with them appropriate interventions.

As other products were developed against the tropical diseases, new research problems might arise in terms of delivery, affordability and acceptability. The findings of a demonstration project in one country could not all be transferred to another setting, but lessons could be learned from all operational research projects.

Dr Lansang reiterated that much of the operational research which TDR could do should be in partnership with CTD and in collaboration with other relevant WHO

programmes. However, the most important partners were the people of the endemic countries who would hopefully take up the challenge to carry out these important research studies as part of their essential national health research.

4. STRENGTHENING DEVELOPING COUNTRY CAPACITIES

Professor M. B. Concepcion, Professor of Demography, Population Institute, University of the Philippines, Diliman, Quezon City, Metro Manila, Philippines, described the three challenges facing TDR with regard to research capability strengthening in health-related social sciences:

- to motivate the social scientists (anthropologists, communicators, demographers, economists, psychologists, sociologists and others) to engage in research on health problems, particularly in tropical diseases;
- to improve the capabilities of individual social scientists to address tropical disease problems through research; and
- to increase the present number of social scientists undertaking research in tropical diseases.

Various strategies were necessary to meet these challenges. Professional and career development of social scientists could be assisted through health-oriented training at the Masters', Ph.D. and postdoctoral levels. The training could be integrated with specific research activities and be backed up by workshops to bring social and biomedical scientists together to learn about the specific phases of the research process and to solve common problems. It was also important to increase the "critical mass" of social scientists and to overcome their feelings of intellectual isolation through such means as:

- conferences or meetings on particular problems for the exchange of information;
- workshops to plan research which should be linked to national health plans and programmes to ensure the scientists' involvement in action programmes and facilitate their access to decision-makers;
- research grants which would serve to:
 - provide incentives to social scientists to engage in tropical disease research;
 - involve young researchers early in their careers; and
 - convince social scientists of the need for social engineering and of the important contribution of research to facilitate field interventions;
- easy access to literature, especially in languages other than English;
- sabbatical leave or awards to enable social scientists to work with others in different field situations; and
- international awards to young scientists for distinguished contributions to country-specific research related to the national health programme.

Professor Concepcion encouraged contributing agencies to make a long-term commitment (10-15 years) to the support of social science and health institutions, and considered that the impact of their investments could be enhanced if they were flexible and did not impose any single model on research capacity development and strengthening, and if they covered broader subject areas and adapted their procedures to local requirements.

It was also important that social science career structures were on a parallel level with biomedical personnel within health establishments, medical faculties and research institutes. This would permit greater interaction and collaboration among social science, epidemiology and biomedical researchers at the national level. Networking was also crucial to provide international support and communication for social and biomedical scientists and at the same time to strengthen national research capacities. Finally, staff exchanges should be facilitated among developing country institutions, as well as twinning arrangements between developing and developed country institutions.

5. TDR'S TRAINING ACTIVITIES AND THEIR IMPACT ON RESEARCH CAPABILITY STRENGTHENING

Dr J. Hashmi, Responsible Officer for Research Capability Strengthening, TDR, reported on the major findings of the Study of TDR Research Training Grants [contained in document TDR/JCB(13)/90.6]. The study had been carried out as a result of the request by JCB(11) in 1988 for an in-depth analysis of TDR's training activities and their impact on research capability strengthening. The study had focused on 320 grantees from 42 countries who had received awards of nine months or more, and included a detailed questionnaire and five country case studies. Twenty-seven per cent of the grantees had studied for a Ph.D., 37% for a Master's degree, 22% for postdoctoral training and 14% for other types of training. The most common fields were parasitology, entomology, immunology, epidemiology and social sciences. The academic performance of the grantees had been good with 87.7% successfully completing their Ph.D. and 84.5% their Master's degree. There had been a very high return rate with 90% of the grantees going back to their countries and sponsoring institutions.

Most of the grantees were still active in their field of study. It had not been possible to carry out an assessment of the scientific productivity of the grantees on their return home, apart from using such measures as the number of publications and research grants subsequently obtained by the grantees. From the information covered through the questionnaire and the country studies, almost 70% of the respondents who had completed a Ph.D. or Master's degree had been successful in obtaining grants nationally or internationally and the same percentage had published articles in international journals.

In the country case studies, the institutional directors had expressed considerable satisfaction that the trainees had been able to bring competence to the institutions in terms of designing new projects, instigating new techniques, training other scientists and generally improving the level of scientific expertise in the institutes.

The study was basically a retrospective one as several policy changes had been made recently which affected TDR's research training activities. Many of the detailed recommendations of the study had already been implemented or were under consideration by the Research Strengthening Group and the Secretariat.

Dr Hashmi outlined some of the important issues currently facing the training component of the Programme. A major challenge was the selection of the best applicants who had a commitment to tropical disease research. TDR was very conscious of the problems facing the trainees on their return home and was making efforts to reduce their feelings of scientific isolation. The Programme proposed to phase out support for Master's level training except in the case of trainees from the least developed countries. In countries with good scientific infrastructure, TDR would only provide training at the graduate level. Training in social science continued to be a challenge to the Programme and the advice given by Professor M. B. Concepcion in this area would be taken into account. In view of the high cost of graduate training in the developed countries, TDR would make every effort to develop, strengthen and use facilities for such training within the developing countries themselves, allowing only the necessary period in the developed countries to acquire specialized techniques not available elsewhere.

6. STATEMENT BY MR V. RAJAGOPALAN, VICE PRESIDENT FOR SECTOR POLICY AND RESEARCH,
THE WORLD BANK, WASHINGTON, D.C., USA

Mr Rajagopalan referred to the main challenges facing TDR in the 1990s: to find ways to lower the cost of existing research products and their delivery; to accelerate the development of new products; and to further enhance the quality and the effectiveness of research in the least developed countries. In addition, decisions had to be made on the balance among basic research, product development and operational research. Research was critical but it had to be translated into tools which could ultimately be applied in the real settings of disease control programmes. The World Bank believed that research had to be accompanied by a renewed effort to establish tropical disease control activities in the endemic areas. Disease control programmes around the world had not received sufficient attention in spite of the epidemiological significance of the diseases, their economic impact in the rural and urban settings, and most importantly the immense human suffering they caused.

The Bank had recently initiated a study on government expenditures for tropical disease control, the preliminary results of which had shown that such programmes received a low level of funding and were vulnerable to sudden changes in budgetary allocations. Therefore, in parallel with its support to TDR, the Bank had decided to place greater emphasis on funding and strengthening appropriate tropical disease control programmes, especially with regard to malaria. Lending allocations and resources had been increased to human resource development in general and to population, health and nutrition projects in particular. Approximately 25% of the lending for health projects in the population, health and nutrition sector went to disease control types of projects. The Bank was pleased with the reorganization within WHO to establish the Division of Control of Tropical Diseases in parallel to TDR. This served as a demonstration of WHO's commitment to strengthen control programmes, especially in the area of malaria control where greater support was urgently needed.

The Bank welcomed TDR's planned directions for the 1990s and the concept of the Product Development Unit. Mr Rajagopalan hoped that the Unit, under careful management and with realistic expectations, would encourage the involvement of the pharmaceutical industry and speed up the delivery of products to the people who needed them. However, the strength of TDR was its network of participating scientists throughout the world which should continue to provide the basis for TDR's evolution.

TDR's main constraint was its limited financial resources so priorities had to be set, with a balance between existing and new activities. The question of continuing support to all the TDR target diseases might have to be raised in the context of the next quinquennial review, especially with regard to tuberculosis which was outside TDR's mandate. Dr T. Godal had already referred to the advantages of exploring possibilities for the development of tools against both leprosy and tuberculosis. The Bank was confident that TDR would be able to set realistic priorities and would be prepared to assist in this process if required.

The World Bank had supported TDR for many years and would continue to do so. It was pleased with the Programme's approach and development and strongly endorsed TDR's goals to develop tools to control the tropical diseases which continued to threaten the well-being and productivity of millions of people who deserved a better future.

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

THIRTEENTH SESSION OF THE JOINT COORDINATING BOARD

Geneva, 26 and 27 June 1990

FINANCIAL STATUS 1988-89
 ESTIMATED FINANCIAL STATUS 1990-91
 FORECAST FINANCIAL STATUS 1992-93 (US\$000)

	1988-89 ACTUAL	1990-91 ESTIMATE	1992-93 FORECAST 1	1992-93 FORECAST 2	1992-93 FORECAST 3
<u>SOURCE OF FUNDS</u>					
OPENING BALANCE - 1 JAN	8,888.6	8,195.6	1,005.4	1,005.4	1,005.4
<u>ACTUAL/ESTIMATED INCOME</u>					
CONTRIBUTIONS	57,754.0	61,000.0	62,750.0	62,750.0	62,750.0
INTEREST	3,245.7	2,000.0	2,000.0	2,000.0	2,000.0
OTHER INCOME	1,002.0	1,000.0	1,000.0	1,000.0	1,000.0
TOTAL FUNDS AVAILABLE	70,890.3	72,195.6	66,755.4	66,755.4	66,755.4
FUNDING GAP		1,750.0		7,200.0	12,200.0
TOTAL FUNDS REQUIRED	70,890.3	73,945.6	66,755.4	73,955.4	78,955.4
<u>APPLICATION OF FUNDS</u>					
OBLIGATIONS/BUDGET	62,694.7	72,940.2	65,755.4	72,955.4	77,955.4
CLOSING BALANCE - 31 DEC	8,195.6	1,005.4	1,000.0	1,000.0	1,000.0
TOTAL APPLICATIONS	70,890.3	73,945.6	66,755.4	73,955.4	78,955.4

ALL 1992-93 FORECASTS: Estimated Contributions equal 1990-91 Estimated Contributions (US\$ 61.0 M.) plus 1990-91 Funding Gap (US\$ 1.75 M.); Closing Balance set at (US\$ 1.0 M.).

1992-93 FORECAST 1: No increase in contributions over 1990-91.

1992-93 FORECAST 2: Funding gap equals amount required to fund budget of US\$ 73.0 M.

1992-93 FORECAST 3: Funding gap equals amount required to fund budget of US\$ 78.0 M.

THIRTEENTH SESSION OF THE JOINT COORDINATING BOARD

Geneva, 26 and 27 June 1990

MEMBERSHIP OF THE JOINT COORDINATING BOARD
(as of 1 January 1991)

List of Tenures

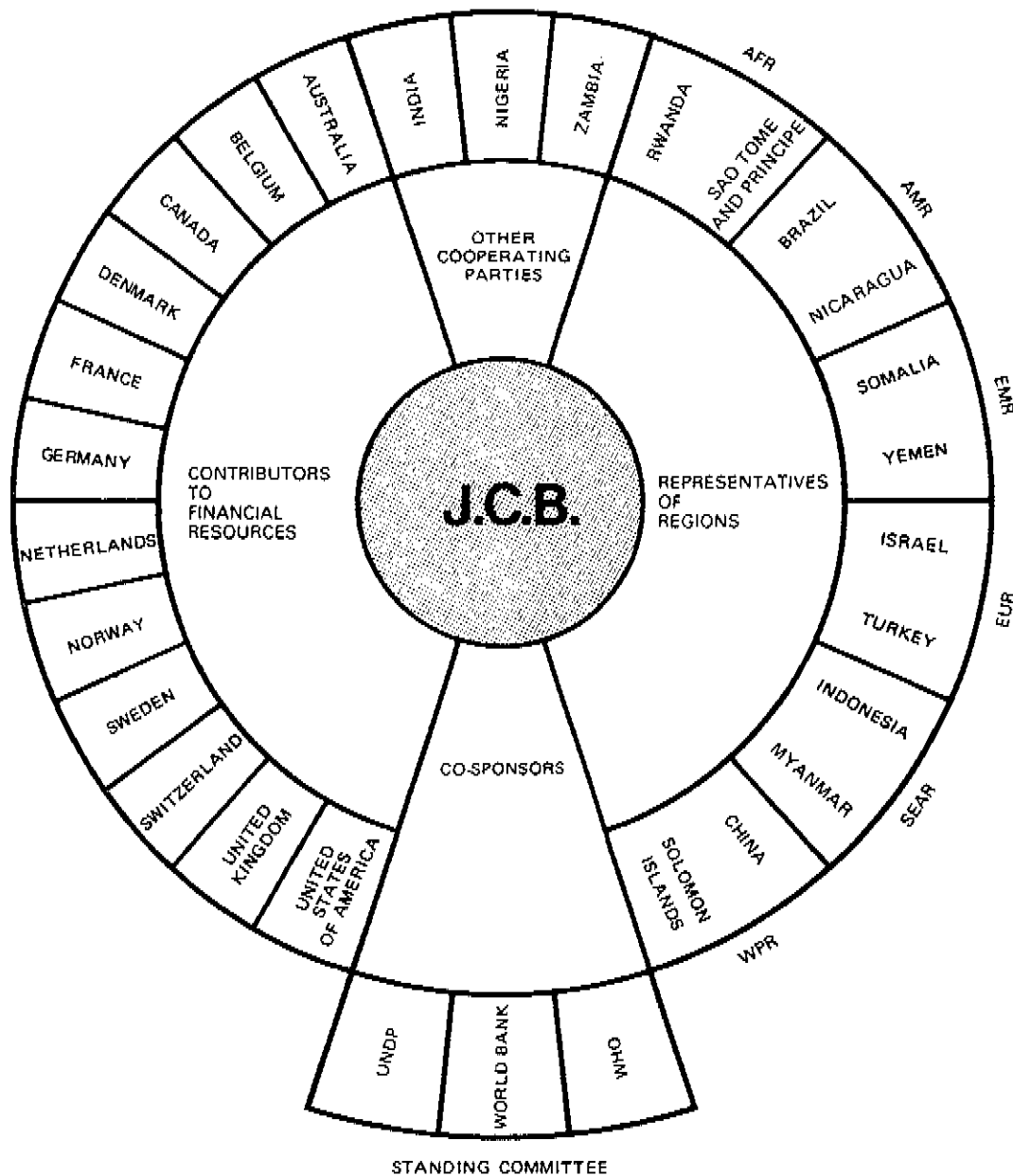
Australia	to 31 December 1993
Belgium	to 31 December 1991
Brazil	to 31 December 1991
Canada	to 31 December 1992
China	to 31 December 1991
Denmark	to 31 December 1992
France	to 31 December 1991
Germany	to 31 December 1992
India	to 31 December 1991
Indonesia	to 31 December 1991
Israel	to 31 December 1992
Myanmar	to 31 December 1992
Netherlands	to 31 December 1993
Nicaragua	to 31 December 1992
Nigeria	to 31 December 1993
Norway	to 31 December 1991
Rwanda	to 31 December 1991
Sao Tome and Principe	to 31 December 1992
Solomon Islands	to 31 December 1992
Somalia	to 31 December 1991
Sweden	to 31 December 1992
Switzerland	to 31 December 1993
Turkey	to 31 December 1991
United Kingdom	to 31 December 1991
United States of America	to 31 December 1993
Yemen	to 31 December 1992
Zambia	to 31 December 1992

United Nations Development Programme
World Bank
World Health Organization

Figure 1

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

Membership of the Joint Coordinating Board (JCB)
(as of 1 January 1991)



THIRTEENTH SESSION OF THE JOINT COORDINATING BOARD

Geneva, 26 and 27 June 1990

MEMBERSHIP OF THE SCIENTIFIC AND TECHNICAL ADVISORY COMMITTEE (STAC)
(as of 1 January 1991)

<u>Name and Title</u>	<u>Term of Appointment</u>
BEHBEHANI, Prof M. K., Vice-Rector for Research, University of Kuwait, Safat, <u>KUWAIT</u>	to 31 December 1993
BLOOM, Prof B. R., Professor and Chairman, Department of Microbiology and Immunology, Albert Einstein College of Medicine of Yeshiva University, New York, N.Y., <u>UNITED STATES OF AMERICA</u>	to 31 December 1992
*BOLIVAR ZAPATA, Prof F. G., Director and Professor of Molecular Biology, Research Center for Genetic Engineering and Biotechnology, National University of Mexico, <u>MEXICO</u>	to 31 December 1991
BRENER, Prof Z., Chief, Laboratory of Chagas Disease, Centro de Pesquisas "René Rachou", Fundação Oswaldo Cruz, Belo Horizonte, <u>BRAZIL</u>	to 31 December 1991
CAPRON, Prof A. R., Director, Centre for Immunology and Parasite Biology, Pasteur Institute, Lille, <u>FRANCE</u>	to 31 December 1991
CASTILLO, Prof Gelia T., Professor of Rural Sociology, Department of Agricultural Education and Rural Studies, College of Agriculture, University of the Philippines, Laguna, <u>PHILIPPINES</u>	to 31 December 1991
**GABR, Prof M., Head, Paediatric Department, Faculty of Medicine, Cairo University, Cairo, <u>EGYPT</u>	to 31 December 1991
GARATTINI, Prof S., Director, "Mario Negri" Institute for Pharmacological Research, Milan, <u>ITALY</u>	to 31 December 1993
HOL, Prof W. G. J., Assistant/Associate Professor, Department of Chemistry, University of Groningen, Groningen, <u>NETHERLANDS</u>	to 31 December 1992
*LEE, Prof K., Director, Centre for Health Planning and Management, School of Management and Economics, University of Keele, Keele, <u>UNITED KINGDOM</u>	to 31 December 1991
*LE TOUZE, Dr D. M., Senior Scientist, Health Sciences Division, International Development Research Centre, Ottawa, <u>CANADA</u>	to 31 December 1991
MÄKELÄ, Prof P. Helena, Director, Bacteriology Department, National Public Health Institute, Central Public Health Laboratory, Helsinki, <u>FINLAND</u>	to 31 December 1992

*Co-opted

**Co-opted in his capacity of Chairman of the WHO Global Advisory Committee on Health Research

STAG MEMBERSHIP (1991) (continued)

<u>Name and Title</u>	<u>Term of Appointment</u>
MILLER, Dr L. H., Head, Malaria Section, Laboratory of Parasitic Diseases, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, Maryland, <u>UNITED STATES OF AMERICA</u>	to 31 December 1991
MOLYNEUX, Prof D. H., Chairman of Department and Professor of Biology, Department of Biological Sciences, University of Salford, Salford, <u>UNITED KINGDOM</u>	to 31 December 1993
OVERATH, Prof P., Director, Max-Planck-Institute for Biology, Tübingen, <u>GERMANY</u>	to 31 December 1991
PIKE, Prof M. C., Visiting Professor of Preventive Medicine, School of Medicine, University of Southern California, Los Angeles, California, <u>UNITED STATES OF AMERICA</u>	to 31 December 1992
RAJEWSKY, Prof K., Professor of Molecular Genetics, Science Faculty, University of Cologne, Cologne, <u>GERMANY</u>	to 31 December 1992
RAMACHANDRAN, Prof J., Director, Astra Research Centre India, Bangalore, <u>INDIA</u>	to 31 December 1992
SALAKO, Prof L. A., Head, Department of Pharmacology and Therapeutics, University of Ibadan, Ibadan, <u>NIGERIA</u>	to 31 December 1993
SERGIEV, Dr V. P., Director, Martsinovskiy Institute of Medical Parasitology and Tropical Medicine, Moscow, <u>USSR</u>	to 31 December 1992
SHIMAO, Dr T., Medical Director, Japan Anti-Tuberculosis Association, Tokyo, <u>JAPAN</u>	to 31 December 1993

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