

TDR/PB/86-84 L

SEVENTH PROGRAMME REPORT
APPROVED PROGRAMME BUDGET
FOR THE 1986-1987 BIENNIUM AND
ESTIMATES FOR 1988-1989

27 JUNE 1985

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

APPROVED PROGRAMME BUDGET FOR THE 1986-1987 BIENNIUM AND ESTIMATES FOR 1988-1989

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LIST OF ABBREVIATIONS AND SYMBOLS

BCV	Biological Control of Vectors	STAC	Scientific and Technical Advisory Committee
BIOS	Biomedical Sciences	STFC	Scientific and Technical Review Committee (of STAC)
CHEMAL	Chemotherapy of Malaria	SWG	Scientific Working Group
DIF	Director's Initiative Fund	TDR	Special Programme for Research and Training in Tropical Diseases (Tropical Diseases Research)
FIELDMAL	Applied Field Research in Malaria	THELEP	Chemotherapy of Leprosy
IMMAL	Immunology of Malaria	UNDP	United Nations Development Programme
IMMLEP	Immunology of Leprosy	WHO	World Health Organization
JCB	Joint Coordinating Board	P	Professional Staff
MISTR	Management Information System (of TDR)	GS	General Services Staff
OCT	Onchocerciasis Chemotherapy Project	n.a.	A calculation cannot be made or the results of a calculation are meaningless
RSG	Research Strengthening Group		
SER	Social and Economic Research		

1. PROGRAMME SUMMARY

1.1 Objectives

The Special Programme for Research and Training in Tropical Diseases (TDR) is an international response to major health problems of developing countries in the tropics. The Programme was planned and initiated by the World Health Organization (WHO), with the assistance and co-sponsorship of the United Nations Development Programme (UNDP) and the World Bank (the Bank). TDR operates under the guidance of and with the resources provided by its Cooperating Parties, whose representatives meet as the Joint Coordinating Board (JCB).

The Programme promotes and coordinates the participation of the world's scientific community towards two interdependent objectives:

- to develop new and improved tools to control six tropical diseases: malaria, schistosomiasis, filariasis (including river blindness or onchocerciasis), trypanosomiasis (both African sleeping sickness and the American form, Chagas' disease), leishmaniasis and leprosy; and
- to strengthen the research capabilities, including training, in the tropical countries.

1.2 Organization and Operation

Governments and national research institutions participate with the Programme's co-sponsors at all levels of TDR's management, operations and evaluation.

The Programme's Administrative and Technical Bodies include:

The United Nations Development Programme The World Bank
The World Health Organization

The Programme's Research and Development activities fall within six disease and three trans-disease Components. National scientists, working together as Scientific Working Groups, establish goal-oriented plans for each Component. The research projects which bring these plans into operation are carried out by scientists at national institutions. Steering Committees composed of 6-8 scientists and members of the secretariat manage the operations of each Scientific Working Group.

The Research Capability Strengthening activities are guided by the Research Strengthening Group (RSG), which reviews and makes recommendations on institution strengthening and training activities. The RSG also monitors and evaluates the implementation, operation and progress of these activities.

Co-sponsorship, a unique feature of the Special Programme, enables TDR to draw upon the experience and expertise of three agencies: the UNDP, the World Bank, and WHO. UNDP and the Bank became co-sponsors of the Special Programme in 1976 and 1977, respectively, and the Tropical Diseases Research Fund began to operate at the Bank in April 1978, following the signature of the "Tropical Diseases Research Fund Arrangements" between the Bank and WHO.

It took almost three years of negotiations to establish the modus operandi of the Special Programme. While the appropriateness of the Programme's objectives was never in doubt, the concept that TDR would operate through a network of existing national institutions and their

- the Joint Coordinating Board (JCB),
- the Standing Committee (the three co-sponsors), and
- the Scientific and Technical Advisory Committee (STAC) - a multidisciplinary group of scientists serving in their personal capacities to advise the JCB on the scientific and technical priorities of TDR and evaluate its progress.

The co-sponsors and 35 governments and other organizations endorsed these management structures on 2 February 1978 in a Memorandum of Understanding (TDR/CP/78.5) which describes their functions, composition and operation.

The JCB and the STAC meet at least annually with the meeting of the STAC preceding that of the JCB by about three months. The Standing Committee meets at least twice each year.

JOINT COORDINATING BOARD: Membership on 1 January 1985:

Argentina	Mauritius
Australia	Mexico
Belgium	Netherlands
Brazil	Norway
Burma	Republic of Korea
Canada	Sudan
Denmark	Sweden
France	Switzerland
Germany, Federal	Thailand
Republic of	Turkey
India	United Kingdom
Italy	United States of America
Malaysia	Venezuela
Mauritania	Yemen

scientists raised many questions: Would institutions and scientists from many different countries be willing to work together? How could goals and priorities be established? How could the proposed world-wide scientific network be managed? How could related activities in many disparate institutions be coordinated?

Today the network pervades every aspect of TDR operations, from peer reviews of projects by individual scientists to policy decisions that are taken by the Joint Coordinating Board. From the start of scientific activities in 1977 up to 31 December 1984, TDR has supported over 2000 projects in 100 WHO Member States, and over 4000 scientists and health administrators from 125 countries have taken part in the planning, execution and evaluation of the Programme.

The enthusiastic participation of the world's scientific community is in itself a measure of the success of the TDR network. The diversity of involvement is illustrated not only by the geographical, cultural and social spectrum of the 125 collaborating countries but also by the variety of scientific disciplines participating in the network, from social science field research in tropical villages to molecular biology in highly sophisticated research laboratories.

1.3 Policy Framework

TDR was established in 1975 in response to Health Assembly resolution WHA27.52, and initial plans were endorsed in resolution WHA29.71. In 1977, in response to the first progress report (document A30/11), the Thirtieth World Health Assembly (resolution WHA30.42) invited the Director-General to use budgetary provisions according to priorities approved within the Programme. The Director-General reported on further progress to the Thirty-third World Health Assembly (1980) which requested him to continue the development and operation of TDR according to

the plans in his report, and to continue to make budgetary provisions for it (A33/VR/17). Following an evaluation by its Programme Committee, the WHO Executive Board, at its 71st session in January 1983, endorsed the Programme, its structure, and the evaluation mechanisms built into it and requested the Director-General to study, with the executive heads of the two co-sponsoring agencies, means of increasing the level of financial contributions (EB71.R10).

The Special Programme operates within the policy and programme framework of the World Health Organization and is regularly reviewed by the World Health Assembly, the Executive Board, and the Regional and Global Advisory Committees on Medical Research. The Programme's strategies and priorities are developed and coordinated within this framework, and TDR is operated, reviewed and evaluated through the management mechanisms established by the JCB, the Standing Committee and STAC, as described in section 1.2.

1.4 Scientific and Technical Status (31 December 1984)

Scientific and technical progress has continued to accelerate due to the momentum achieved over the past eight years. Details of the scientific progress and plans of each Programme Component can be found in the Seventh Programme Report of TDR and are summarized with the individual Component budgets in sections 5 and 6 of this document.

Up to 31 December 1984, TDR's research and development efforts, which have brought several products to, or close to, the stage of field use, have cost less than US\$ 100 million - a fraction of the drug development costs reported by industry (US\$ 60-80 million per drug). On this basis alone, the TDR network would appear to be an

coordinate, through its world-wide network, the activities involved in every stage of this process. The development of new antimalarial drugs and potential vaccines against leprosy and malaria are typical examples of such collaboration and coordination.

1.5 Financial Status (31 December 1984)

By the end of 1984, 29 governments (including those of 11 developing countries) and 12 other organizations, together with UNDP, the World Bank and WHO, had contributed over US\$ 158 million to the Programme.

At its Sixth Session in June 1983, the Joint Coordinating Board approved a maximum budget of US\$ 66.7 million for 1984-1985, to permit the Programme to maintain its momentum and exploit the opportunities before it. However, since it again appeared unlikely that funds available would reach that sum, JCB(6) also approved the continuation of the contingency Plan of Financial Management which was first approved by JCB(3).

The estimates as of 31 December 1984 were that the funds available during the 1984-1985 biennium would reach about US\$ 46.2 million.

To the maximum extent possible, the estimated shortfall continues to be managed by scaling down management costs, the use of consultants, the amount of duty travel and the number and size of meetings. However a serious impact in Operations has occurred and the number of active projects decreased during 1984. This decrease in scientific and technical activities will continue unless the resource picture improves and section 3 of this document contains analyses of the impact of the shortfall in available funds. However the Programme continues to move ahead

effective mechanism for product development. Costs are kept low through the sharing of resources by the institutions, organizations and industrial firms participating in the network. Universities, government ministries and institutions, and public and private companies all contribute knowledge, manpower, facilities and operating costs to the collaborative efforts coordinated by TDR.

Academic centres frequently provide the basic knowledge and the leads required for new technology. Industry develops the product to the stage of early trials in man, and academic centres and ministries of health in tropical countries then carry out the later phases of clinical and field testing.

The "on site" participation of tropical countries in the research and development process increases the chances of new technologies being locally appropriate and acceptable. Methods of controlling tropical diseases must be evaluated in the endemic countries themselves, and the participation of these countries as full partners in research and development greatly facilitates both the clinical testing and subsequent deployment of new methods by national health services. TDR's unique role is to

through the judicious use of available funds.

1.6 The Future

At a cost of less than US\$ 75 000 a day, TDR has catalysed academia, industry, and government ministries and institutions to collaborate and produce new methods for the control of tropical diseases. If this investment were increased by 25%, a steady stream of new therapeutic and diagnostic technology could emerge over the next five to ten years to help the tropical countries in their struggle against their endemic diseases.

The initial success of the Programme has created new responsibilities for TDR and for WHO, the Programme's Executing Agency. TDR and WHO are now looked upon as coordinators and facilitators among the growing number of national and international tropical disease research programmes. These new responsibilities have increased the scope and magnitude of the activities of the Programme secretariat and have created opportunities to increase even further the effectiveness of WHO and the TDR network in the fight against the six tropical diseases.

2. DEVELOPMENT AND PRESENTATION OF THE PROGRAMME BUDGET

2.1 Development

The sequence for the development of the TDR Programme Budget is as follows:

(1) The SWG Steering Committees (for Research and Development) and the Research Strengthening Group (for Research Capability Strengthening) modify existing or develop new scientific and technical plans for the forthcoming financial period.

(2) Draft budgets for Programme Areas are prepared:

(a) For the Research and Development (R&D) Programme Area, the Steering Committee and the secretariat translate the scientific and technical plans into a preliminary Programme Budget for each SWG and associated Programme Components (e.g. Duty Travel).

(b) The RSG and the secretariat develop a preliminary Programme Budget for the Research Capability Strengthening (RCS) Programme Area.

(c) The secretariat prepares a preliminary Budget for the Technical and Administrative Bodies and for Programme Management.

(3) The Programme Director consolidates the preliminary submissions into a draft Programme Budget following guidelines established by the Standing Committee and the JCB.

(4) STAC reviews the draft Programme Budgets for R&D and for RCS, revising as appropriate.

project operational budgets.

2.2.3 JCB-Approved Budget and Budget Revision

In many of the 1986-1987 budget tables there are two entries for the 1984-1985 approved Budget: "JCB-approved" and "latest revision on 31 March 1985".

The figures in the column entitled "JCB-approved" are the maximum amounts approved by JCB(6).

The figures in the column headed "latest revision on 31 March 1985" reflect the revisions made to the JCB-approved figures under the terms of the Plan of Financial Management adopted first by JCB(3) and subsequently at each later session. Under the terms of the Plan, Director, TDR and Chairman, STAC revise the maximum budget to reflect expected income. The latest such revision to the 1984-1985 budget took place on 31 March 1985 establishing a new total amount of US\$ 47.9 million, as opposed to the US\$ 66.7 million initially approved. Since the income level estimates are subject to further change, it is likely that the budget will be subject to further revision.

2.2.4 Budget Increases (Decreases)

This is a comparison of the projected cost of an activity in the 1986-1987 biennium compared to the amount approved for the same activity in the 31 March revision to the 1984-1985 budget. It is calculated by dividing the amount approved for the 1986-1987 biennium by that in 1984-1985, multiplying by 100, and subtracting 100 from the result.

2.2.5 Establishing the Budget Level

(5) The Programme Director prepares the final proposed Programme Budget and presents it to the Standing Committee for review and comments and to the JCB for approval or revision.

2.2 Comments

2.2.1 Cost Factors

For certain TDR activities, standard costs or "cost factors" are used. These costs or factors are established by WHO based on analysis of costs in previous years; they have been applied here unchanged for personnel and meetings and, for consultant costs, modified to reflect TDR experience. Details of these factors and their calculation can be found in Annex 6 of the WHO Proposed Programme Budget for the Financial Period 1986-1987 (WHO Document PB/86-87).

Standard costs have not been applied to other parts of the Budget (e.g. Operations), since standard costs cannot adequately reflect the wide variation in costs inherent in the Programme's world-wide range of activities - especially when expressed in one currency.

2.2.2 Purchasing Power

During the 1984-1985 biennium, the conversion rates of other currencies against the US dollar and inflation rates were generally volatile and, for much of the period, the value of the US dollar was at a very high level. This posed a somewhat unusual problem in that project budget requests were generally expressed in US dollars calculated at a conservative rate of exchange, while the contributions to the Programme in currencies other than the US dollar reflected the generally unfavourable exchange rates in effect when the funds were received and converted. In short, the losses in income due to a strong US dollar were not fully compensated for in decreased dollar value of

Unlike previous Programme Budgets and for the first time since TDR's inception, the budget approved for the forthcoming biennium is at a level lower than approved for the previous financial period - by some 16.7%. The level approved is based on a conservative estimate of growth in contributions to the Special Programme in the next biennium, as well as a somewhat more favourable exchange rate for converting non (US) dollar contributions of major donors to the Programme.

2.3 Presentation

2.3.1 Format

This Programme Budget follows the same format as that for the 1984-1985 biennium, save for the inclusion of the revised budget figures and the non-inclusion of calculations to estimate the percent "real" increase in 1986-1987 over 1984-1985.

Part 1 is a general Programme summary.

Part 2 describes the way in which the Programme Budget was developed and its presentation, including the assumptions made.

Part 3 includes various analyses and observations on the budget.

Part 4 presents summary tables for the four Programme Areas.

Part 5 presents descriptive summaries of the progress and plans and the budget tables for the Components of Programme Area II, Research and Development.

Part 6 presents a descriptive summary and the budget tables for Programme Area III, Research Capability Strengthening.

Part 7 presents some commentary on programme management and the budget tables for Programme Area IV, Programme Management.

2.3.2 Content

This Programme Budget includes the JCB-approved budget (including staffing levels) for the 1984-1985 biennium, the most recent revision of that budget, and the Programme Budget approved for 1986-1987 by JCB(8) based on recommendations of Director, TDR, the Standing Committee and STAC(7). It also includes very preliminary projections for 1988-1989 based on the guidance of STAC(7) for Programme Areas II and III and of the Standing Committee for Programme Areas I and IV.

The costs of individual activities have been rounded either to the nearest US\$ 1000 or to the first decimal place; therefore there may be small differences between total amounts and the sum of the constituent components of that total.

Similarly, where information is expressed as a percentage of a total, the total is 100 - even if rounding has produced an apparent discrepancy.

The term "obligation" is used throughout TDR financial and budget presentations to denote:

- for past activities, funds disbursed or for which the Executing Agency is legally obligated (e.g. contracts for services by institutions that have been signed by the Executing Agency or staff contracts for the current financial period), or
- for future activities, amounts expected to fall

into the above categories.

2.3.3 Meetings

Based on experience gained in managing the Special Programme under the Plan of Financial Management, one budget element that lends itself to detailed cost control and to resultant overall savings is Meetings in Programme Area II. Accordingly, in this Programme Budget, the following is included:

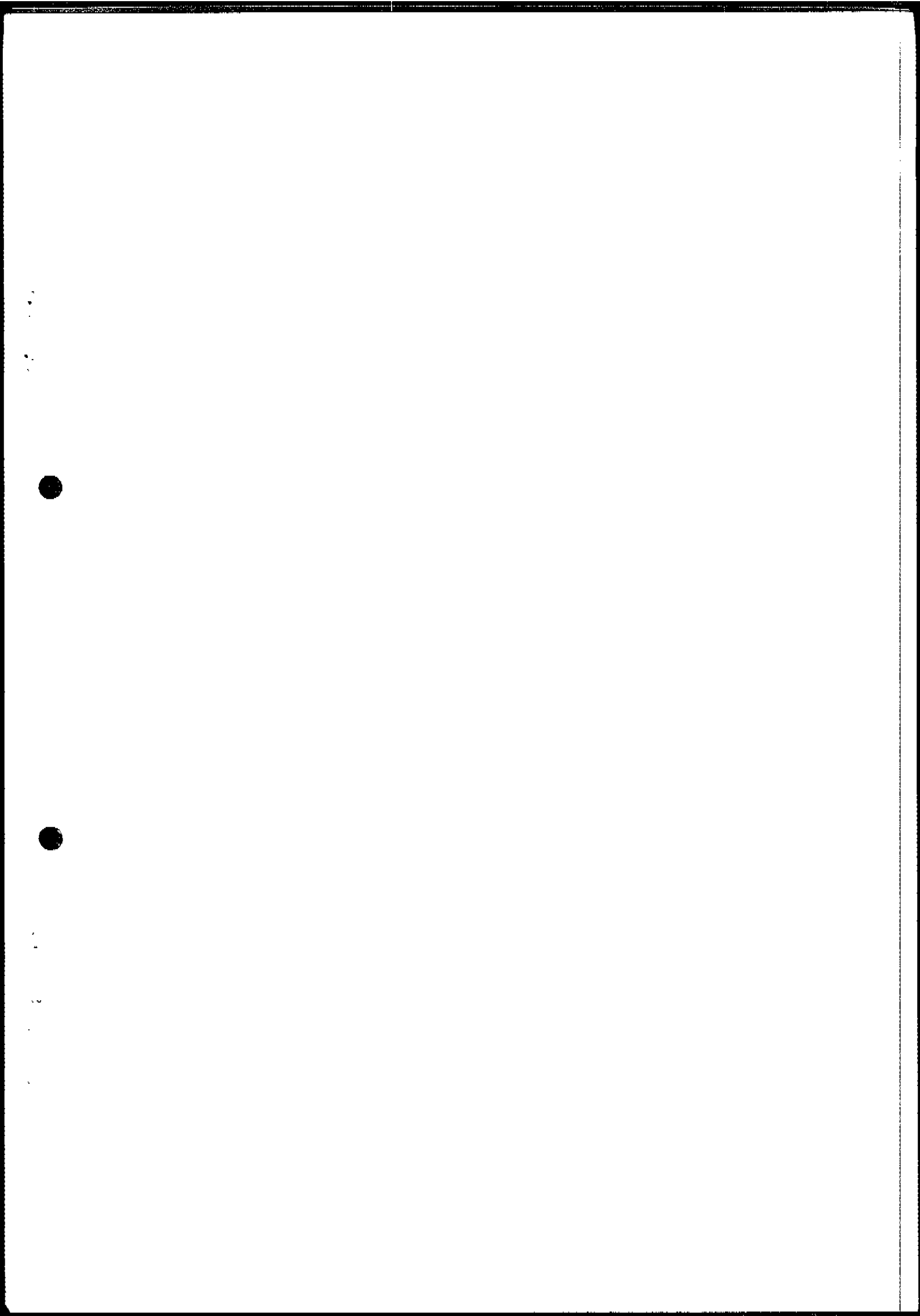
In addition to a basic amount of US\$ 150 000 allocated to each SWG Steering Committee for meetings during the biennium, an amount of US\$ 650 000 will be pooled (as is the case in Programme Area II Consultants and Duty Travel) to be allocated by Director, TDR after review of individual requests. This procedure has been endorsed by STAC(7).

2.3.4 Staff

The total number of professional staff years in 1986-1987 is decreased by three and one half from the level approved for the previous biennium. The decreases are as outlined below:

Medical Officer, one year, IMMLEP SC Secretary;
 Medical Officer, two years, BIOS SC Secretary; and
 Legal Officer, one-half year, Office of Legal Counsel.

The abolition of the post of Secretary to the BIOS Steering Committee reflects the recommendation of STAC(6) concerning the disestablishment of the SWG on Biomedical Sciences. The other decreases reflect additional support by WHO to TDR.



3. OBSERVATIONS

3.1 General

The budget projection for the 1986-1987 biennium made to JCB(6) was US\$ 73 million. This was a modest increase over the budget approved for the 1984-1985 biennium of US\$ 66.7 million. At that time it was reported that various activities (especially field trials of drugs and vaccines) might reach a stage of development where, without additional support, their costs would necessitate curtail- ing of other activities. These field trials have begun and major expansion is expected in the forthcoming biennium. In spite of this and based on the level of actual contribu- tions projected for the 1984-1985 biennium, it was recog- nized that a major scaling down of the originally estimated figure would be required in 1986-1987. Accordingly, the budget proposed and approved for the 1986-1987 biennium is US\$ 55.7 million. Without the additional resources referred to above and in the previous Programme Budget, the impact on Programme operations may be severe.

3.2 Pattern of Contributions

As can be seen in Figure 1, until 1980 the level of contributions to the Programme showed steady growth. In 1981 there was a relatively small decrease of 2.7% from the 1980 level followed by a major decrease in 1982 of 21.3% from 1981. There was a 5.6% increase in 1983 followed by a 1.6% decrease in 1984, in spite of special contributions. For practical purposes, annual contribu- tions have remained at a level of around US\$ 20 million from 1982 onward and the projections for 1985 are at best for the same level but probably below it.

Since much of Programme Area IV expense is in such fixed costs, the savings which can be made in this Programme Area are limited, although they continue to compare favourably with similar charges in other activities in the UN System.

The amounts approved for each Programme Area in the 1986-1987 biennium are below those approved for 1984-1985 but above those in the revised budget.

3.3.2 By Budget Element

Since the four Programme Areas contain similar "budget elements" (or activities), the budget balance may also be viewed from the point of view of these elements. Table 3.1 on page 6 reflects by budget element the 1984-1985 approved and revised budgets, the 1986-1987 approved budget, and the 1988-1989 estimated budget.

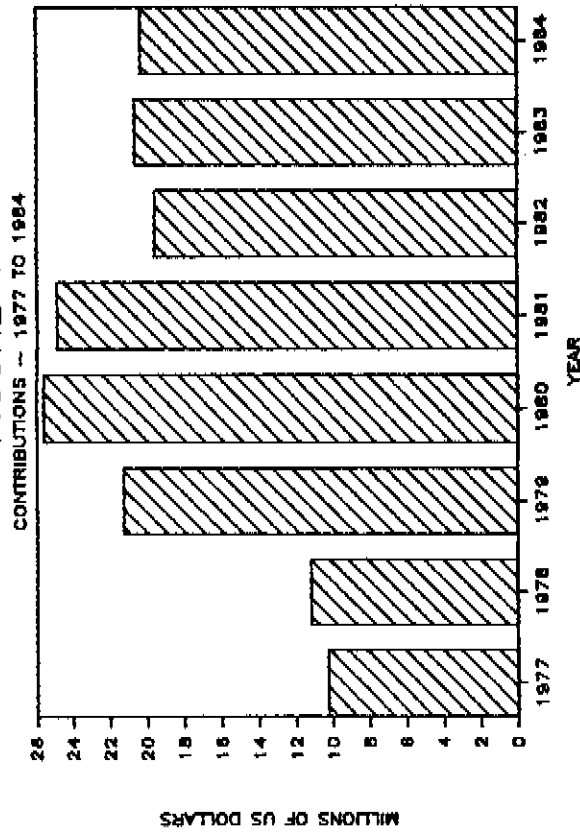
Duty Travel: secretariat travel costs associated with the management of the Programme.

Consultants: honoraria, travel and per diem costs for scientists assisting in Programme implementa- tion, operations and evaluation.

Operations: the Programme's Research and Develop- ment, Research Training and Institution Strengthen- ing projects. These are funded through Technical Services Agreements, Research Training Grants or other similar contracting instruments to institu- tions and scientists.

Personnel Services: the Programme secretariat (WHO

FIGURE 1



3.3 Programme Balance

The balance of the Programme Budget can be viewed from two points of view: by Programme Area and by Budget Element.

3.3.1 By Programme Area

Table 4.1 on page 7 shows the balance according to each of the four Programme Areas - representing the organizational structure of the Programme. As can be noted, the 31 March 1985 revision of the 1984-1985 budget has the same general balance as the budget approved by the JCB, albeit at a level of only 71.8%. The rise in the percentage represented by Programme Management reflects the fact that there are certain fixed costs (especially for staff salaries) which must be met once they have been incurred.

staff) including overtime and staff engaged on a temporary basis. This does not include a very limited number of WHO field staff participating in approved projects in the field.

Meetings: meetings of SWGs, SWG Steering Committees, and the RSG.

Other:

- Information Systems services: primarily electronic data processing and equipment, data analysis, and services;

- Scientific and Public Information: the production of the Programme Newsletter, the Programme Report, other Programme documents, audio-visual material and other activities related to the transfer of scientific information and the promotion of the activities of the Programme;

- Common services: postage, telephone, telex, photocopying and the charges for the premises occupied by the Special Programme;

- Administrative support: services provided by the WHO Budget, Finance, Personnel, Supplies and Conference Services units; and

- Supplies and equipment.

The data in Table 3.1 for the 1984-1985 approved and revised budgets show the effect of diminished resources on operational activities. Every attempt was made to meet the financial shortfall in non-operational activities but the level to which this can be done is limited. The percentage decrease in Operations in the revised budget was caused by the fixed costs represented by staff salaries

in Personnel Services. In the 1986-1987 approved budget, the level and proportion for Personnel Services have been scaled down to try to offset this without adversely affecting Programme Operations but, even with this scaling down, the percentage of the total for Personnel Services rises over that in the 1984-1985 approved budget and the

percentage for Operations drops. If the resources in the forthcoming biennium again fail to reach the budget level, the 1984-1985 pattern of a decreasing percentage in Operations and an increasing percentage in Personnel Services will recur.

Table 3.1 SUMMARY OF COST BY BUDGET ELEMENT, 1984-89

BUDGET ELEMENT	OBLIGATIONS (in US\$ 1 000)										
	[-----1984-85-----]					[-----1986-87-----]					[-----1988-89-----]
	JCB- Approved	% of Total	Latest Revision 31 Mar 85	% of Total	JCB- Approved	% Growth*	% of Total	JCB- Approved	% of Total	Esti- mated	% of Total
Programme Area I	719	1.1	559	1.2	663	18.6	1.2	663	1.2	696	1.2
Duty Travel	1 046	1.6	619	1.3	696	12.4	1.2	696	1.2	730	1.2
Consultants	1 046	1.6	840	1.8	840	0.0	1.5	840	1.5	882	1.5
Operations	49 958	74.9	33 753	70.4	40 565	20.2	72.8	40 565	72.8	42 593	72.8
Personnel Services	8 662	13.0	8 617	18.0	8 192	-4.9	14.7	8 192	14.7	8 553	14.6
Meetings	3 222	4.8	1 760	3.7	2 785	58.2	5.0	2 785	5.0	2 924	5.0
Other	2 048	3.1	1 779	3.7	2 004	12.6	3.6	2 004	3.6	2 104	3.6
TOTAL	66 701	100	47 928	100	55 745	16.3	100	55 745	100	58 484	100

* Compares the increase (decrease) of 1986-1987 "JCB-Approved" with "Latest Revision 31 March 1985"

4. SUMMARY TABLES

The six tables in this section provide a summary of the Programme Budget over three biennia:

1984-1985 - the budget as approved by JCB(6) and as revised by Director, TDR and Chairman, STAC as at 31 March 1985 under the Plan of Financial Management first approved by JCB(3);

1986-1987 - the budget as approved by JCB(8); and

1988-1989 - the preliminary estimates of budget levels based on information available at 15 April 1985.

Tables 4.1 and 4.2 present the budget and staff of the Programme by its four Programme Areas:

Area I - Technical and Administrative Bodies

Area II - Research and Development

Area III - Research Capability Strengthening

Area IV - Programme Management

Tables 4.3, 4.4, 4.5, and 4.6 summarize Areas I, II, III, and IV respectively. The detailed budgets for Areas II, III and IV can be found in sections 5, 6 and 7 of this Programme Budget.

Table 4.1 PROGRAMME BUDGET

PROGRAMME AREA	OBLIGATIONS (in US\$ 1 000)										
	[-----1984-85-----]					[-----1986-87-----]					[--1988-89--]
	JCB-Approved	% of Total	Latest Revision 31 Mar 85	% of Total	JCB-Approved	% Growth*	% of Total	JCB-Approved	% of Total	Estimated	% of Total
I Technical and Administrative Bodies	719	1.1	559	1.2	663	18.6	1.2	696	1.2		
II Research and Development	44 204	66.3	30 580	63.8	36 398	19.0	65.3	38 218	65.3		
III Research Capability Strengthening	16 342	24.5	11 734	24.5	13 271	13.1	23.8	13 935	23.8		
IV Programme Management	5 436	8.1	5 055	10.5	5 413	7.1	9.7	5 634	9.7		
TOTAL	66 701	100	47 928	100	55 745	16.3	100	58 483	100		

* Compares the increase (decrease) of 1986-1987 "JCB-Approved" with "Latest Revision 31 March 1985"

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Table 4.2 TOTAL PROGRAMME STAFF REQUIREMENTS

PROGRAMME AREA	STAFF REQUIREMENTS (in staff years)					
	1984-85 JCB-Approved		1986-87 JCB-Approved		1988-89 Estimated	
	P	GS	P	GS	P	GS
I Technical and Administrative Bodies	-	-	-	-	-	-
II Research and Development	35.0	35.0	32.0	30.0	32.0	30.0
III Research Capability Strengthening	10.0	12.0	10.0	12.0	10.0	12.0
IV Programme Management	24.5	48.0	24.0	49.0	24.0	48.0
TOTAL	69.5	95.0	66.0	91.0	66.0	90.0

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Table 4.3 PROGRAMME AREA I: TECHNICAL AND ADMINISTRATIVE BODIES

DESCRIPTION	OBLIGATIONS (in US\$ 1 000)				
	[-----1984-85-----]		[-----1986-87-----]		[1988-89]
	JCB- Approved	Latest Revision 31 March 85	JCB- Approved	% Growth*	Estimated
Joint Coordinating Board (JCB)	131.0	110.0	116.0	5.5	121.8
Standing Committee	38.0	24.0	25.0	4.2	26.3
Fundraising Activities	100.0	75.0	79.0	5.3	83.0
Second Quinquennial Review	-	-	75.0	n.a.	25.0
Scientific & Technical Advisory Committee (STAC)	210.0	180.0	189.0	5.0	198.5
Scientific & Technical Review Committees (STRC)	240.0	170.0	179.0	5.3	188.0
TOTAL	719.0	559.0	663.0	18.6	696.2

* Compares the increase (decrease) of 1986-1987 "JCB-Approved" with "Latest Revision of 31 March 1985"

Table 4.4 PROGRAMME AREA II: RESEARCH AND DEVELOPMENT

COMPONENT	OBLIGATIONS (in US\$ 1 000)				
	[-----1984-85-----]		[-----1986-87-----]		[1988-89]
	JCB- Approved	Latest Revision 31 March 85	JCB- Approved	% Growth*	Estimated
General Activities	2 495.0	1 928.4	2 662.7	38.1	2 795.8
Malaria	11 320.0	8 561.6	10 487.2	22.5	11 011.6
Schistosomiasis	3 715.0	2 226.9	2 280.6	2.4	2 394.6
Filariasis	4 250.0	2 890.0	3 230.6	11.8	3 392.1
African Trypanosomiasis	3 934.0	2 578.4	2 930.6	13.7	3 077.1
Chagas' Disease	1 976.0	1 471.0	1 700.6	15.6	1 785.6
Leishmaniasis	2 053.0	1 460.0	1 880.6	28.8	1 974.6
Leprosy	5 872.0	3 978.0	5 430.6	36.5	5 702.1
Biomedical Sciences	1 353.0	788.0	0.0	-100.0	0.0
Biological Control of Vectors	2 550.0	1 702.3	2 211.2	29.9	2 321.8
Epidemiology	2 536.0	1 590.0	1 903.2	19.7	1 998.4
Social and Economic Research	2 150.0	1 405.0	1 680.6	19.6	1 764.6
TOTAL	44 204.0	30 579.6	36 398.5	19.0	38 218.4

* Compares the increase (decrease) of 1986-1987 "JCB-Approved" with "Latest Revision 31 March 1985"

Table 4.5 PROGRAMME AREA III: RESEARCH CAPABILITY STRENGTHENING

DESCRIPTION	OBLIGATIONS (in US\$ 1 000)				
	[-----1984-85-----]		[---1986-87---]		[1988-89]
	JCB- Approved	Latest Revision 31 March 85	JCB- Approved	% Growth*	Estimated
General Activities	2 055.0	1 732.7	1 766.2	1.9	1 854.5
Institutional Grants	7 858.0	4 530.5	4 935.0	8.9	5 181.8
Training	6 429.0	5 470.5	6 570.0	20.1	6 898.5
TOTAL	16 342.0	11 733.7	13 271.2	13.1	13 934.8

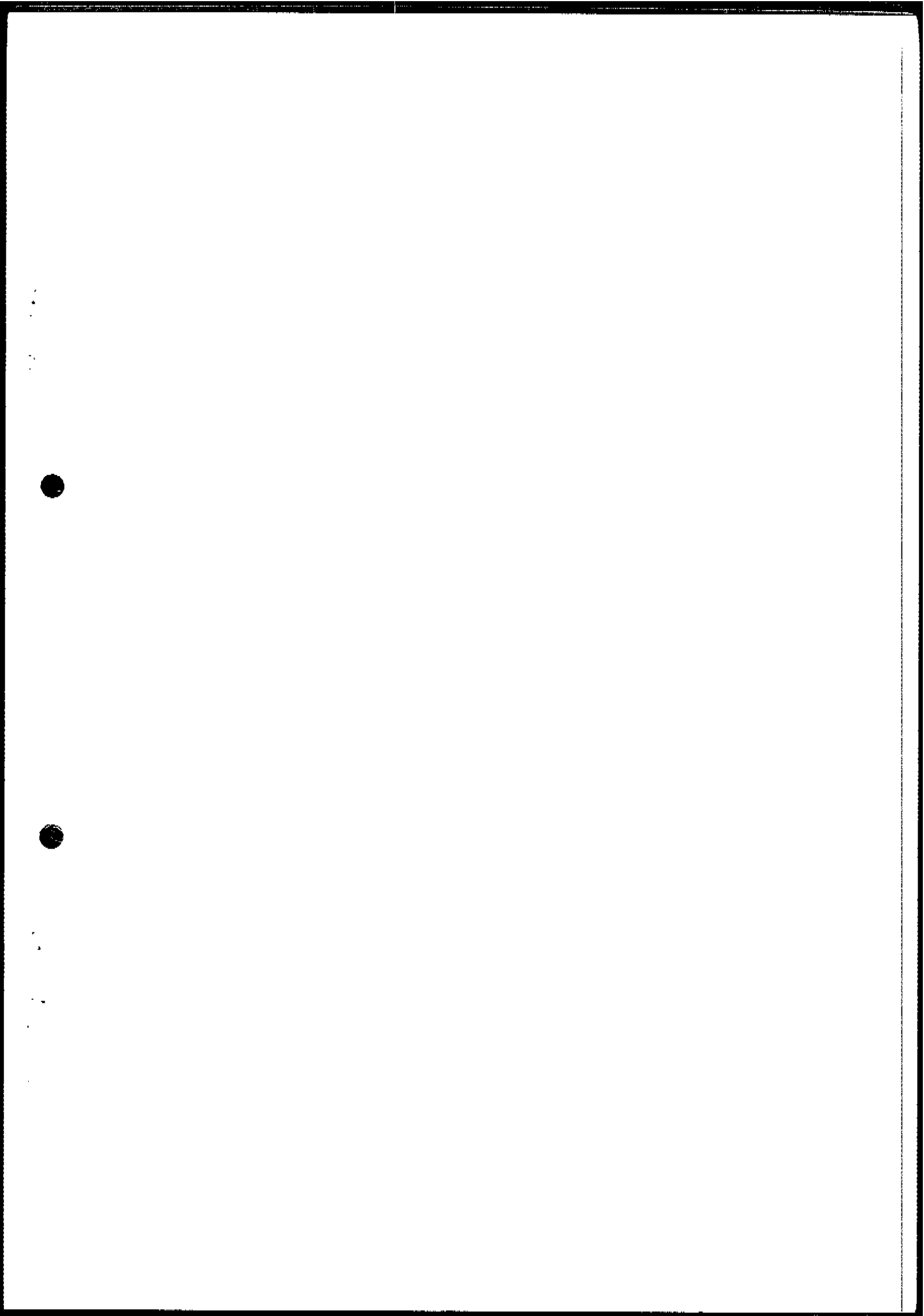
* Compares the increase (decrease) of 1986-1987 "JCB-Approved" with "Latest Revision 31 March 1985"

SUMMARY 1984 - 1989

Table 4.6 PROGRAMME AREA IV: PROGRAMME MANAGEMENT

DESCRIPTION	OBLIGATIONS (in US\$ 1 000)				
	[-----1984-85-----]		[-----1986-87-----]		[1988-89]
	JCB- Approved	Latest Revision 31 March 85	JCB- Approved	% Growth*	Estimated
Office of the Programme Director	3 180.0	2 830.0	3 063.9	8.3	3 168.3
Regional Offices	956.0	925.2	1 006.5	8.8	1 056.8
Administrative Support Costs	510.0	510.0	430.0	-15.7	451.5
Common Services and Premises	790.0	790.0	912.0	15.4	957.6
TOTAL	5 436.0	5 055.2	5 412.4	7.1	5 634.2

* Compares the increase (decrease) of 1986-1987 "JCB-Approved" with "Latest Revision 31 March 1985"



5. PROGRAMME AREA II - RESEARCH AND DEVELOPMENT

5.1 General Activities

During 1984-1985, each SWG, through its Steering Committee, continued to implement its strategic plan to achieve its objectives. The STAC process of annual review of these plans (with revision as required) continued, as did the four-year "in-depth" review by Scientific and Technical Review Committees. The phasing out of the SWG on Biomedical Sciences will be undertaken at the end of the 1984-1985 biennium and various BIOS activities will be transferred to Programme Area III. STAC(7) recommendations as to Programme balance, scope and focus of individual SWGs are reflected in the Programme Budget approved for the 1986-1987 biennium.

Resources available during 1984 and the early part of 1985 have restricted Programme operations. Although to the maximum extent possible the shortage of funds was met by economies in programme management, duty travel, meetings

and use of consultants, the effect on the Programme's operational activities was serious.

The number of individual projects supported in Programme Area II is shown below, by disease and trans-disease Component from Programme inception in 1975, to 31 December 1984. A project which is funded and renewed is counted as one project.

Director's Initiative	112	Leishmaniasis	127
Fund	330	Leprosy	184
Malaria	170	Biomedical Sciences	46
Schistosomiasis	151	Biological Control	117
Filariasis		of Vectors	35
African		Epidemiology	
Trypanosomiasis	129	Social and Economic	72
Chagas' Disease	125	Research	

Total number of projects: 1598

PROGRAMME AREA II: RESEARCH AND DEVELOPMENT

Table 5.1 GENERAL ACTIVITIES

DESCRIPTION	OBLIGATIONS				(in US\$ 1 000)	
	[-----1984-85-----]		[-----1986-87-----]		[1988-89]	
	JCB- Approved	Latest Revision 31 March 85	JCB- Approved	% Growth*	Estimated	
Personnel Services	348.0	348.0	302.2	-13.2	317.3	
Director's Initiative Fund	600.0	432.4	525.0	21.4	551.3	
Consultants	826.0	700.0	700.0	0.0	735.0	
Duty Travel	488.0	319.0	350.0	9.7	367.5	
Meetings	-	-	650.0	n.a.	682.5	
Publications	184.0	110.4	115.9	5.0	121.7	
Operational Support Fund	13.0	7.8	8.2	5.0	8.6	
Shipping & Insurance						
Cost Adjustments	36.0	10.8	11.3	5.0	11.9	
TOTAL	2 495.0	1 928.4	2 662.7	38.1	2 795.8	

* Compares the increase (decrease) of 1986-1987 "JCB-Approved" with "Latest Revision 31 March 1985"

5.2 Malaria

Research and development in malaria is carried out under three SWGs: CHEMAL (chemotherapy), IMMAL (immunology), and FIELDMAL (applied field research).

5.2.1 Summary of Activities

(a) CHEMAL continues its programme for the development of new drugs, improvement of drug delivery systems, and standardization and introduction of methods for the assessment of drug sensitivity. Mefloquine alone and in combination with sulfadoxine and pyrimethamine have been registered for limited use in adults and clinical trials in special groups should be completed by the end of 1985. Other candidate antimalarials have been selected for clinical development. Major advances are being made in the understanding of the metabolism and efficacy of primaquine, the only currently available tissue schizonticide. The development and testing of the microtest system for the *in vitro* assessment of sensitivity to sulfadoxine and pyrimethamine have been completed.

(b) IMMAL continues to pursue the development of vaccines based on pure protective plasmodial antigens. The vaccine targets currently envisaged are sporozoites, asexual blood stages and gametes. Cloning of genes coding for protective antigens from these stages is in progress. The gene encoding the protective *P. falciparum* sporozoite antigen has been cloned and expressed, and part of the molecule has been synthesized chemically. The role of cell-mediated immunity in malaria is being evaluated. Defined reagents are being applied in new immunodiagnostic methods for malaria.

(c) FIELDMAL. The production of *Plasmodium falciparum* drug sensitivity test kits has now been transferred to a national institution in the Philippines. A collaborative global monitoring programme of *P. falciparum* sensitivity to anti-malarial drugs has been developed and

transferred to WHO/MAP. Phase III field trials with mefloquine and its combinations with sulfadoxine and pyrimethamine and primaquine were completed in Thailand. Results of several years' work on methods of distribution of antimalarial drugs through primary health care systems are now being analysed. New research on vector species complexes has been started and is providing some practical results.

5.2.2 Planned Activities for the 1986-1987 Biennium

(a) CHEMAL will continue clinical development of candidate antimalarials already identified and search for new ones. The studies on primaquine will continue in the hopes of finding an improved formulation.

(b) IMMAL will continue its programme of vaccine development. It is expected that Phase I testing of an anti-sporozoite vaccine will be carried out. Cloned gene products from other life cycle stages should become available for use in candidate vaccines. Analysis of immune mechanisms and immunopathological complications in malaria and the development of immunodiagnostic tests will continue.

(c) FIELDMAL will conduct studies of the epidemiology of drug resistance and its control, including studies on the operational use of drugs. Questions of the vector taxonomy, behaviour, status and modified approaches in vector control will be explored. Studies will be made on malaria epidemiology in relation to integrated control strategies, particularly in areas under rapid modification (irrigation, deforestation, urbanization). In preparation for vaccine trials, studies will be conducted on epidemiology and the refinement of methods of field investigation. Attempts will be made to develop test kits for *in vitro P. falciparum* sensitivity to additional drugs. Other types of tests needed in epidemiological studies, such as a kit for the detection of sporozoites in mosquitoes, using monoclonal antibodies, will be further developed.

PROGRAMME AREA II: RESEARCH AND DEVELOPMENT

Table 5.2 MALARIA

DESCRIPTION	OBLIGATIONS (in US\$ 1 000)				
	[-----1984-85-----]		[--- 1986-87-----]		[1988-89]
	JCB- Approved	Latest Revision 31 March 85	JCB- Approved	% Growth*	Estimated
(a) PLANNING AND EVALUATION					
1. Personnel Services	839.0	839.0	817.2	-2.6	858.1
2. Meetings	631.0	455.6	450.0	-1.2	472.5
Total (a)	1 470.0	1 294.6	1 267.2	-2.1	1 330.6
(b) OPERATIONS					
<u>SWG or Sub-Component</u>					
CHEMAL	4 650.0	3 080.0	3 800.0	23.4	3 990.0
IMMAL	3 400.0	3 002.0	4 000.0	33.2	4 200.0
FIELDNAL	1 800.0	1 185.0	1 420.0	19.8	1 491.0
Total (b)	9 850.0	7 267.0	9 220.0	26.9	9 681.0
TOTAL	11 320.0	8 561.6	10 487.2	22.5	11 011.6

* Compares the increase (decrease) of 1986-1987 "JCB-Approved" with "Latest Revision 31 March 1985"

5.3 Schistosomiasis

Research on schistosomiasis is conducted under one SWG with activities in applied field research, epidemiology and snail control, and chemotherapy and biochemistry.

5.3.1 Summary of Activities

- Techniques to improve control strategies are being evaluated.
- Training in field research continues to be expanded.
- New quantitative diagnostic techniques for Schistosoma haematobium infection have been developed.
- The implications of being able to induce resistance in the laboratory to two commonly-used drugs, oxamniquine and hycanthonne, are

under study.

- Several candidate antigens for immunodiagnosis and vaccine development have been identified.
- Antigens isolated with monoclonal antibodies are being evaluated in immunodiagnostic tests.
- S. mansoni and S. japonicum worm antigens have now been supplied to over 60 laboratories, and soluble S. mansoni egg antigen has recently been made available.

5.3.2 Planned Activities for the 1986-1987 Biennium

Activities will continue along current lines with particular emphasis on basic scientific knowledge of the parasite, assessment of the human immune response, mode of action of antiparasitic drugs, and applied field research to improve control strategies. Evaluation of resistance to molluscicides in natural snail populations which have experienced long-term exposure is planned.

PROGRAMME AREA II: RESEARCH AND DEVELOPMENT

Table 5.3 SCHISTOSOMIASIS

DESCRIPTION	OBLIGATIONS (in US\$ 1 000)				
	[-----1984-85-----]		[---1986-87---]		[1988-89]
	JCB- Approved	Latest Revision 31 March 85	JCB- Approved	% Growth*	Estimated
(a) PLANNING AND OPERATION					
1. Personnel Services	238.0	238.0	230.6	-3.1	242.1
2. Meetings	188.0	120.0	150.0	25.0	157.5
Total (a)	426.0	358.0	380.6	6.3	399.6
(b) OPERATIONS					
<u>SWG or Sub-Component</u>					
Schistosomiasis	3 289.0	1 868.9	1 900.0	1.7	1 995.0
TOTAL	3 715.0	2 226.9	2 280.6	2.4	2 394.6

* Compares the increase (decrease) of 1986-1987 "JCB-Approved" with "Latest Revision 31 March 1985"

5.4 Filariasis

Research under the Filariasis SWG covers both lymphatic filariasis and onchocerciasis and includes guinea worm infection. The SWG coordinates its activities with the Onchocerciasis Chemotherapy Project (OCT). The SWG's goals are: to obtain better filaricides, to reduce the inflammatory reactions to dead worms, to develop better immunodiagnostic tests, and to improve epidemiological methods and methods for vector control.

5.4.1 Summary of Activities

Dosage schedules of diethylcarbamazine (DEC) and suramin are being further tested to improve the use of these compounds in man, including studies of the possible chemoprophylactic effect of DEC in lymphatic infections. Several compounds identified in animal filaricide screens are now ready to be tested in man. Ivermectin is undergoing trials to confirm its microfilaricidal action on Onchocerca volvulus in man and it is also being tested for its chemoprophylactic action in the chimpanzee. Two compounds from industry which were identified in primary and secondary screens and confirmed as micro- and macro-filaricides in the tertiary screens (CGP 6140 for onchocerciasis; CGP 20376 for lymphatic infections) are now ready to undergo Phase I/Phase II trials in man. Several other compounds which include certain benzimidazoles and a compound developed in China, furapyrimidone, are now being tested in the tertiary screens as possible compounds for use in man.

The search for better antigens and diagnostic tests has continued. Although no species-specific antigen has been identified, the presence of active infection can

often be demonstrated by detection of circulating antigen in body fluids, using radioimmunoassay methods. These are now being replaced by the enzyme-linked immunosorbent assay (ELISA) and other simpler techniques, including use of monoclonal antibodies.

More information is now available on the mechanisms of the Mazzotti reaction in onchocerciasis; this will help in attempts to reduce this reaction.

Further vector information is now available both on Simulium in Congo and Sudan and on mosquitos in Malaysia, Indonesia and Thailand.

5.4.2 Planned Activities for the 1986-1987 Biennium

The search for non-toxic filaricides will continue based on studies of biochemistry and metabolism, screening and lead-directed synthesis. Ivermectin will continue to be examined for activity in onchocerciasis and lymphatic infection, and the new compounds that have reached Phase I trials will undergo Phase II trials if they prove satisfactory.

The search for more specific diagnostic tests will continue with emphasis on the detection of specific antigens in body fluids.

Higher priority will be given to the detection and identification of parasites in vectors, using DNA probes and immunological methods; and to the identification of vectors by non-microscopic methods, such as DNA probes and isoenzyme techniques. Epidemiological studies will include the relation of risk factors to disease.

PROGRAMME AREA II: RESEARCH AND DEVELOPMENT

Table 5.4 FILARIASIS

DESCRIPTION	OBLIGATIONS (In US\$ 1 000)				
	[-----1984-85-----]		[----1986-87-----]		[1988-89]
	JCB- Approved	Latest Revision 31 March 85	JCB- Approved	% Growth*	Estimated
(a) PLANNING AND EVALUATION					
1. Personnel Services	238.0	238.0	230.6	-3.1	242.1
2. Meetings	212.0	115.0	150.0	30.4	157.5
Total (a)	450.0	353.0	380.6	7.8	399.6
(b) OPERATIONS					
<u>SWG or Sub-Component</u>					
Filariasis	3 800.0	2 537.0	2 850.0	12.3	2 992.5
TOTAL	4 250.0	2 890.0	3 230.6	11.8	3 392.1

* Compares the increase (decrease) of 1986-1987 "JCB-Approved" with "Latest Revision 31 March 1985"

5.5 African Trypanosomiasis

Research and development on African trypanosomiasis is handled by one SWG, conducting studies on disease epidemiology, improved diagnostic tests, drugs and clinical management and vector control.

5.5.1 Summary of Activities

The screening of compounds for trypanocidal action is a high priority. Preliminary results on two compounds are promising and further studies are envisaged. Reduced doses of melarsoprol have successfully cured central nervous system infection in vervet monkeys without relapse. Clinical trials with difluoromethylornithine (DFMO) are being undertaken in six countries in collaboration with the manufacturer, and are strictly limited to patients whose treatment remained unsuccessful after receiving two complete courses of melarsoprol. The results have been most promising.

The significance of positive serological tests has been assessed by repeated daily parasitological examination. In a group of 48 seropositive individuals, 10 individuals were confirmed as parasitologically positive between the first and the eighth day. Comparative field trials of serodiagnostic tests in six countries have shown that the Card Agglutination Test for Trypanosomiasis (CATT) is practical for field use.

Recent studies have demonstrated Trypanozoon infections in asymptomatic pigs and goats, and the presence of T. b. gambiense in pigs has been confirmed.

Glossina control using impregnated screens and traps in combination with selective groundspraying and its impact on human trypanosomiasis has provided promising

results. Search for odour attractants of the G. palpalis group has been started in West and Central Africa.

5.5.2 Planned Activities for the 1986-1987 Biennium

Further studies will be undertaken on the relationship between seropositivity and parasitological evidence of infection. Long-term multidisciplinary studies on disease epidemiology will continue for T. b. gambiense in the Congo and for T. b. rhodesiense in Ethiopia. Further simplification of the miniature anion-exchange centrifugation technique (MAECT) and the use of other diagnostic tests will be explored.

Search for safe and effective chemotherapeutic agents will continue. Trials involving reduced doses of melarsoprol in monkeys will be continued as the basis for similar trials in man. Pharmacokinetics and pharmacodynamics of melarsoprol and suramin and the mechanism of drug resistance due to acquired resistance, or to the location of trypanosomes in "privileged sites" will be pursued. Assessments of combinations of known trypanocides, of new compounds and of the use of anti-inflammatory drugs are envisaged.

Development of a CATT for T. b. rhodesiense and continued research on antigenic repertoires for both T. b. gambiense and T. b. rhodesiense for the development of more sensitive tests will be pursued. Studies on the pathology of the disease, the mechanisms of inflammation and the nature of the immune response in man and its role in immunopathology will be pursued.

Identification of simple and cost-effective methods of vector control for application by rural communities is envisaged. Search for odour attractants for the G. palpalis group will continue.

PROGRAMME AREA II: RESEARCH AND DEVELOPMENT

Table 5.5 AFRICAN TRYPANOSOMIASES

DESCRIPTION	OBLIGATIONS (in US\$ 1 000)			
	[-----1984-85-----]		[-----1986-87-----]	
	JCB- Approved	Latest Revision 31 March 85	JCB- Approved	Estimated Growth*
(a) PLANNING AND EVALUATION				
1. Personnel Services	238.0	238.0	230.6	-3.1
2. Meetings	280.0	90.4	150.0	65.9
Total (a)	518.0	328.4	380.6	15.9
(b) OPERATIONS				
<u>SWG or Sub-Component</u>				
African Trypanosomiasis	3 416.0	2 250.0	2 550.0	13.3
TOTAL	3 934.0	2 578.4	2 930.6	13.7

* Compares the increase (decrease) of 1986-1987 "JCB-Approved" with "Latest Revision 31 March 1985"

5.6 Chagas' Disease

Research on Chagas' disease is conducted under one SWC. The research plan emphasizes identification of gaps in knowledge of research being conducted outside the Programme and the standardization of methods, techniques and materials.

5.6.1 Summary of Activities

The continental network of collaborating laboratories for the standardization of Chagas' disease serodiagnosis has been expanded and now covers 11 countries: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, Honduras, Panama, United States of America and Uruguay. The Central Reference Laboratory in Sao Paulo, Brazil, has distributed 2 800 samples of reference sera to the collaborating laboratories to enable them to calibrate and standardize their serodiagnostic tests.

A series of slow release insecticidal paint formulations has shown efficacy in the field for a duration of nine months. A fumigant canister for insecticide has been tested for use indoors and initial results are encouraging.

In the search for better compounds to sterilize blood for transfusion, 21 active compounds have been

identified. Two of these have been selected for further study.

New serological tests using purified stage-specific epimastigote antigens and monoclonal antibodies are being field tested.

5.6.2 Planned Activities for the 1986-1987 Biennium

Research will continue along the present lines with emphasis on standardization of research methods and materials. Studies on efficacy, toxicology and safety of selected trypanocidal compounds will continue. Assessment of a test for the rapid routine screening of transfusion blood will be given high priority.

Large-scale trials with insecticide-containing paints and new formulations will be launched, involving the participation of national control programmes.

Basic studies aiming at the development of a curative drug for all stages of Chagas' disease and at the identification and characterization of parasite antigens for use in safe and effective immunoprophylactic regimens will continue and expand. Studies on the relation of parasite subpopulations and clinical and geographical varieties of Chagas' disease will be initiated.

PROGRAMME AREA II: RESEARCH AND DEVELOPMENT

Table 5.6 CHAGAS' DISEASE

DESCRIPTION	OBLIGATIONS				(in US\$ 1 000)	
	[-----1984-85-----]		[---1986-87-----]		[1988-89]	
	JCB- Approved	Latest Revision 31 March 85	JCB- Approved	% Growth*	Estimated	
(a) PLANNING AND EVALUATION						
1. Personnel Services	238.0	238.0	230.6	-3.1	242.1	
2. Meetings	138.0	133.0	150.0	12.8	157.5	
Total (a)	376.0	371.0	380.6	2.6	399.6	
(b) OPERATIONS						
<u>SWG or Sub-Component</u>						
Chagas' Disease	1 600.0	1 100.0	1 320.0	20.0	1 386.0	
TOTAL	1 976.0	1 471.0	1 700.6	15.6	1 785.6	

* Compares the increase (decrease) of 1986-1987 "JCB-Approved" with "Latest Revision 31 March 1985"

5.7 Leishmaniasis

Research on this disease group is carried out under one SWG with sections on chemotherapy, epidemiology and immunology.

5.7.1 Summary of Activities

- Information on distribution and prevalence of different disease forms has improved the understanding of major disease foci.
- New tools, such as monoclonal antibodies and DNA hybridization, have been successfully applied to both detection and differentiation of parasites, and are being applied in developing simple diagnostic tests.
- New facilities for biochemical identification of parasites in various endemic areas have been established.
- New reference centres and reference stocks of parasites and reagents have been established.
- A drug-screening programme is under way and in vitro screening has been initiated.

- A limited trial in man of an existing drug is being planned based on initial data showing efficacy against the cutaneous form.

5.7.2 Planned Activities for the 1986-1987 Biennium

- Trials of vaccines against cutaneous leishmaniasis will be promoted and coordinated.
- New diagnostic tests will be field-tested.
- Further development and field trials of one widely-used chemotherapeutic agent are expected.
- Experimental models of leishmaniasis, particularly in primates, will be developed.
- Field research on the transmission cycle and ecology of the disease will be continued in selected areas.
- Studies on host-parasite interactions in mucocutaneous and visceral leishmaniasis will be emphasized.
- It is hoped to conduct a full-scale clinical trial of an existing drug against cutaneous leishmaniasis.

PROGRAMME AREA II: RESEARCH AND DEVELOPMENT

Table 5.7 LEISHMANIASES

DESCRIPTION	OBLIGATIONS (in US\$ 1 000)				
	[-----1984-85-----]		[-----1986-87-----]		[1988-89]
	JCB- Approved	Latest Revision 31 March 85	JCB- Approved	% Growth*	Estimated
(a) PLANNING AND EVALUATION					
1. Personnel Services	238.0	238.0	230.6	-3.1	242.1
2. Meetings	215.0	122.0	150.0	23.0	157.5
Total (a)	453.0	360.0	380.6	5.7	399.6
(b) OPERATIONS					
<u>SWG or Sub-Component</u>					
Leishmaniases	1 600.0	1 100.0	1 500.0	36.4	1 575.0
TOTAL	2 053.0	1 460.0	1 880.6	28.8	1 974.6

* Compares the increase (decrease) of 1986-1987 "JCB-Approved" with "Latest Revision 31 March 1985"

5.8 Leprosy

Leprosy research and development activities are carried out by two SWGs concerned with immunology (IMMLEP) and chemotherapy (THELEP). IMMLEP works closely with the immunology and tuberculosis group (IMMTUB) of the new vaccine development programme of WHO.

5.8.1 Summary of Activities(a) IMMLEP

Highlights of progress in immunology include:

- Human sensitization studies with purified killed M. leprae vaccine with or without BCG completed in Norway and Malawi with satisfactory results.
- Vaccine trial with killed M. leprae + BCG started in Venezuela.
- Immunodiagnostic tests based on monoclonal antibodies and phenolic glycolipid-I antigen developed.
- Genes of M. leprae cloned and proteins coded by them expressed in E. coli, and a DNA bank established.

(b) THELEP

Highlights in the progress in chemotherapy include:

- Formal survey of the prevalence of secondary as well as primary dapsone resistance.
- Controlled clinical trials with multidrug therapy among multibacillary leprosy.
- Field trials of multidrug therapy in multibacillary leprosy.
- Field trials of multidrug therapy in paucibacillary leprosy.
- Short-term clinical trial of ethionamide and protionamide monotherapy.
- Experimental chemotherapeutic studies.
- Drug development and screening.

- Cloning of M. leprae DNA.

5.8.2 Planned Activities for the 1986-1987 Biennium(a) IMMLEP

- Initiation of large-scale leprosy vaccine trials in Asia and Africa.
- Studies of immunotherapy to promote early cure and prevent relapse.
- Application of immunodiagnostic tests based on monoclonal antibodies and phenolic glycolipid-I antigen in epidemiological studies.
- Identification of specific antigens of relevance to diagnosis and vaccine development using the approaches of molecular biology.
- Further elucidation of immunoregulating mechanisms in leprosy.

(b) THELEP

- Screening new classes of compounds, and short-term trials of quinolones.
- Expression of M. leprae DNA genes in E. coli and streptomycetes for application to drug screening.
- Improve the sensitivity and specificity of the available in vitro drug screening system.
- Elucidate the efficacy, acceptability and operational feasibility of the multidrug regimens in field conditions.
- Evaluate the impact of multidrug therapy on the transmission of leprosy.
- Explore the effectiveness of immunotherapy combined with intensive chemotherapy in the treatment of lepromatous leprosy.
- Application of newer approaches, e.g. nude mice, detection of phenolic glycolipid-I antigen, ELISA and immunofluorescence techniques, for monitoring chemotherapy.

PROGRAMME AREA II: RESEARCH AND DEVELOPMENT

Table 5.8 LEPROSY

DESCRIPTION	OBLIGATIONS				(in US\$ 1 000)		
	[-----1984-85-----]		[-----1986-87-----]		[1988-89]		
	JCB- Approved	Latest Revision 31 March 85	JCB- Approved	% Growth*	Estimated		
(a) PLANNING AND EVALUATION							
1. Personnel Services	428.0	428.0	230.6	-46.1	242.1		
2. Meetings	324.0	221.0	300.0	35.7	315.0		
Total (a)	752.0	649.0	530.6	-18.2	557.1		
(b) OPERATIONS							
<u>SWG or Sub-Component</u>							
IMMLEP	3 320.0	2 158.0	3 300.0	52.9	3 465.0		
THELEP	1 800.0	1 171.0	1 600.0	36.6	1 680.0		
Total (b)	5 120.0	3 329.0	4 900.0	47.2	5 145.0		
TOTAL	5 872.0	3 978.0	5 430.6	36.5	5 702.1		

* Compares the increase (decrease) of 1986-1987 "JCB-Approved" with "Latest Revision 31 March 1985"

5.9 Biological Control of Vectors

5.9.1 Summary of Activities

Natural biological regulators of vectors such as pathogens and parasites, toxin-producing organisms and invertebrate and vertebrate predators, are identified and assessed for potential as control agents. Assessment is carried out according to an established plan, which includes assessments of safety and efficacy, and which concludes, if appropriate, with field trials.

Following the successful development of sporogenic Bacillus thuringiensis H-14, asporogenic strains have been received for evaluation.

New more effective strains of B. sphaericus have been developed and are being tested, as is the recycling ability of this bacillus in polluted water. Ways of improving the performance of bacilli as control agents, based on biochemical, genetic and genetic engineering approaches, are being explored.

5.9.2 Planned Activities for the 1986-1987 Biennium

The search for agents potentially pathogenic to vectors will continue. Increased emphasis will be given to studies of the mode of action of pathogens in their vector hosts. New strains, particularly asporogenic mutants, and new formulations of B. thuringiensis serotype H-14 will be developed, and their use will be extended to new areas. Methods for local production will be explored. The potential of B. sphaericus to recycle will be further evaluated in polluted waters, especially in tropical sewage installations. Studies on local species of larvivorous fish in a wider range of habitats will be continued. Further field evaluation of several fungal species and strains will be undertaken, including their recycling potential. The use of nematodes as control agents will be pursued, as will studies on competitors and other agents for the control of snails. The search will continue for agents that attack tsetse flies, triatomine bugs and sandflies. Efforts will be made to help establish standards and methodologies for determination and comparison of formulations of biological control agents which are nearing operational use or commercialization.

PROGRAMME AREA II: RESEARCH AND DEVELOPMENT

Table 5.9 BIOLOGICAL CONTROL OF VECTORS

DESCRIPTION	OBLIGATIONS (in US\$ 1 000)				
	[-----1984-85-----]		[-----1986-87-----]		[1988-89]
	JCB- Approved	Latest Revision 31 March 85	JCB- Approved	% Growth*	Estimated
(a) PLANNING AND EVALUATION					
1. Personnel Services	476.0	476.0	461.2	-3.1	484.3
2. Meetings	324.0	126.3	150.0	18.8	157.5
Total (a)	800.0	602.3	611.2	1.5	641.8
(b) OPERATIONS					
<u>SWG or Sub-Component</u>					
Biological Control of Vectors	1 750.0	1 100.0	1 600.0	45.5	1 680.0
TOTAL	2 550.0	1 702.3	2 211.2	29.9	2 321.8

* Compares the increase (decrease) of 1986-1987 "JCB-Approved" with "Latest Revision 31 March 1985"

5.10 Epidemiology

The close coordination of this SWG's research plan with the other SWGs has been facilitated by the restructuring of the Steering Committee so that each member has a joint appointment with one of the other Steering Committees.

5.10.1 Summary of Activities

Multidisciplinary, multidisease population-based epidemiological studies in Zambia and in Sabah, Malaysia were completed and have provided detailed knowledge of the pattern of diseases needed for disease control programmes; training has been given to national field staff in survey techniques, laboratory procedures and primary health care approaches; and baseline data have been obtained for subsequent analytical studies and intervention trials.

Faster, more efficient epidemiological methods for the study of tropical diseases have been introduced, including case-control methods to determine special risk factors and to evaluate the effects of intervention procedures and simple techniques for disease surveillance and diagnosis for use by primary health care workers.

Facilities were provided for assessment and development of promising new diagnostic tests, particularly for those tests appropriate for use in the field.

High priority was given to epidemiological research training. This included post-graduate training courses at several institutions in endemic countries and, in support of these institutions (in coordination with the Research Strengthening Group), a number of individual grants were given for more advanced training; workshops were held on

epidemiological research methods; a field manual on practical aspects of epidemiology for health officers was prepared; and coordination was maintained with other groups for the promotion of epidemiological research training in developing countries.

5.10.2 Planned Activities for the 1986-1987 Biennium

Epidemiological methods will be developed for field trials of new intervention tools to include: new diagnostic tests, particularly those suitable for simple and rapid use in the field; new therapeutic agents as they become available for community-based trials (and new strategies for existing agents); and new preventive techniques.

Analytical epidemiological methods will be applied directed at: resolving key issues concerning underlying causal factors in the pathogenesis of the tropical diseases; determination of priorities to be accorded to different diseases in tropical countries with respect to disease control programmes and determination of the effectiveness of control measures for purposes of rational allocation of resources; evaluation of tropical disease control programmes as a starting point for operational research.

Continuing encouragement will be given to epidemiological research training by: promotion of postgraduate epidemiological training programmes in selected institutions in developing countries; conducting workshops in epidemiological research methods; promotion of advanced-level short courses on research methods for tropical diseases; promotion and development of teaching tools; and coordination of epidemiological training activities with other organizations.

PROGRAMME AREA II: RESEARCH AND DEVELOPMENT

Table 5.10 EPIDEMIOLOGY

DESCRIPTION	OBLIGATIONS (in US\$ 1 000)				
	[-----1984-85-----]		[-----1986-87-----]		[1988-89]
	JCB- Approved	Latest Revision 31 March 85	JCB- Approved	% Growth*	Estimated
(a) PLANNING AND EVALUATION					
1. Personnel Services	363.0	363.0	403.2	11.1	423.4
2. Meetings	300.0	100.0	150.0	50.0	157.5
Total (a)	663.0	463.0	553.2	19.5	580.9
(b) OPERATIONS					
<u>SWG or Sub-Component</u>					
Epidemiology	1 873.0	1 127.0	1 350.0	19.8	1 417.5
TOTAL	2 536.0	1 590.0	1 903.2	19.7	1 998.4

* Compares the increase (decrease) of 1986-1987 "JCB-Approved" with "Latest Revision 31 March 1985"

5.11 Social and Economic Research

The objective of this SWG is to increase the effectiveness of disease control measures and programmes through the integration of human behavioural factors (broadly defined to include social, cultural and economic factors) in programme design and management.

5.11.1 Summary of Activities

The emphasis of social and economic research (SER) has so far been on research to analyse the relative importance of different social and economic factors impeding disease control.

Research projects focus on such problems as: the movement of populations into disease-endemic areas; the continued use of water sources that are disease vector habitats, despite the availability of alternative sources; community or individual noncompliance with control measures requiring sustained and/or repeated effort; lack of demonstrable public health benefits from disease control programmes, resulting in inadequate resources for disease control; and the creation of new disease hazards by development projects despite an awareness of the risks they incur.

Results include:

- a method of analysing the cost and performance of malaria control (in Thailand);
- evidence that local beliefs and behaviour influence the effectiveness of filariasis control (in Malaysia and the Philippines);
- new methods of identifying and solving leprosy control problems related to stigma and local attitudes (in the Philippines);
- new multidisciplinary methods, currently being developed, of assessing the social and economic impact of disease (in Brazil, Colombia, Philippines, Sudan and the United Republic of Tanzania);
- evidence of wide variability in the applicability of community participation and new methods of assessing local-

ly its effectiveness in disease control (in Brazil, Kenya, Nigeria and Sri Lanka).

Collaboration with other SWGs and the Research Strengthening Group (RSG) has formed an integral part of a number of SER activities. For example, TDR's epidemiology and disease-oriented SWGs collaborate with SER to ensure sound epidemiological input into SER projects and SER in turn reviews the social and economic aspects of projects supported by other SWGs.

5.11.2 Planned Activities for the 1986-1987 Biennium

The SER Component will continue its support for research projects, emphasizing those which seek to incorporate the findings of social and economic studies into disease control programmes. To this end, more extensive links will be established with WHO's operational disease control programmes and with ministries of health.

More research is required on the cost-effectiveness of intervention and delivery systems (including community participation) and resource allocation. Consultations will take place with other TDR Components, WHO's Expanded Programme on Immunization and Diarrhoeal Diseases Control Programme, and other agencies, including The World Bank, to review research methods and to identify topics on which research is needed.

The SER Component will promote research on the social and economic aspects of the transfer of new technologies developed by TDR, such as new diagnostic techniques, new vaccines, tsetse fly traps, guinea worm filters, and drug compliance.

In collaboration with the RSG, training programmes will be developed in social sciences related to tropical diseases.

The SER Component, in collaboration with other agencies, will seek to establish additional networks of scientists involved in social and economic research on tropical diseases.

PROGRAMME AREA II: RESEARCH AND DEVELOPMENT

Table 5.11 SOCIAL & ECONOMIC RESEARCH

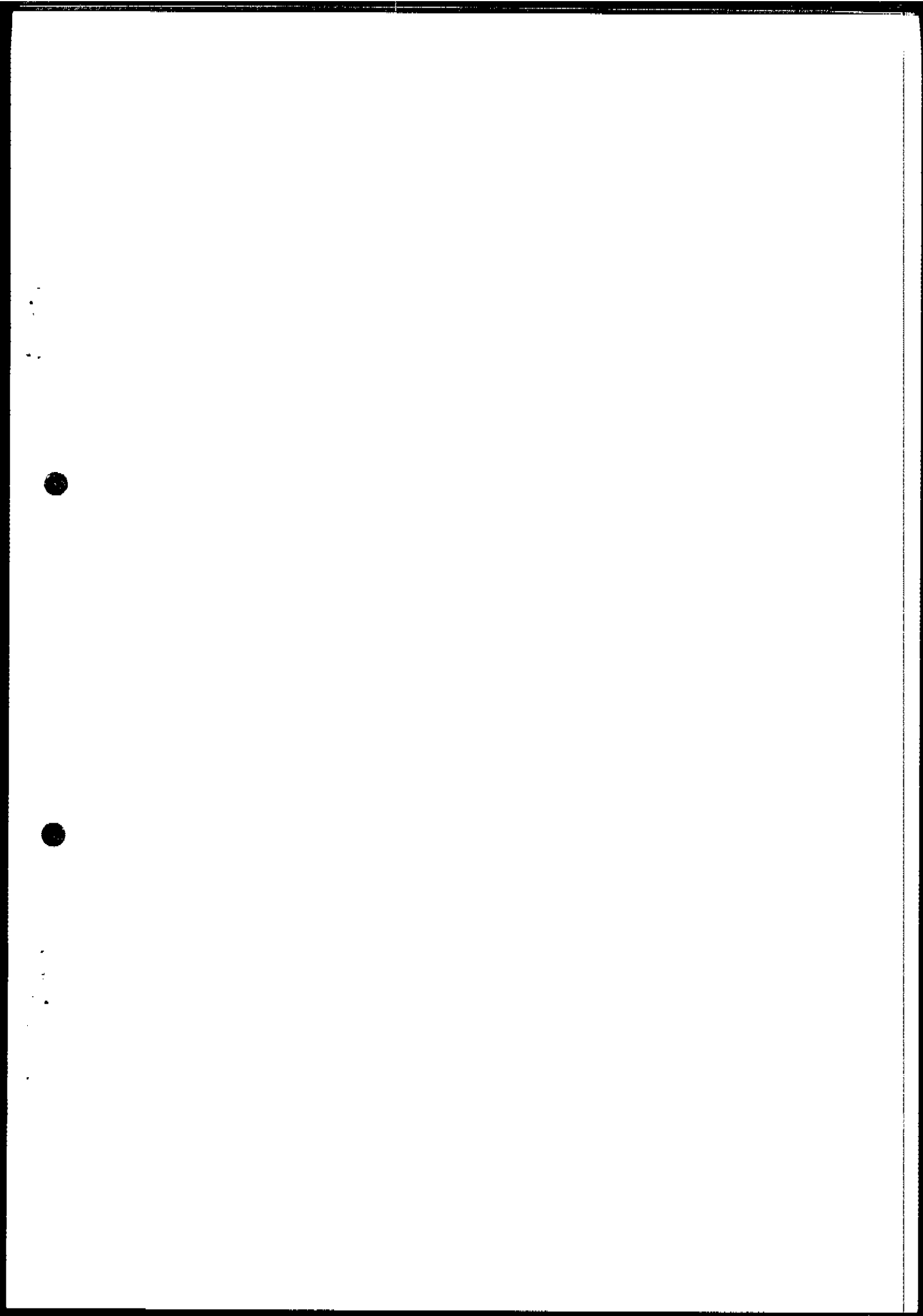
DESCRIPTION	OBLIGATIONS				(in US\$ 1 000)		
	[-----1984-85-----]		[-----1986-87-----]		[1988-89]		
	JCB- Approved	Latest Revision 31 March 85	JCB- Approved	% Growth*	Estimated		
(a) PLANNING AND EVALUATION							
1. Personnel Services	238.0	238.0	230.6	-3.1	242.1		
2. Meetings	262.0	117.0	150.0	28.2	157.5		
Total (a)	500.0	355.0	380.6	7.2	399.6		
(b) OPERATIONS							
<u>SWG or Sub-Component</u>							
Social and Economic Research	1 650.0	1 050.0	1 300.0	23.8	1 365.0		
TOTAL	2 150.0	1 405.0	1 680.6	19.6	1 764.6		

* Compares the increase (decrease) of 1986-1987 "JCB-Approved" with "Latest Revision 31 March 1985"

PROGRAMME AREA II: RESEARCH AND DEVELOPMENT

Table 5.12 STAFF REQUIREMENTS

COMPONENT	STAFF REQUIREMENTS (in staff years)					
	1984-85 JCB-Approved		1986-87 JCB-Approved		1988-89 Estimated	
	P	GS	P	GS	P	GS
General Activities	2	5	2	4	2	4
Malaria	8	6	8	6	8	6
Schistosomiasis	2	2	2	2	2	2
Filariasis	2	2	2	2	2	2
African Trypanosomiasis	2	2	2	2	2	2
Chagas' Disease	2	2	2	2	2	2
Leishmaniases	2	2	2	2	2	2
Leprosy	3	4	2	2	2	2
Biomedical Sciences	2	2	-	-	-	-
Biological Control of Vectors	4	4	4	4	4	4
Epidemiology	4	2	4	2	4	2
Social and Economic Research	2	2	2	2	2	2
TOTAL	35	35	32	30	32	30



6. PROGRAMME AREA III - RESEARCH CAPABILITY STRENGTHENING

In the immediate future, activities will focus on two major priorities: field research and basic biomedical technology.

Field Research

As new products and methods for disease control are developed, so there is an urgent need to increase the capability of scientists and institutions in endemic areas to evaluate them in the field. The Programme will therefore intensify its efforts to train appropriate personnel, in fields such as epidemiology, medical entomology, and social sciences, where trained staff are in short supply. The

Programme will continue to work with national authorities to identify research needs and to establish plans for the implementation of research in the field, through institution strengthening activities.

Biomedical Research

With the disestablishment of the SWG on Biomedical Sciences, the RSC has been assigned the task of strengthening selected institutions in developing countries in the use of modern biomedical concepts and techniques in research on the six diseases, with emphasis on immunology, molecular biology, biochemistry and genetics.

PROGRAMME AREA III: RESEARCH CAPABILITY STRENGTHENING

Table 6.1 GENERAL ACTIVITIES

DESCRIPTION	OBLIGATIONS (in US\$ 1 000)				
	[-----1984-85-----]		[-----1986-87-----]		[1988-89]
	JCB- Approved	Latest Revision 31 March 85	JCB- Approved	% Growth*	Estimated
Personnel Services	1 233.0	1 233.0	1 208.1	-2.0	1 268.5
Consultants	220.0	140.0	140.0	0.0	147.0
Duty Travel	270.0	162.5	187.7	15.5	197.1
RSG Meetings	233.0	160.0	184.8	15.5	194.0
Publications	25.0	15.0	20.0	33.3	21.0
Shipping & Insurance					
Cost Adjustments	74.0	22.2	25.6	15.5	26.9
TOTAL	2 055.0	1 732.7	1 766.2	1.9	1 854.5

* Compares the increase (decrease) of 1986-1987 "JCB-Approved" with "Latest Revision 31 March 1985"

PROGRAMME AREA III: RESEARCH CAPABILITY STRENGTHENING

Table 6.2 OPERATIONS

DESCRIPTION	OBLIGATIONS				(in US\$ 1 000)	
	[-----1984-85-----]		[-----1986-87-----]		[1988-89]	
	JCB- Approved	Latest Revision 31 March 85	JCB- Approved	% Growth*	Estimated	
1. Institutional Grants	7 858.0	4 530.5	4 935.0	8.9	5 181.8	
2. Training	6 429.0	5 470.5	6 570.0	20.1	6 898.5	
TOTAL	14 287.0	10 001.0	11 505.0	15.0	12 080.3	

* Compares the increase (decrease) of 1986-1987 "JCB-Approved" with "Latest Revision 31 March 1985"

PROGRAMME AREA III: RESEARCH CAPABILITY STRENGTHENING

Table 6.3 STAFF REQUIREMENTS

DESCRIPTION	STAFF REQUIREMENTS (in staff years)					
	1984-85 JCB-Approved		1986-87 JCB-Approved		1988-89 Estimated	
	P	GS	P	GS	P	GS
Responsible Officer	2	-	2	-	2	-
Medical Officer	6	-	6	-	6	-
Technical Officer	2	-	2	-	2	-
Secretarial Support	-	12	-	12	-	12
TOTAL	10	12	10	12	10	12

7. PROGRAMME AREA IV - PROGRAMME MANAGEMENT

The management and review mechanisms established at Programme inception, including the means of modifying them when required, have proved their effectiveness and value, as indicated below for illustrative purposes:

- The regular STAC review of SWG and RSC activities using Scientific and Technical Review Committees, has been shown to be an effective means of maintaining Programme relevance to problems of control of the six diseases.
- The revised meeting schedule of STAC in March and JCB in June/July has shown itself to be an improvement over the previous one.
- The means of orderly disestablishment of an SWG have been used successfully.
- The feasibility of following biennial budget cycles has been proved.

- The Programme's management and review mechanisms continue to undergo regular review to ensure that desirable improvements are introduced.

In June 1984, the JCB held its first session outside Geneva, in Bangkok, Thailand. It proved to be a satisfying and enlightening experience for many JCB participants to meet in a country where several of the diseases dealt with by the Programme are endemic and where important TDR-supported and other activities are underway toward controlling them.

The effectiveness of TDR's management information system (MISTR) continues to be improved. Furthermore, detailed studies are being carried out with a view to introducing modern office technologies in the management of the Programme. This Programme Budget for 1986-1987 includes a provision under Information Systems services to cover the costs of introducing the equipment and systems required.

100-100000



100-100000

2. REGIONAL OFFICES								
Personnel Services	868.0	868.0	868.0	940.5	8.4	987.5		
Duty Travel	88.0	88.0	57.2	66.0	15.4	69.3		
Subtotal - Regional Offices	956.0	956.0	925.2	1 006.5	8.8	1 056.8		
3. ADMINISTRATIVE SUPPORT COSTS	510.0	510.0	510.0	430.0	-15.7	451.5		
4. COMMON SERVICES AND PREMISES	790.0	790.0	790.0	912.0	15.4	957.6		
TOTAL	5 436.0	5 436.0	5 055.2	5 412.4	7.1	5 634.2		

* Compares the increase (decrease) of 1986-1987 "JCB-Approved" with "Latest Revision 31 March 1985"

PROGRAMME AREA IV: PROGRAMME MANAGEMENT

Table 7.2 STAFF REQUIREMENTS

DESCRIPTION	STAFF REQUIREMENTS (in staff years)					
	1984-85 JCB-Approved		1986-87 JCB-Approved		1988-89 Estimated	
	P	GS	P	GS	P	GS
OFFICE OF THE PROGRAMME DIRECTOR						
<u>Director and Supporting Staff</u>						
- Director	2	-	2	-	2	-
- Secretarial Staff	-	4	-	4	-	4
<u>Programme Management</u>						
- Responsible Officer	2	-	2	-	2	-
- Administrative Officer	2	-	2	-	2	-
- Secretarial Staff	-	2	-	2	-	2
<u>Communications</u>						
- Communications Officer	2	-	2	-	2	-
- Editorial Assistant	2	-	2	-	2	-
- Secretarial Staff	-	6	-	2	-	2
<u>Information Systems</u>						
- Management Officer (Information)	2	-	2	-	2	-
- Clerks/Coders	-	4	-	6	-	6
- Secretarial Staff	-	2	-	4	-	4
<u>Operations and Finance</u>						
- Management Officer	2	-	2	-	2	-
- (Operations & Finance)	-	4	-	3	-	2
- Technical Assistants	-	4	-	4	-	4
- Secretarial Staff	-	4	-	4	-	4
Sub-Total	14	26	14	27	14	26

Table 7.2 STAFF REQUIREMENTS (cont'd)

DESCRIPTION	STAFF REQUIREMENTS (in staff years)					
	1984-85 JCB-Approved		1986-87 JCB-Approved		1988-89 Estimated	
	P	GS	P	GS	P	GS
REGIONAL OFFICES						
<u>AFRO</u>						
- Medical Officer	2	-	2	-	2	-
- Secretary	-	2	-	2	-	2
<u>AMRO</u>						
- Medical Officer	2	-	2	-	2	-
- Secretary	-	2	-	2	-	2
<u>EMRO</u>						
- Medical Officer	2	-	2	-	2	-
- Secretary	-	2	-	2	-	2
<u>SEARO</u>						
- Medical Officer	2	-	2	-	2	-
- Secretary	-	2	-	2	-	2
<u>WPRO</u>						
- Medical Officer	2	-	2	-	2	-
- Secretary	-	2	-	2	-	2
Sub-Total	10	10	10	10	10	10
ADMINISTRATIVE SUPPORT SERVICES						
	0.5	12	-	12	-	12
TOTAL	24.5	48.0	24.0	49.0	24.0	48.0