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**REPORT OF THE SECOND MEETING
OF THE
TECHNICAL ADVISORY GROUP
ON THE DIVISION OF
CONTROL OF TROPICAL DISEASES
(CTD)**

9-11 MARCH 1998



**WORLD HEALTH ORGANIZATION
GENEVA, SWITZERLAND**

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CTD TECHNICAL ADVISORY GROUP (TAG)
Geneva, 9-11 March 1998

REPORT OF THE SECOND MEETING

INTRODUCTION

The second meeting of the WHO Division of Control of Tropical Diseases (CTD) Technical Advisory Group was held at the World Health Organization, Geneva, from 9 to 11 March 1998 and was attended by fifteen members and one co-opted member (Annex 1).

The meeting was opened by Dr R. H. Henderson, Assistant Director-General on behalf of the Director-General, Dr Hiroshi Nakajima. In his opening address he referred to the enlargement of the membership of the Technical Advisory Group by the addition of some members of the now disestablished Director-General's Task Force on Malaria Prevention and Control, whom he thanked for their contribution over the previous two years. He pointed out that Malaria remained the number one priority disease of CTD and that in order to accommodate the increasing global interest and malaria control activities, CTD was being re-organized to cope with the additional demands being placed upon it. The new structure has been designed to ensure a new level of efficiency and productivity to better meet the needs of the Member States.

He thanked Professor David Molyneux for accepting to continue as Chairman of the Technical Advisory Group and proposed Dr T. Pyakalia as Vice-Chairman and Professor L. Salako as rapporteur for the duration of the meeting. Both appointments were approved by acclamation.

In welcoming the participants on behalf of the Division, Dr Behbehani, Director CTD, highlighted some of the developments since the last meeting of the TAG. He referred particularly to the US\$20 million special allocation by the Director-General to malaria control in Africa, saying that a report on how the funds utilized would be presented to the meeting. He mentioned increased collaboration between CTD and the private sector, noting in particular the donation of albendazole and other resources by SmithKline Beecham plc for the global elimination of lymphatic filariasis and the registration of a new drug, triclabendazole of Novartis for fascioliasis infection in man. He remarked that although the global eradication of dracunculiasis was yet to be achieved, progress continued to be made, and the outlook for the future is optimistic.

The Chairman, in his opening remarks emphasized the importance of malaria and expressed optimism that malaria would continue to have an increasingly prominent place in the programme of the incoming WHO Director-General as judged by the comments that Dr Gro Harlem Brundtland made on malaria to the Executive Board upon her nomination. Professor Molyneux also called attention to Dr Brundtland's remarks on urbanization and the problem urbanization posed to malaria control and the interrelationships between disease control and health sector reforms.

The meeting adopted the agenda (Annex 2) with the addition of two more items, the proposed WHO Expert Committee on Malaria and the financial status of CTD. The report of the first meeting of the Technical Advisory Group was endorsed.

MALARIA

The accelerated programme for malaria control in Africa

In 1997 a special allocation of US\$ 10 million was made by the Director-General for malaria control activities in Africa. These funds were used to develop a programme for the accelerated implementation of the global malaria control strategy in 21 countries of the WHO African region and three countries in the Eastern Mediterranean region namely Djibouti, Somalia and Sudan, representing about 50% of the malaria endemic countries in Africa. These 24 countries fulfilled the agreed-upon criteria for inclusion in the programme. The activities have been evaluated and the results are in the process of being analyzed.

Achievements of the accelerated programme

All countries and WHO gained considerable experience in planning and implementing malaria control activities in a sizable group of countries in Africa. The rate of implementation of planned activities ranged from 33% to 90% in countries of the African region and 38% to 90% in the Eastern Mediterranean countries. A total of 13,100 health workers had been trained in the African Region and 3,616 health workers in the Eastern Mediterranean Region, particularly in case-management. Advisory or Technical Committees are now in place in a number of the countries. Antimalarial drug efficacy testing has been carried out in 24 countries, community awareness has been increased and mosquito net impregnation centres have been established in many countries. Many countries now have improved capacity for problem identification.

Problems and constraints of the accelerated programme

Several problems and constraints were encountered in the planning and implementation of the accelerated programme for malaria control. The major constraint was the limited time available for utilization of funds, compounded by the late arrival of supplies and equipment. There was a shortage of technical staff, tools were used inefficiently and some programmes deviated from the planned activities without informing WHO. Linkages between district and central levels were weak as were monitoring and supervision. Inadequate supply of drugs and other materials and poor counseling in patient management were also problems.

Potential solutions

There is a need for countries to prepare more realistic and comprehensive plans of action with objectives, targets and indicators established taking account of all funding sources. Regular programme monitoring and evaluation are essential to address indicators and to measure impact on morbidity and mortality. Epidemic monitoring capacity needs to be strengthened, guidelines produced for epidemic prevention and control and drug policies improved. Finally, the human resources available to malaria control programmes require strengthening if an effective country programme is to be sustained and appropriate supervisory structure established to ensure monitoring and evaluation.

A further US\$10 million has been given in 1998 for the accelerated programme to ensure continuity of action. There are prospects that other donor agencies will provide additional funds in 1998. The momentum created by this initiative will be continued in 1998 to build the necessary infrastructure for malaria control. Six more countries have fulfilled criteria for

inclusion in the accelerated implementation of malaria control programmes. However, the scarcity of appropriate trained professionals to lead the large number of health workers that have been trained was noted. It was stressed that the quality of training given and the likely attrition rate should be carefully monitored. The evaluation of the 1997 activities has been confined to operational issues. In the future attention will be paid to determining the impact on malaria mortality and morbidity as part of the validation of the Global Malaria Control Strategy.

Basic support for malaria control in the African region

There are 42 malaria endemic countries in the WHO African region and in 1997, 21 of these were supported by the WHO accelerated programme, two by the World Bank (Sao Tomé et Principe and Madagascar), Eritrea was funded by the Italian Cooperation and South Africa funded its own programme. Additionally, the remaining countries (Angola, Cameroon, Central African Republic, Congo Kinshsa, Equatorial Guinea, Gabon, Guinea Bissau, Niger, Nigeria and Swaziland) which were not included in the Accelerated Malaria Control Programmes were also financially supported by WHO/CTD and partners (DFID; USAID and the Belgian Cooperation), each receiving a grant of between \$25,000 and \$127,000 mainly for training on the management of severe disease and monitoring efficacy of antimalarials.

The funds allocated to countries, for example Nigeria for basic support (US\$127,000) was small in relation to its population (\$0.10 per capita), the size of the existing malaria problem and its capacity to utilize the funds. It was noted that no vector control activities had been included in the basic support programme.

CTD and AFRO have collaborated closely in supporting Member States and for both the accelerated implementation and basic support programmes the planning and evaluation have been agreed and implemented jointly. Some of the personnel now involved in AFRO's training, evaluation and operational research activities are the products of TDR's Capability Strengthening Programme and CTD's international training activities. The need for high level training of programme managers was noted. While TDR would continue to train researchers who could potentially become programme managers, the training of management skills remain the primary responsibility of CTD.

Increasingly, agencies are becoming involved in malaria control in Africa and parallel systems are being put in place which could lead to fragmentation of the global initiative. WHO must continue to take the lead in malaria control. WHO and partners should determine how to organize their malaria support programmes so WHO continues as the lead technical and facilitating agency and focal point for all malaria initiatives. To this end, when appropriate, major partners, such as the World Bank, should be invited to CTD meetings where malaria is a major agenda item.

Progress in malaria control in Lao People's Democratic Republic, Cambodia and Viet Nam

The malaria control programmes in these three countries are supported by a large project with the European Union and is the first example of the European Union collaborating with WHO for malaria control. The control policy in these three countries is based on case management, personal protection using insecticide treated mosquito nets and vector control with indoor residual spraying.

Viet Nam

The progress made in Viet Nam in recent years is remarkable. Artesunate, the first line drug, is provided to the population free of charge and its local manufacture was developed with the support of WHO. Community mobilization and school health are major features of the programme with mobile teams operating in remote areas. Up to 9 million people use treated mosquito nets which are also provided free-of-charge by the government. Residual spraying is carried out using lambda-cyhalothrin, but this is being gradually replaced by the widespread use of treated mosquito nets.

Deaths due to malaria fell from nearly 5,000 in 1991 to about 100 in 1996. Despite this, problems encountered include high levels of parasite resistance to antimalarial drugs, vector resistance to some insecticides, population movements, environmental modification, lack of trained staff in the periphery, and shortages of antimalarial drugs and insecticides.

Cambodia

The impact of recent control programmes in Cambodia is demonstrated by a 50% reduction in deaths among hospital cases between 1992 and 1996 and a 63% reduction in fever cases between 1995 and 1996. Problems include poor accessibility, shortage of trained health workers, absence of guidelines for case management and poor knowledge of the cause of malaria by the people. Improvements need to be sought through extending the use of insecticide treated mosquito nets, establishing more health units in remote areas and producing guidelines for the management of malaria.

Lao People's Democratic Republic

Until recently only a limited control effort could be put in place, but since 1996 some training activities have been embarked upon. Future plans include expanding the health information system, use of insecticide treated mosquito nets and ensuring drugs are available at affordable cost, together with a strengthened capacity for control and strategies for border areas.

General

The Members of the Technical Advisory Group were concerned that the indiscriminate use of artesunate could lead to the development of resistance to this antimalarial drug in Viet Nam. This was being monitored. Widespread use of artesunate has, however, led to a significant reduction in malaria mortality in the country. In addition, because of its gametocytocidal action, it is believed to have reduced transmission. Malaria vectors in Viet Nam are showing not only resistance to permethrin but they have also changed their behaviour and become largely exophilic.

Malaria in the Americas

Malaria in the Americas is caused mainly by *Plasmodium vivax* which remains sensitive to available drugs whilst a smaller percentage is caused by *Plasmodium falciparum* with chloroquine resistance in some areas, particularly in Amazonia. Brazil accounts for about 39% of all malaria cases in the Americas. The drug policy in general includes chloroquine, quinine/tetracycline, clindamycin and artemisinin. The infrastructure of the national health

services should accommodate containment of malaria control. There is the potential for more serious problems if appropriate resources are not directed to the problem.

Recently in Brazil an independent evaluation revealed the cost-effectiveness and benefits of the Project for the Control of Malaria in the Amazon Basin, following the adoption and implementation of the Global Malaria Control Strategy since 1992. Between 1988 and 1996 the programme is estimated to have prevented 420,000 new cases and 52,000 deaths, which represents 1,939,000 Disability-Adjusted Life-Years (DALYs) gained and benefits (expenditures prevented) of US\$ 9,810,000. This analysis demonstrated that for each US\$ 67.00 spent on the programme one DALY was gained.

Malaria in Europe

Malaria was eradicated during the 1950s and 1960s in practically all countries except Azerbaijan and Turkey. However from the beginning of the 1990s the dissolution of the USSR and the political, social and economic consequences has seen the importation of malaria and re-establishment of transmission. Malaria is now found in six countries of the former Soviet Central Asia (The Newly Independent States of Azerbaijan, Armenia, Kazakhstan, Kyrgyzstan, Tadjikistan, Uzbekistan) as well as Turkey.

Malaria appears to be increasing in Azerbaijan, Tadjikistan and Turkey and epidemics have been reported in Azerbaijan and Turkey. *Plasmodium vivax* is the only indigenous species encountered except in Tadjikistan where refugees returning from Afghanistan and in-country migration has led to the re-establishment of *Plasmodium falciparum* transmission. The role of non-governmental organizations in managing epidemics, associated with the problem of migration and population displacement, need to be addressed.

Some interesting figures were presented regarding malaria in European travellers. Approximately 20 million Europeans visit malaria endemic countries annually and 16,000 cases of malaria occur in them with 20-30 deaths each year. The majority of cases are aged 25-44 years and 61% of *Plasmodium falciparum* is acquired in Africa and 77% of *Plasmodium vivax* is acquired in Asia. In one series, out of 11 deaths only one took prophylaxis.

Malaria in Asia and the Pacific

There are several high risk areas where multi-drug resistance, exophily of vectors, population movements and poor health infrastructure has resulted in an increase in *Plasmodium falciparum* 17.31% to 41.42% between 1975 and 1996. Overall, malaria deaths have been reduced since 1994 from 40,000 to 30,000 with India accounting for about 20,000. There are continuing dangers from epidemics in this region, with mortality rates of 10% when they occur.

The usual constraints to effective control exist:

- shortage of human resources,
- limited capacity to deal with drug resistant malaria,
- poor management information systems,
- limited intersectoral collaboration, and
- lack of integration of malaria control into general health services.

Efforts to improve control should include enhanced targeting capacity building for which revised training modules and curricula need to be developed.

The malaria situation is of particular concern in border areas, international co-operative actions are needed in training, exchange of information and monitoring of drug sensitivity. There is a risk that the situation may worsen with the recent economic recession that has affected the area, as a result of government budget cuts, increased migration and environmental changes.

The situation between North and South Korea was specifically mentioned where in South Korea malaria was believed to have been eradicated up until 1992. In 1993 the first case occurred and then malaria increased each year up to nearly 1,000 in 1997. A similar situation exists between Papua New Guinea and West Irian Jaya where collaborative control measures are needed. The suggestion was made that gametocytocidal drugs might be useful in reducing transmission in border areas.

Malaria in the Eastern Mediterranean

Both tropical African and oriental types of malaria transmission are found in this region but malaria is generally of low prevalence. Where it occurs, mortality is low. Some countries have effective control programmes. The control strategy is based on case management and use of insecticide treated mosquito nets. Transmission of *Plasmodium falciparum* malaria has been eliminated from Morocco and Syria, while in Oman only a small number of new cases - both locally transmitted and imported - have been reported from the country since 1996. No transmission has been reported in Egypt in 1997.

Transmission control is an essential element of the strategy for Asia, the Western Pacific and Eastern Mediterranean countries because of the epidemic potential.

Vector control

Disease prevention (personal protection and vector control) is the second element of the current control strategy. Many programmes aim to promote widespread use of insecticide treated mosquito nets and a number of activities have been undertaken by CTD towards this end. These include helping countries to formulate appropriate policy; production and distribution of copies of guidelines for use of nets; training; establishment of treatment centres; procurement of nets and insecticides; stimulation of private sector interest; and intercountry workshops.

Operational research issues already identified include feasibility of different implementation models; integration with other health care interventions; investigating different financing mechanisms; determining motivating or demotivating factors at household levels; identifying factors influencing coverage; and monitoring insecticide resistance.

The Technical Advisory Group emphasized that sustainability of the use of insecticide treated mosquito nets is critical and relates closely to financing methods. This is particularly important as case management is the key element of the strategy as these different elements of control strategy should not compete for resources to the detriment of case management. Insecticide treated mosquito nets reduce transmission first and achieve a reduction in

morbidity and mortality but sustained use is essential. Impregnated materials should have an impact on the rate of development of drug resistance and this interaction needs to be evaluated in policy setting.

The Technical Advisory Group was concerned about the significance of pyrethroid resistance in the context of deployment of insecticide treated mosquito nets. This requires study as does the alternatives to pyrethroids for impregnation and the applicability of them in different malaria paradigms. A key question that was raised is whether governments with support from UNICEF, Rotary and others should bear the full cost of mosquito nets, as with EPI, or how and if the cost be passed on to consumers via a cost recovery system. Non-governmental organizations could also be helpful in procurement and distribution.

Malaria in pregnancy

The Technical Advisory Group considered the need for a clear recommendation on prevention and treatment of malaria in pregnancy. Evidence available from studies in Malawi and Kenya shows that intermittent treatment twice during the pregnancy, or monthly prophylaxis with sulfadoxine-pyrimethamine (S-P), is better than presumptive treatment during pregnancy. The CTD/TDR study on the efficacy of S-P for prevention of placental malaria in an area of Kenya with a high prevalence of malaria and HIV infection showed that in such areas more frequent administration of an effective antimalarial drug may be needed. Results of other ongoing studies are still being awaited. It was suggested that this topic be addressed by the Expert Committee on Malaria planned for 1998 in conjunction with micronutrient supplementation during pregnancy. CTD is working closely with the WHO unit of Maternal and Newborn Health and Safe Motherhood in the development of the malaria component of the Essential Care Package for Maternal Health. The outcome will be essential care practice guides (mother-baby packages) and the new policy for the malaria protection of pregnant women will be incorporated.

Monitoring efficacy of antimalarial drugs

Over the past year CTD has been monitoring the therapeutic efficacy of antimalarial drugs in 24 countries of Africa using a modified *in-vivo* test as a basis for the formulation of national drug policies. Access to early diagnosis and appropriate treatment shortens the duration of the disease, prevents its progression to severe malaria and death. Systems to ensure the availability and rational use of affordable and effective drugs are required at all levels of the health system, and should include recognition of the role of the private sector as a key provider.

Ministries of Health should monitor the efficacy and effectiveness of the recommended treatment regularly to guide programme policy. Evaluation should be done both at central and at peripheral levels. A decision as to whether a standard policy is appropriate for an entire country or whether different policies are needed for different parts of the country, might be required. This is relevant as drug sensitivity can differ significantly between different parts of the same country. Policies should take this into consideration.

The key problem from such sensitivity tests is how to effect policy change, an issue that needs to be addressed by appropriate health policy research. The cost to the health system to change the antimalarial drug use policy must also be carefully considered and weighed

against benefits. The need for appropriate resources to address this operational issue was recognized.

Whilst molecular markers for assessing parasite resistance and sensitivity to some drugs is likely to be available and development for field use would be a major advance. The relation between research, policy and implementation in this field is a major challenge at country level. The contribution of fake, counterfeit and substandard drugs to the frequency of treatment failures is also unknown and assessment of drug quality is needed especially in Africa. The role of *in vitro* tests to monitor response in individual cases in areas with increasing chloroquine resistance needs to be determined.

Artemisinin and its derivatives

Artemisinin and its derivatives (artesunate, artemether, dihydroartemisinin and arteether) are currently in use and more are under development (arteflene, artelinic acid, synthetic trioxanes and artemether-benflumetol). There is no evidence that they are more rapidly acting than quinine, but their importance in treatment of multidrug-resistant malaria or their potential as a simple intervention at this periphery in supporting from or as a transmission control tool, is highly significant for the future.

A review meeting on artemisinin drugs will be held in Annecy, France in April. CTD will hold a joint meeting with the Division of Drug Management and Policies (DMP) and TDR on the use of artemisinin and its derivatives in June 1998. This latter meeting will examine the issues associated with the use of these drugs, review existing policies, advise WHO on future policy and guidelines and define future research and development needs.

Issues to be addressed are: high consumer demand, widespread marketing, misuse in the private sector and poor quality imitations. To solve such problems, there is a need to:

1. development of standards for manufacture and use,
2. ensure quality control including strengthening more centres to undertake this activity.

The potential gametocytocidal action of the artemisinins required validation as the evidence for this was largely indirect. It was suggested that studies on the effect of artemisinins on developmental stages, as well as blood stages, be undertaken.

The Multilateral Initiative on Malaria (MIM)

The formation of the Multilateral Initiative on Malaria resulted from a meeting of malaria researchers, which was held in Dakar in January 1997. MIM is a newly developed forum of funding agencies and researchers concerned about malaria. The forum has defined its aims and set priorities for immediate action at a meeting held in London in November 1997. These include strengthening malaria research capacity in Africa under the responsibility of TDR, sequencing the malaria genome, communication and advocacy. NIH, TDR, AFRO, CTD and World Bank are financially supporting this initiative.

The initiative was endorsed by the Technical Advisory Group who considered it as a well focused initiative that will stimulate good research and change completely Africa's involvement in science. A MIM Task Force has been set-up comprising 5 African and 5 non-African scientists to evaluate proposals for capacity building. CTD is represented on the

Task Force by a staff member. The first applications for support have recently been considered. Out of 62 applications, 15 were recommended for funding. It was suggested and agreed by the Director, TDR that WHO/AFRO be strongly represented at the MIM task force meetings by one representative of WHO/AFRO secretariat and at least the Chairman of WHO/AFRO Task Force on Malaria Control.

The Director-General's Task Force on Malaria Prevention and Control

This Task Force was established in response to a WHA resolution calling for increased action on malaria. The Task Force held two meetings before its disestablishment and made a series of recommendations. The mandate of the Task Force has now been transferred to the TAG.

The Task Force, at its second meeting, applauded the progress made by WHO since its first meeting and endorsed the WHO global malaria control strategy. It recommended that WHO re-establish its role as the high profile leader in global malaria control and consider establishing a special programme on malaria with independent funding of all control components. The highest priority should be given to reducing malaria morbidity and mortality in Africa.

Countries should make political commitments to guarantee core funding of national malaria control programmes in line with the Harare Declaration. The Task Force recommended that an Expert Committee on Malaria be convened. The Technical Advisory Group noted the report of the Director-General's Task Force on Malaria Prevention and Control.

Proposed Malaria Expert Committee - October 1998

CTD proposes to hold the 20th WHO Expert Committee on Malaria in Geneva from 19 to 27 October 1998. The Technical Advisory Group reviewed the draft agenda, and endorsed the topics to be covered.

The focus of this meeting should be on Africa the agenda should include case management, drug resistance management and policy, selective vector control, linkages with primary health care and accountability of health services for implementation and success of malaria control.

The secretariat was asked to incorporate the suggestions of the Technical Advisory Group in order to keep the report more focused, taking into consideration the views expressed by the TAG.

Recommendations on malaria

The Technical Advisory Group was impressed by the support that WHO has provided in 1997 and 1998 for the accelerated control of malaria in Africa, by the progress made to date and the momentum created by this initiative. It also noted that CTD convened an interagency meeting for the Global Coordination of Action against Malaria in November 1997. A shortage of trained and experienced personnel, particularly at the professional level, was identified as a major global constraint to malaria control especially in Africa. The Technical Advisory Group was also conscious of the need to demonstrate the benefits derived from implementation of the Global Malaria Control Strategy.

With these issues in mind the Technical Advisory Group:

- Emphasized the need for a) interagency coordination in advancing the global malaria control strategy; b) adequate resources to be provided for national malaria control plans; c) support to WHO in order to strengthen its global leadership as identified by Dr Gro Harlem Brundtland in her address to the WHO Executive Board in January 1998.
- Urged that national capacities for planning, implementation management and evaluation of malaria control be strengthened through the accelerated programme of malaria control in Africa within the context of existing health system structures and to ensure sustainability of investment in human resource capacity.
- Emphasized the need for continued resources to be committed from WHO, other international agencies and bilateral donors, with country resources, to maintain the foundation and progress made following the Director-General's provision of US\$ 20 million as an initial step to achieving targets for reduced mortality from malaria.
- Recognized that malaria control outside Africa was a public health problem and urged that investment in control be continued, to avoid potentially severe deterioration in several countries of the American, Eastern Mediterranean and Western Pacific regions.
- Aware of other initiatives to support African countries in malaria control, recommends that WHO's Division of Control of Tropical Diseases (CTD) invite The World Bank and other major partners to its meetings where malaria control is a major agenda item.
- Recommends that, where possible in malaria endemic countries, the services of nationals trained (and institutes strengthened) by CTD, TDR and others, be used to support national control programme activities. In order to facilitate this, a cross data base linking the activities of CTD/TDR to be established.
- Recommends that detailed information on the cost-effectiveness and cost benefit of malaria control programmes be collected and made available to justify the in-country and external support and to attract new contributions.
- Recommends that the 90% of affected countries or territories, implementing appropriate control programmes in accordance with elements of the Global Malaria Control Strategy, be listed and that the status of implementation of these programmes in each country be provided. Efforts should be directed towards identifying the remaining countries, to determine how best to assist them to develop and implement realistic plans in accordance with the global malaria control strategy.
- Recognizes the problem of cross-border malaria control and recommends that WHO's Division of Control of Tropical Diseases and the Regions concerned, co-ordinate and promote information sharing, disease surveillance and control activities.
- Concerned about the introduction of both *P. vivax* and *P. falciparum* malaria to northern latitudes recommends that research be carried out to ascertain the ability of *P. falciparum* to adapt to *Anopheles* species of the sub-genus *Anopheles* (*An. maculipennis* and/or *An. sinensis* groups) occurring in Eastern European and Mediterranean countries or whether *P.*

falciparum is spreading only through the few *Anopheles* of the sub-genus *Cellia* (*Anopheles superpictus*, *Anopheles pulcherrimus* and *Anopheles pharoensis*).

- Recommends that:

1. CTD be involved in advising the national authorities when developing and reviewing national anti-malarial drug policies.
2. Research be conducted to determine how to effectively implement such policies.
3. Operational research studies be conducted to use GIS as a tool to map therapeutic efficacy.
4. Studies be conducted to determine the role of vector control, especially impregnated mosquito nets, in preventing or modifying the development of drug resistance.
5. Studies be conducted to determine how molecular markers of drug resistance can be introduced cost effectively into the therapeutic efficacy monitoring systems.

- Recommends that artemisinin (and its derivatives) and other anti-malarials be assessed for their activity against developing and circulating gametocytes with a view to instituting control measures directed towards reduction of transmission.

- Emphasized that the issue of sustainability of vector control measures, in particular impregnated mosquito nets, is important for tropical Africa where disease management is the priority and urged that impregnated mosquito net technology should be introduced in highly endemic areas but with new resources rather than at the expense of management of malaria cases. Furthermore wherever impregnated nets are introduced there must be the capacity to diagnose and manage cases efficiently and effectively as well as the capacity to monitor regularly the long term impact of impregnated net use, especially on host immunity.

DISEASES FOR ERADICATION OR ELIMINATION

Chagas Disease

Good progress is being made towards the elimination of Chagas disease transmission in the southern cone countries of South America. Overall incidence has been reduced by 67% and transmission practically eliminated in Uruguay, while Brazil is almost 96% free of the disease. The control programmes have been funded by national governments, and have proved cost-effective with a saving of \$17.00 for every dollar spent.

As plans for Chagas control involve countries in the Andean region and Central America, new difficulties may be encountered - different vectors with different ecology, closer contact with sylvatic habitats of bugs. The risk of natural infection is directly related to poverty and housing but rural to urban migration has transformed this disease into an urban infection that can be transmitted by blood transfusion. The rate of infection of blood in blood banks may vary between 3% and 53%, but the provision of increased screening in parallel with HIV and Hepatitis B has reduced transfusion transmission.

Dracunculiasis

Eradication of dracunculiasis is yet to be achieved. However in 1997, 21 countries were certified as having eradicated dracunculiasis and another 88 were certified in 1998 by the International Commission for the Certification of Dracunculiasis Eradication as transmission free.

Sixteen countries are still endemic for Guinea worm in Africa and one (Yemen) outside of Africa. Sudan has the highest prevalence, civil unrest making the implementation of eradication control plans difficult. Managerial tools have been developed through HealthMap but in South Sudan the Geographical Positioning System cannot be used for security reasons. The key to eradication in Sudan lies with the personnel of non-governmental organizations, who maintain basic services.

Other obstacles being encountered are weak health systems, lack of funds and poor accessibility to communities. Reduced resources will equate with reduced case detection and containment with consequent impact on the duration of the programme. Safe water supplies remain a key provision. Lack of resources result in staff being depleted, becoming complacent whilst momentum is lost as integration to achieve sustainability, within the general health services staff are not as enthusiastic, active or knowledgeable. Nevertheless, it is a necessary part of the process.

It has been recommended that rewards be given as eradication is in sight to detect the last case and foci. This remains a controversial issue. However, economic justification for this programme is exemplified. In Nigeria US\$ 20 million are lost by 1.6 million rice growers every year.

It was suggested that eradication target dates are best set country by country rather than globally. Free donation of filter cloth and insecticide are expected to end soon and countries would need to purchase these on their own.

Lymphatic Filariasis

The programme has one main goal, which is the elimination of filariasis as a public health problem from all endemic countries by the year 2020. The main elements of the control strategy are case management and drug distribution to cover the entire population at risk. Impact assessment using economic and health indicators is crucial to the strategy.

The new goal of elimination has only been possible because of the advancements in drug treatment. It has now been shown that a combination of diethylcarbamazine and ivermectin produces a greater and more lasting reduction in microfilaraemia than either drug alone. The combination of albendazole with ivermectin, albendazole plus diethylcarbamazine or diethylcarbamazine medicated salt have also shown a longer lasting reduction of microfilaraemia. Albendazole plus diethylcarbamazine has a good long term effect although the early effect is not as good as that of the other drug combinations. Drug treatment should be administered yearly and continued for 4-6 years. Ivermectin, diethylcarbamazine (at single dose) and albendazole are all safe drugs and chemotherapy for filariasis is accompanied by beneficial effect on other diseases. It was further noted that diethylcabamazine could not be used in countries where there is onchocerciasis.

This strategy aims at transmission interruption, but chronic disease might still persist. As far as alleviation of suffering from lymphangitis and elephantiasis is concerned, the approach focuses on health education and intensive local hygiene.

A major achievement in the past year has been the agreement between WHO and SmithKline Beecham plc, whereby the company will donate, through WHO, to Member States, all the albendazole required for filariasis elimination as well as other programmatic support.

The optimism that this strategy will be effective is based upon achievements in some countries using only one drug - diethylcarbamazine. In China for example the strategy was to use diethylcarbamazine alone and in treated salt together with intensive monitoring. Over three decades the microfilaria rate was reduced to less than 1%, and several provinces were certified as having eradicated filariasis.

The WHO Southeast Asia Region has about 50% of the global burden of lymphatic filariasis and control targets have now been set. A pilot study covering about 40 million persons is currently being undertaken in India.

Work is continuing in a number of countries to map the prevalence and distribution using seroepidemiological techniques. Microfilaraemia detection tests underestimate prevalence by about 50%. The more sensitive diagnostic test (circulating antigen detection) now detects infection early in the over two year olds.

Collaborating centres will be established to assist in the control and operational research activities. It is important for CTD to strengthen linkage with TDR through representation on appropriate Steering Committees and Task Forces in Operational Research.

Some of the operational research issues identified include:

- a) Transmission interruption studies - the role of combining chemotherapy with vector control. The latter in the short term can diminish mosquito biting rates. It is also useful to confirm whether in the long term combining vector control with chemotherapy has any advantage over chemotherapy alone.
- b) The effect of combination therapy on intestinal helminthiasis. For example, would combining albendazole with ivermectin have a potentiating effect on *Trichuris* infection.
- c) Evaluating the circulating antigen card test for whole blood - is this a more efficient and sensitive alternative to night blood examination for diagnosis.
- d) Long term efficacy of albendazole-containing regimens.
- e) Treatment of intestinal helminths with filariasis eliminating drug regimens
- f) Development of a kit for measuring interruption of transmission using a Polymerase Chain Reaction for testing mosquito vectors.

Hashimoto's Initiative

The meeting was informed that the Japanese Prime Minister, Mr Ryutaro Hashimoto had developed a new initiative for the global control of parasitic diseases including filariasis. He is expected to make an announcement on this initiative at the G8 Summit meeting in Birmingham, UK, in May 1998. Included are diseases such as malaria, lymphatic filariasis, schistosomiasis, leishmaniasis, trypanosomiasis and soil-transmitted parasites. Details will be worked out in the next few months and announced later.

Recommendations on diseases for eradication or elimination

Concerning these three diseases (Chagas disease, dracunculiasis, and lymphatic filariasis) the Technical Advisory Group:

- Recognized the advances made in Chagas disease control and supports the continuation of the Southern Cone programme and Andean and Central American country initiatives that have been inaugurated in the Americas
- Noted the imminent withdrawal of free donations of filter cloth and temephos to the global Guinea worm eradication programme and recommends that WHO/CTD identifies sources of funds for offsetting the additional costs to endemic countries
- Noted with satisfaction the important progress made and the effective work performed by the Division of Control of Tropical Diseases in the elimination of Guinea worm and in the control of schistosomiasis and intestinal parasites, in particular the continuing field studies and the training manual on intestinal parasites. It also recognized the need to complement these control efforts with safe water supply and sanitation programmes and recommends that the Division of Control of Tropical Diseases, in collaboration with other relevant Divisions of WHO, stimulates the commitment of Member States to implement interventions in this field
- Recommends that coordinated research be carried out to evaluate the effect of the filariasis mass treatment campaign on the prevalence of helminthiasis in view of the availability of effective chemotherapeutic agents such as albendazole and ivermectin.
- Recommends that CTD strengthen the implementation of the lymphatic filariasis elimination strategy with emphasis on morbidity management/control, and selective or mass chemotherapy, supplemented, where feasible, by vector control and sanitation. Also that increased support be provided for operational research studies on filariasis control, including multi-centre studies, through strengthened collaboration between national control programmes, CTD, Regional Offices and TDR
- Recommends that in filariasis endemic countries, programme and monitoring capabilities be developed for the implementation of mass treatment strategies.
- Commends Prime Minister Ryutaro Hashimoto of Japan on his initiative to include issues of world-wide control of parasitic diseases on the agenda of the 1998 Summit Meeting of The Eight, to be held in Birmingham, UK and noting that CTD has been cooperating fully with this initiative, recommends that it continue its efforts.

THE CONTROL OF OTHER TROPICAL DISEASES

African Trypanosomiasis

Sleeping sickness is a rural disease and is only transmitted in Africa (by the tse-tse fly). Control efforts have declined in parallel with the deterioration of health infrastructures and donor commitment. Sleeping sickness is increasing in Central Africa and a new focus of infection has been identified in Guinea. There was little support for control until 1995/96 when the Belgian and French governments provided financial support through the WHO Regional Office for Africa. It is estimated that 60 million people are at risk but only 4 million are under surveillance among whom 40,000 cases have been reported; a more realistic estimate would be around 300,000 new cases per year.

Implementation of the control strategy of surveillance, diagnosis and treatment, needs to be intensified in Central Africa. In West Africa, surveillance of onchocerciasis and trypanosomiasis could be coordinated where the two diseases overlap. The Division of Control of Tropical Diseases has reinforced and accelerated training, networking and coordination are essential components of the control strategy.

The constraints to implementing the strategy are a lack of financial resources, inadequate human resources, drug supply lines and the priority level accorded by Ministries of Health. Tse-tse fly traps are effective but have not yet been sustainably employed for many years. Geographical information systems technology is being used to record village level information, based on the dracunculiasis model. Research priorities have been defined with the field workers and include pharmacokinetics studies. The control strategy has been available for years and has been proved to be effective, if implemented properly.

Dengue And Dengue Haemorrhagic Fever

A comprehensive presentation on dengue and dengue haemorrhagic fever was made to the Technical Advisory Group in 1997. Thus, only a brief presentation of the subject was made essentially updating events since the last meeting. Several factors are responsible for the resurgence of dengue and dengue haemorrhagic fever, in particular proliferation of the vectors, virus diversity dissemination, and absence of comprehensive management information systems.

WHO's response has been to raise the level of awareness of the problem and develop global/regional strategies for its control. The essential elements of the control strategy are control of vectors and epidemic preparedness; in addition a manual on guidance on clinical management and diagnosis has been developed by the South-East Asian Regional Office.

Intestinal Helminthiasis and Schistosomiasis

In 1997, CTD further strengthened support to Member States in the control of intestinal parasitic infections and schistosomiasis, developed collaboration with UNICEF and the World Bank and finalized research on the impact of helminth control in pre-school children in Zanzibar, United Republic of Tanzania.

Soil transmitted nematodes can be managed by single dose treatment with drugs. The target high-risk group are pre-school children over 30 months, school age children, girls and pregnant women in whom iron stores are maintained especially during pregnancy. Treatment three times annually has been shown to increase iron stores and prevent the loss of over 250ml blood through the gut annually. Studies are underway on the use of iron supplements to the regimens for the treatment of hookworm.

The second version of the PC software IPI-Menu for the collection and analysis of epidemiological data on soil-transmitted nematodes is now available. This software and its manual, together with the guidelines for assessing the level and burden of soil-transmitted helminthiasis and schistosomiasis at the community level, represents a new tool for programme managers implementing and monitoring programmes.

The problems of ascariasis, *Trichuris trichiura* and hookworm infections were highlighted. Morbidity is high but mortality is low and whilst incidence is reduced by the provision of water and sanitation, chemotherapy is necessary because of the prevalence levels in some communities. The aim is to have an effective, safe, single dose antihelminthic. Treatment should be combined with micronutrients and the outcome of ongoing studies will be reported to the next meeting of the Technical Advisory Group. *Vertical programmes are to be avoided and integration of activities into existing programmes, especially primary health care is strongly advocated.*

Although still worldwide in distribution, 80% of schistosomiasis cases in the world occur in sub-Saharan Africa, especially in children in the 5-14 age group. It is necessary to adapt the strategies that have worked elsewhere to control the disease in Africa. Children must continue to be targeted for control and the use of simple diagnostic techniques promoted. Imported schistosomiasis is found in Oman, whilst transmission does occur in Jordan, even though the cases are imported, local vector/snails sustain transmission.

The following research issues were identified:

- Evaluation of cognitive improvement after chemotherapy
- Evaluation of improvement in nutritional status when micronutrients are added to chemotherapy
- Evaluate the impact of treatment on the health of pregnant women
- Monitor the possible development of resistance to antihelminthics
- Study drug combinations for example albendazole/praziquantel, and albendazole/pyrantel.
- Quantify the level of morbidity, and hidden morbidity due to schistosomiasis.
- Conduct studies on genital schistosomiasis

Leishmaniasis

This disease is endemic in 88 countries. At present there is a serious problem of kala-azar in Africa (Sudan, Ethiopia and Eritrea). The control strategy includes diagnosis (parasitological and serological), drug treatment and vector control using insecticide treated mosquito nets where appropriate. Treatment and diagnosis is expensive. Pentavalent antimonials are now produced in India, although one tenth of the regular price, they are still at the upper limit of affordability. Most of the reporting and control activities in Africa are by non governmental organizations which have special teams, treatment facilities and provide services to the

population free of charge. In Africa control activities are not therefore integrated into the health system.

The visceral leishmaniasis problem in Eastern Sudan is particularly serious where, in one epidemic, 50% of the population died and in one treatment centre, there were 1,000 cases a month. The distances of health care from communities is too great and to improve this accessibility non-governmental organizations are creating basic treatment facilities. Accessibility to diagnosis and treatment are needed and a drug supply line should be established. In the periphery a simple test can be used (DAT) for admission to treatment in view of the shortage of facilities and supplies, large numbers of cases and the very high cost of treatment. More research is needed on post kala-azar dermal leishmaniasis to determine the extent of the problem, to clarify the condition and management methods.

Many people in leishmaniasis endemic countries have co-infection with leishmaniasis and HIV. Co-infection is being reported from 22 countries at present. The immune suppressed patients become an important reservoir of infection as they have high parasitic loads. A joint venture between UNAIDS and the Division of Control of Tropical Diseases has been recently launched to respond to this new threat combining technical expertise and financial support of both programmes. Thus, this joint venture aims at improving surveillance, case management and coordination between the institution members of the surveillance network.

Poor control of leishmaniasis is due to limited national commitment, in not using the available tools effectively and their affordability. However, first-line drugs in use, although developed some 40 years ago, are still expensive. WHO must provide technical leadership to find and implement viable new tools for introduction into its control strategy.

CTD has been proactive in developing cost-effective control measures such as a simple, cheap and reliable serological tests (dipstick K39 and DAT) or pyrethroid impregnated bednets (PIB) as an alternative for vector control. In Syria, in an anthroponotic cutaneous leishmaniasis focus, the use of PIB led to a significant drop in incidence (75%) showing therefore a good efficacy whilst in control villages, using non-impregnated bednets, the incidence increased by 150%. Due to the success obtained, the project has been extended for large-scale coverage of the population in the same area. Similar projects are carried out in three other countries (Bangladesh, Nepal and Sudan).

RECOMMENDATIONS ON CONTROL

The Technical Advisory Group:

- Recommends that attempts be continued to mobilize resources (including from the World Bank) to increase efforts to control African trypanosomiasis, to ensure increased coverage of surveillance, and that structures and local resources for implementing control programmes are effectively used given that this disease poses a serious development constraint.
- Re-emphasized that the drugs currently available for the treatment of trypanosomiasis and leishmaniasis are toxic, expensive and not available at the periphery and recommends that efforts be intensified to develop more effective, appropriate and cheaper alternatives

- Noted with appreciation the leishmaniasis/HIV control programme of CTD and UNAIDS and recommends that CTD promote its coherent strategy for the control of leishmaniasis, especially in anthroponotic foci through: a) validation and decentralization of improved serological diagnostics; b) the establishment of supply lines for drugs; c) the evaluation of cheaper antimonial compounds; d) the involvement of NGOs in control especially during epidemics; e) the completion of the evaluation of impregnated net programmes; and f) clarification of the clinical management of post kala-azar dermal leishmaniasis
- Noted the problem of ensuring drug quality for disease management, especially in Africa, and recommended that national and/or regional centres be established for quality control and that countries be urged to enact and enforce necessary legislation on quality of drugs circulating in the community
- Acknowledges the past and recent donations from industry for tropical disease control programmes and recommends that CTD approaches industry for further additional support and possible donations of drugs and insecticides as exemplified by the recent agreement with SmithKline Beecham plc for elimination of lymphatic filariasis worldwide.

TROPICAL DISEASE RESEARCH

The TDR Scientific and Technical Advisory Committee

The Chairman of the Scientific and Technical Advisory Committee (STAC) of the Special Programme for Research and Training in Tropical Diseases (TDR), Dr Carlos Morel, highlighted various aspects emanating from the recent meeting of this Committee. The three research areas of TDR are strategic research, product development and applied field research.

Priorities in strategic research from which new understandings of disease processes could be derived and be useful in developing intervention tools include research in the area of molecular entomology especially on translocation leading to non-vector phenotypes, the neurotrophism of *M. leprae*, antigenic variation of *P. falciparum* and bioinformatics. One important decision made by TDR is to facilitate research on the selected parasite genomes.

On product development, the need is to focus on priorities particularly new vaccine formulations for malaria, and research on new drugs for malaria, African trypanosomiasis, Chagas disease and leishmaniasis.

In the area of applied field research (AFR), for which a greater collaboration between TDR and CTD is called, the main activities are malaria and health sector reform to support national and local efforts and research capability strengthening especially for the least developed countries of Africa and as part of the Multilateral Initiative on Malaria in Africa (MIM).

The importance of a good communication network with strengthened institutions was emphasized. This could be achieved through Internet and electronic mail connectivity. The third external review of TDR is underway and a final analysis will be reported to the June 1998 meeting of the Joint Coordinating Board (JCB). It has been agreed that one additional half day will be dedicated to presentation and discussion of joint TDR malaria research/CTD control activities to serve as a model for the future.

Applied field research

The Chairman of the CTD/TDR Steering Committee on Applied Field Research, Professor O. Kale gave a brief report on recent activities. He stated that this was the key interface between tropical diseases control and research. The number of task forces has been reduced from eleven to seven. The main thrust of the research activities of AFR Task Forces has been on compliance and improvement in the field applications of the tools and strategies for delivery of disease control measures. Professor Kale highlighted some of the major achievements recorded by AFR since the first meeting of the TAG in 1996. A review of the role of the two Divisions in the Applied Field Research area has recently been undertaken. The interaction between research and control should be seamless, and whilst validated research findings need to be implemented rapidly, resource constraints often prevented the use of effective tools. If however, applied or operational research was part of the ongoing programme, implementation into control was rapid (e.g. in Chagas disease and OCP).

Recommendations on Research

The Technical Advisory Group :

- Recognized the need for the CTD/TDR Steering Committee on Applied Research (AFR) to broaden the input for research proposals and recommended that the new mechanisms include research areas identified by the Technical Advisory Group, CTD and control programmes and that the task forces established by AFR continue to be even more responsive to the needs of the control programmes
- Noted and endorsed the proposal by TDR STAC that a joint CTD/TDR meeting on on-going and future operational research activities for African trypanosomiasis be held in late 1998.

HEALTHMAP

HealthMap is a collaborative programme between WHO the Division of Control of Tropical Diseases and UNICEF. A customized geographical information system has been designed and developed by HealthMap in collaboration with the dracunculiasis eradication programme to facilitate data manipulation and mapping for monitoring purposes. This computer communication system allows access to scientific information stored in WHO/HQ. No specialized training either in GIS or data management is required to use the system. The system can be installed as a stand alone application on diskette and CD-ROM and is made available free of charge to interested persons.

The demand for this general decision assisting tool is increasing. It is user friendly and can be applied to any disease. The application is available on the CTD Website on Internet and allows for on-line queries and creation of maps. It can usefully be used for monitoring disease development, epidemic development and at the country level as an early warning system. Through the world wide web maps for countries and parts of countries can be coordinated.

WHO PESTICIDE EVALUATION SCHEME (WHOPES)

The WHO Pesticide Evaluation Scheme is the only scheme of its kind for testing pesticides and equipment for public health use. The activities in 1997 included country support, research and development and operational research, and coordination and management of partners. There has been a steady increase in the number of products being submitted for evaluation and there are at present 16 products with 10 active ingredients from major industries. All are pyrethroids except for two.

Phase I of the testing scheme is to measure efficacy against mosquitoes, triatomine bugs and tse-tse flies. Studies are carried out in designated centres and investigate safety, potential for cross resistance and diagnostic concentrations. Phases II and III are field studies. At present eight insecticides are being studied in 13 countries in four WHO regions. There will soon be studies in Bolivia for Chagas disease transmission control.

Another aspect of WHOPES is the bench and field evaluation of equipment but more collaborating centres are needed for this. Guidelines are being developed on the specifications for household insecticide products.

A newly established collaboration, particularly with industry, is the Global Collaboration for the Development of Pesticides in Public Health (GCDPP). As of February 1998, there were 26 institutional members. The armamentarium of safe and effective insecticides for public health use is greatly depleted and represent only 10% of the pesticide market. There is currently over-reliance on pyrethroid pesticides in agriculture and public health.

Pyrethroids are the only class of insecticides suitable for insecticide treatment of mosquito nets and materials. There is cross-resistance between the pyrethroids but this may not be as critical to the effectiveness of insecticide treated mosquito nets as was at first feared. Nets may still be effective in spite of resistance. Vector behaviour continued to be an important area of research which has a direct impact on control strategies.

Research on irritants and repellents could be useful for individual protection. Irritant insecticides could be used as an adjunct to pyrethroid-treated nets. Repellents might also be used to impregnate nets instead of pyrethroids. Their development should be encouraged. Another area for study is chemical behaviour and ecology of vectors - what chemicals guides them to humans and what chemicals determine the type of breeding site chosen by the mosquito.

Companies should be approached to donate insecticides to countries undertaking vector control programmes especially in Africa. It was pointed out that the pesticide - Temephos - has been donated free by Cyanamid for Guinea-worm control for over nine years. This free donation programme is to come to an end soon and countries will have to pay for the insecticide.

Recommendation on the WHO's Pesticide Evaluation Scheme

- The Technical Advisory Group recommends that the selective vector control component of the Global Malaria Control Strategy be promoted, that operational research studies continue to be carried out to demonstrate the extent of pyrethroid resistance and cross-resistance and determine the impact for malaria control and what alternative class or

classes of products could be safely used for impregnation. CTD/WHOPES is urged to approach industry to emphasize the need for research and development of new products.

HUMAN RESOURCES DEVELOPMENT

The Technical Advisory Group congratulated CTD on its capacity building activities and training materials that have been developed. One problem identified was how to retain trained personnel within the system. It was suggested that countries need to evolve career structures that are sufficiently attractive to keep people in their jobs. Also booster training helps to keep people in service and for this, regional networks need to be established. It was considered that centrally prepared training modules need to be adapted to local needs in the same way that locally prepared modules can form the basis for global modules.

Distance based learning is potentially highly cost-effective. It is available for public health through the public health training network in Atlanta. It was reported that there is a distance learning coordinator in each State and the learning process is both paper and computer based. It should be possible to adapt the materials to other countries. WHO is seeking to collaborate with suitable institutions of higher learning on this issue.

Recommendations on human resources development

The Technical Advisory Group acknowledges the efforts made by CTD in the area of human resources development and recommends that training capacity at country and community levels be further strengthened and that Member States be encouraged to develop career structures to retain trained personnel in-service. Furthermore, it is recommended that CTD and TDR share data base information relating to trained human resources.

DIVISIONAL WEBSITES

Two websites were presented during the TAG meeting. The new updated CTD Website will contain much needed information on tropical disease control. The Malaria Network (an Internet based product, in collaboration with the World Bank) will be a global network with a focused clientele of malaria control programme managers, Ministry of Health officials and other health workers with specific responsibilities for implementation of malaria control. It should provide information (both of a technical and managerial nature) relevant for malaria control activities in the field. It will function as a forum for discussion for participating programme managers both among themselves and with WHO/World Bank.

COLLABORATION WITH REGIONAL OFFICES

A one day meeting was convened in Geneva between the professional staff of CTD and the WHO Regional advisers immediately prior to this meeting of the Technical Advisory Group. The purpose of the seminar was to strengthen the planning process through greater involvement of the regional offices in the CTD's activity planning. This will be repeated every year as it was found to be most beneficial and the effective and close collaboration that CTD has with the regions had been remarked upon by the Global Management Development Committee in their review of the CTD in 1997. The report of the meeting was presented to Technical Advisory Group and noted with appreciation.

MANAGEMENT AND FINANCES

The current financial situation of CTD was presented to the Technical Advisory Group for information purposes. The total cost of activities planned for this biennium amount to US\$ 35,800,000, however the fund availability at present stands at US\$ 12,900,000 from the WHO regular budget and US\$ 5,712,000 from extrabudgetary sources, leaving US\$ 17,438,000 shortfall to be raised to fulfill the planned activities of the Division.

The potential for reducing this shortfall was analysed and the following examples were cited; staff could be seconded and paid for by their government to work in CTD. Activities are accomplished through collaborating centres and working with partners such as UNICEF (HealthMap), the World Bank (malaria and human resources development) and industry (SmithKline Beecham plc, Merck or through the coordinated activities of non-governmental organizations). For example in 1997 the Africa Muslim's Agency dug wells and provided safe water in a number of countries in Africa amounting to a donation of US\$ 2.2 million.

Recommendations on management and finances

The Technical Advisory Group:

- Acknowledges the efforts made by CTD to increase the level of voluntary contributions to the programme and recommends that donors be encouraged to continue their support.
- Noted the report of the CTD and Regional Offices joint seminar and commends the programme on this initiative of increased collaboration between HQ and the WHO Regional Offices.
- Noted with satisfaction the progress made by CTD since the last meeting, and commends the Director and staff for their efforts and achievements and urges the Division to continue to vigorously pursue an integrated approach to disease control, as was repeatedly emphasized during this meeting.

THE PLACE AND DATE OF THE NEXT MEETING

The members agreed that the next meeting of the Technical Advisory Group would be held in Geneva from 8-11 March 1999.



CTD TECHNICAL ADVISORY GROUP
Geneva, 9-11 1998

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CTD TECHNICAL ADVISORY GROUP (TAG)
Geneva, 9-11 March 1998
Conference Room C

AGENDA

MONDAY 9 MARCH

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|-------|--|--|
| 09.00 | Opening | Dr R.H. Henderson |
| | Chairman introduction | Dr D. Molyneux |
| | Adoption of the agenda | |
| | General Remarks | Dr K. Behbehani |
| | Report of the first meeting of the TAG | |
| | Report of the Chairman of TDR Scientific and
Technical Advisory Committee | Dr C. Morel |
| 09.30 | 1. Malaria | |
| | <i>1.1 Malaria control.</i> | |
| | • <i>Accelerated Programme in Africa</i> | Dr A. Teklehaimanot/
Dr S. Bugri |
| | • <i>Other African countries</i> | Dr Yao Kassankogno |
| | • <i>Laos Cambodia & Viet Nam</i> | Dr C. Delacollette |
| | • <i>AMRO</i> | Dr J. Arias/
Dr H. Cardenas-
Gutierrez |
| 10.30 | COFFEE | |
| 10.45 | • <i>EURO</i> | Dr A. Kondrachine/
Dr M. Ciotti |
| | • <i>SEARO</i> | Dr V.S. Orlov |
| | • <i>WPRO</i> | Dr T. Pyakaylia |
| | • <i>EMRO countries outside Africa</i> | Dr N. Neouimine |
| | <i>Discussion</i> | |
| 12.30 | LUNCH | |

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|-------|-----|---|--|
| 14:00 | 1.2 | <i>Implementation of Insecticide Treated Mosquito Nets [ITMNs] Programme in Africa</i> | Dr M. Cham/ <i>Prof M. Coluzzi</i> |
| | | <i>Discussion</i> | |
| | 1.3 | <i>Selective vector control in the global malaria control strategy</i> | Dr P. Herath/
<i>Prof. G. Targett</i> |
| | | <i>Discussion</i> | |
| | 1.4 | <i>Issues related to disease management:</i> | |
| | | <ul style="list-style-type: none"> • <i>Monitoring the therapeutic efficacy of antimalarial drugs: basis for formulation of national drug policies</i> | Dr A. Bosman/
<i>Prof L. Salako</i> |
| | | <ul style="list-style-type: none"> • <i>Prevention and treatment of pregnant women</i> | Dr A. Rietveld |
| 15:30 | | COFFEE | |
| | | <ul style="list-style-type: none"> • <i>Artemisinin and derivatives</i> | Dr A Bosman |
| | | <i>Discussion</i> | |
| | 1.5 | <i>Multilateral Initiative on Malaria in Africa</i> | Dr A. Rietveld/
Dr F. Zicker |
| | 1.6 | <i>Report of the Director-General's Task Force on Malaria Prevention and Control</i> | <i>Dr T. Pyakalyia</i> |
| | 1.7 | <i>The 20th WHO Expert Committee on Malaria</i> | Prof. D. Molyneux |
| | 1.8 | <i>General Discussion & Recommendations</i> | |

TUESDAY 10 MARCH

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|-------|---|--------------------------------------|
| 09.00 | Report from the Chairman of the Steering Committee of Applied Field Research (AFR) | Prof. O. Kale |
| | <i>Discussion</i> | |
| | 2. Dracunculiasis | |
| | 2.1 <i>Dracunculiasis Eradication Strategy Status of the eradication programme Country update. situation in Sudan</i> | Dr N. Zagaria/
<i>Dr S. Bugri</i> |

- 2.2 *Update on certification* Dr N. Zagaria
- Discussion*
- 10.30 **COFFEE**
- 10.45 3. **Leishmaniasis**
- 3.1 *Towards a new approach for leishmaniasis vector control* Dr P. Desjeux/
Dr N. Neouimine/
Dr J. Seaman
- 3.2 *A CTD/UNAIDS joint-venture on Leishmania-HIV co-infections* Dr P. Desjeux/
Dr J.H. Perriens
- Discussion*
4. **Sleeping Sickness (African trypanosomiasis)** Mr P. Cattand/
Strategy and policies for the control of African trypanosomiasis Prof. D. Molyneux/
Dr P. Truc
- Discussion*
- 12.30 **LUNCH**
- 14.00 5. **Intestinal Parasites** Dr L Savioli/
A global strategy for the control of soil-transmitted nematodes in high risk groups Prof. M. Suzuki
- Discussion*
6. **Schistosomiasis** Dr L. Chitsulo/
Challenge of schistosomiasis control within a changing epidemiological pattern and geographical distribution Prof. H.-J. Rim
- Discussion*
- 15.30 **COFFEE**
- 15.45 7. **Chagas Disease** Dr A. Moncayo/
Update Elimination Programme Dr C. Morel
- Discussion*
- HealthMap** Dr I. Nuttall
New applications for national health managers Mr L. Zekas
Presentation of the CTD 1998 WEB pages
- Discussion*

Presentation of the malaria network on Internet

Dr F. Rio

WEDNESDAY 11 MARCH

- 09.00 8. **Lymphatic Filariasis** Dr E. Ottesen
8.1 *Global strategy for Filariasis Elimination* Dr Z. Hui-jun/
8.2 *Technical and goals for next year.* Prof. M. Aikawa
8.3 *Programme assessment and goals for next year* Dr V.S. Orlov
- Discussion*
- 10.30 **COFFEE**
- 10.45 9. **Strategies for Vector Control with particular reference to Dengue and DHF.** Dr M. Nathan/
Dr M. Coluzzi
- Discussion*
10. **WHOPEP -WHO Pesticide Evaluation Scheme: Present Activities and Future Direction** Dr M. Zaim/Prof. M. Coluzzi
- Discussion*
- 11 **Human Resources Development for the control of tropical diseases** Dr E. Renganathan/
Prof. P. Hira
- Discussion*
- 12:30 **LUNCH**
- 14:00 12. **Report on the meeting with Regional Offices on CTD Plan of Activities 1998-1999** Dr J. Arias
13. **Financial status of CTD** Dr M. Karam
14. **General Discussion**
15. **Approval of the Recommendations**
16. **Date and place of next meeting**

Highlights

	Achievements in last year	Capacity Building Literature Materials	Constraints	Future Issues Targets and Research Needs from Country programme perspectives
Malaria	<ul style="list-style-type: none"> • Accelerated control in Africa. Programme development in 24 countries with \$20 m (1997/8) • Start of EU/WHO Laos-Cambodia-Vietnam OAU Harare declaration • National plans in 90% countries • Information systems strengthened • Interagency collab. introduced • Response to epidemics in former Soviet Republic • Cessation of malaria transmission in Egypt • Evaluation system of Tigray project established 	<ul style="list-style-type: none"> • Bednet literature • Vector control handbook • Treatment of complicated cases • Treatment of uncomplicated malaria • OAU Malaria Task Force, similar to that on AIDS 	<ul style="list-style-type: none"> • Lack of guidelines on epidemic preparedness and early response • Need for preparation of detailed guidelines for community-based approach strategy, currently lacking in the programme • Lack of guidelines on MIS at country level • Reaching the most at-risk, under-served groups • Inter-agency collaboration needs facilitation • Sustainability of vector control • Lack of technical staff for microscopy • Tools to resolve residual malaria, particularly in the New World (<i>P. vivax</i>) • Local health service systems <u>not</u> prepared to receive decentralized control activities • Lack of effective vector control tools in the Americas Region. • Erratic supplies of drugs • Methods for introducing sustainable vector control measures. • Evidence of commitments from M. States • No standard reporting format • Scarcity of human resources, particularly at professional level. • Insufficient capacity for malaria case management at the periphery, outside the health facilities. 	<ul style="list-style-type: none"> • Need to increase operational research on community approach in the programme. • Field research on drug and insecticide efficacy for policy purposes. • Field research of alternative approaches - i.e. environmental management for phasing out insecticide spray • Development of a simplified IEC that modifies behaviour with respect to home management of malaria, pregnancy, especially primigravidae and secondgravidae. • Define microscopic diagnosis methodology • Ensure continuation of Expert Committees so that recommendations are circulated as WHO Guidelines periodically • Impact of decentralization of control activities • Evaluate effective vector control/vector interception tools • WHO-ROs-WB interactions should be strengthened • Reduction of malaria incidence in New World • Training in management and specifically in malaria control • Long-term evaluation of control interventions • Coordination of research/control initiatives

Highlights

	Achievements in last year	Capacity Building Literature Materials	Constraints	Future Issues Targets and Research Needs from Country programme perspectives
Malaria			<ul style="list-style-type: none"> • Insufficient epidemiological analysis to identify priorities in order to intensify selective control measures. • Lack of local funds • Poor rural health infrastructure • Lack of community involvement • High level of multidrug resistance in Asia & Pacific • High cost of insecticides • Poor intersectoral collaboration • Distribution and control of the sale of drugs on the market • Human resources for planning, implementation and evaluation of vector control, including entomological expertise • Inadequate knowledge or expectations of the selective vector control concept as part of malaria control programmes • Information management systems to guide planning, monitoring and evaluation of vector control 	<ul style="list-style-type: none"> • Development of sustainable drug policies • Evaluation of population-based strategies such as drug-based transmission reduction. • Effect of bednet on immunity & parasite rates • Development of human resources - emphasis on professional category • Development of case management capacity at the periphery • Stratification of populations and geographical areas to intensify control in priority areas • Improve disease surveillance and effective response to disease outbreaks. • Strengthen health system and improve case management • Promote community involvement and intersectoral collaboration • Monitor antimalaria use and maintain regular surveillance • Assess and improve health education <p>Quality evaluation at country level of drugs on the market. Before introducing any new drug, make a preliminary evaluation <i>in vitro</i> of an eventual "natural" resistance of the wild clones (example: less than 2 years after introduction of artemisinin in Thailand, 1st case of resistance might be due to a natural resistance of clones)</p>

Highlights

	Achievements in last year	Capacity Building Literature Materials	Constraints	Future Issues Targets and Research Needs from Country programme perspectives
African Trypanosomiasis	<ul style="list-style-type: none"> • Establishment of supply line for reagents, drugs, materials for national programmes, reference labs • HealthMap assists planning • Using HealthMap, epidemic and highly endemic areas can be delineated. Development of links to NGOs 	<ul style="list-style-type: none"> • Cartoon book published • Survey techniques and equipment • Training • CD-Rom 	<ul style="list-style-type: none"> • Lack of involvement of non-Government and voluntary sector in the programme • Need for safer drugs with shorter chemotherapy courses • Lack of political support • Lack of continuity of programmes in the 1960s - Lesson to be learned from this to avoid failures in future. • Unreliable indirect diagnostic methods • Follow-up difficult • Magnitude of problem and remoteness of endemic areas • Insufficient capacity for attending to all affected areas • Civil unrest prevents programme implementation • Weak infrastructure • Lack of funds for control and for operational research • High cost of drugs • Lack of interest by nat. programmes & internat. community • Lack of funds 	<ul style="list-style-type: none"> • Target of 70% at risk population under surveillance by 2000 • Improve diagnostic methods • Investigate combination drug therapies • Mapping of human and animal trypanosomiasis • Evaluation of the 3 day protocol for pentamidine • Evaluation (field) of the whole set of mass screening and diagnostic tests • Use the CATT/latex for mass screening (first priority after a complete field evaluation) • An international control program (as OCP) is required for a PanAfrican control programme through CTD supervision • Greater involvement and information to NGOs as only functional health providers in endemic areas

Highlights

	Achievements in last year	Capacity Building Literature Materials	Constraints	Future Issues Targets and Research Needs from Country programme perspectives
Dracunculiasis	<ul style="list-style-type: none"> • Progress toward eradication and certification continues • 3rd meeting of ICCDE certified countries free of transmission • Decline in reported cases from 151,000 to 71,967 (1996-1997) 	<ul style="list-style-type: none"> • "Guinea worm game" developed • Worm eradication manual and video 	<ul style="list-style-type: none"> • Civil unrest/insecurity • Lack of funds • Health system weak • Physical accessibility & civil unrest • Lack of national commitment • Imminent discontinuation of free donation of Abate and filter cloth • Safe water supply to endemic areas 	<ul style="list-style-type: none"> • To strengthen the multisectoral approaches • More involvement of this sector on safe drinking water is the key to success • More advocacy at national level to avoid complacency after success • Encourage countries to apply for Certification in formerly endemic and non-endemic countries. • Certification of all Dracunculiasis free countries by year 2000 • Ensure continuity of the eradication initiative to avoid failure • Political commitment and external funds • Selection of priority areas • Operational research into emerging problems of disease recrudescence and spread including migrants • Integration into health systems for surveillance
Schistosomiasis and other trematode diseases	<ul style="list-style-type: none"> • Population based chemotherapy in high prevalence areas • Registration of triclabendazole for human fascioliasis 	<ul style="list-style-type: none"> • Publication of the result of control in several major international journals 	<ul style="list-style-type: none"> • Prohibitive cost of praziquantel • Risk groups-rapidly deteriorating sanitation • Lack of awareness of infections by physicians in recently re-infected countries • Inadequate public health measures • Availability - drugs, water & sanitation facilities. 	<ul style="list-style-type: none"> • Recheck level of transmission in Jordan, Oman and South Africa • Drug resistance • Reduce exposure to re-infection • Selection of priorities to intensify activities • Strengthen surveillance and reporting

Highlights

	Achievements in last year	Capacity Building Literature Materials	Constraints	Future Issues Targets and Research Needs from Country programme perspectives
Schistosomiasis and other trematode diseases	<ul style="list-style-type: none"> • Significant reduction of prevalence and intensity of schistosomiasis in Lao, Cambodia, Mauritania and Zanzibar • Preparation of plan of action for the control of opisthorchiasis in Lao • Integration of schistosomiasis control within a school health programme in Guinea • Development of a mathematical model for the prediction of schistosomiasis prevalence 		<ul style="list-style-type: none"> • Insufficient capacity to attend to the whole affected area • Lack of awareness • Poor local leadership • Local health and hygiene education programme required 	<ul style="list-style-type: none"> • Increase community awareness • Reduce mortality and morbidity prevalence in the frame of an international control programme • Research on community directed interventions and spread through migration
Intestinal Helminths	<ul style="list-style-type: none"> • Evaluation of efficacy of antihelminths for large scale programme. • Guidelines for implementation of national deworming programme on children and women in selected countries 	<ul style="list-style-type: none"> • Publication of the result of control programme on nutrition of school-age children in several major international journals • Guidelines for the evaluation of soil-transmitted helminthiasis and 	<ul style="list-style-type: none"> • Lack of personnel at HQ and Regional level • Poor and deteriorating sanitation • Fake drugs abound • Lack of professional staff in country • Standardize methodology, e.g. use of FPC • Lack of health education and insufficient activities for environmental sanitation. • Poor standard of hygiene • High level of poverty • Lack of awareness 	<ul style="list-style-type: none"> • Effective delivery through school system and use to develop school health progs . • Train staff in Diagnostic Parasitology including Intestinal Protozoa • An adequate drug policy to prevent drug resistance developing • Detect the most highly susceptible individuals who are a major source of infection

Highlights

	Achievements in last year	Capacity Building Literature Materials	Constraints	Future Issues Targets and Research Needs from Country programme perspectives
Intestinal Helminths	<ul style="list-style-type: none"> • Establishment of partnership with UNICEF and the World Bank and NGOs for the launch of national control programmes in several countries 	<p style="margin-left: 20px;">schistosomiasis at community level</p> <ul style="list-style-type: none"> • Training manual on diagnosis of intestinal parasites • Taeniosis/cysticercosis complex • training manual 	<ul style="list-style-type: none"> • Weak health system • Lack of safe water supply 	<ul style="list-style-type: none"> • To develop activities directed to the correction of the constraints identified • Increase community awareness • Introduce deworming programmes to community • Promote community development
Chagas	<ul style="list-style-type: none"> • Uruguay announces cessation of transmission • Commitment of Andean and Central American countries to control programmes • WHO Resolution 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • Efficacy of available drugs • Different vectors and behaviour • Uncertainty of sustained government will and support. 	<ul style="list-style-type: none"> • Genetic structure of sylvatic/ domestic vector populations • Distribution and mobility of non-domiciliated vectors • Serological evaluation of impact. • Establish guidelines for use in blood transfusion-induced infections even in countries that have achieved elimination • Continue activities to avoid failure • Define terminology of Resolution • Rate of zoonotic infections • Triatomine behaviour especially in northern endemic areas • To continue activities in order to maintain the initiative • Maintain progress of interruption of transmission (vector control, blood transfusion)

Highlights

	Achievements in last year	Capacity Building Literature Materials	Constraints	Future Issues Targets and Research Needs from Country programme perspectives
Leishmaniases	<ul style="list-style-type: none"> • Leishmania/HIV surveillance system in ten countries • Advocacy for contribution to epidemic VL in Eritrea, Ethiopia, Sudan with EMA, EMC • DAT transferred for diagnosis in Sudan and Bangladesh (District labs) • Bednet programmes evaluated in Syria and Sudan for sandfly control 	<ul style="list-style-type: none"> • Preparation of a film for DAT use for training • Video/CD-ROM on Leishmaniasis epidemiology and control • Training materials for community level application • Guidelines for diagnosis at field level • Control manual published in 5 languages - English, Spanish, French, Portuguese and Arabic 	<ul style="list-style-type: none"> • Cost of 1st line drug • Lack of health infrastructure in remote areas • Lack of support from private medical practitioners • Lack of knowledge about exact magnitude of the problems at country level • Lack of community awareness for proper and complete treatment • Lack of awareness of physicians of emerging infections in HIV situations • Lack of research in man-to-man transmission in EMRO regions/ countries. • Lack of attention to PKDL patients and treatment • Lack of new drug research • Diagnostic methods require sophisticated facilities and expertise • Scarcity of resources to cover the entire affected area • Weak local health system • Lack of funding • Poor government support • High cost of drugs 	<ul style="list-style-type: none"> • Transfer DAT production to other countries • Evaluation of Indian made pentavalant Antimonial with the British made • Urgent need to involve the private practitioners in the programme • There is need to verify the magnitude of the problem • For commitment of all levels, there is need for advocacy at country level. • Develop methodology for diagnosing VL in immuno-suppressed patients. • PKDL treatment • New, less expensive, more effective drugs (studies) • Zoonotic infections and control • Integrated control measures • Selection of priorities. • Improve awareness and secure international support • Maintain surveillance • Compare on a world scale the real importance of the co-infection HIV/AIDS/leishmania and impact • Encourage the systematic diagnosis in endemic areas

Highlights

	Achievements in last year	Capacity Building Literature Materials	Constraints	Future Issues Targets and Research Needs from Country programme perspectives
Lymphatic Filariasis	<ul style="list-style-type: none"> • Albendazole donation programme announced by SB • Circulating filaria antigen test validated • WHO Resolution • Patient Management 	<ul style="list-style-type: none"> • Strategy document circulation • Country Plan of Actions 	<ul style="list-style-type: none"> • Need for detailed guidelines for national plans. • Need for operational guidelines for national managers. • Develop guidelines on IEC for creating awareness. • Lack of commitment to control from some countries • Advocacy • Availability of drugs • Insufficient capacity to attend to the whole of the affected area • Disease is focal • Weak health system • Poor logistic support for program • Funds 	<ul style="list-style-type: none"> • Operational research on community approach versus system approach • To evaluate the impact of single dose mass drug therapy - field research • Sustainability of the programme over time • Does filariasis exist in Oman? Does transmission persist? • Do imported cases lead to indigenous transmission, e.g. expatriate workers Indians/Bangladeshis in the Middle East. • Community based distribution as an alternative • Intensify activities in priority areas • Undertake mass drug administration in high prevalence communities • Improve surveillance • Multifaction programme (international) for filariasis elimination- Guidelines, Surveillance, Training • Sustaining a large-scale eradication programme and maintaining its progress
Dengue/DHF	<ul style="list-style-type: none"> • Advocacy for vector control to reduce epidemics in absence of vaccine. • New staff member in post 	<ul style="list-style-type: none"> • Interactive computer programme for training developed 	<ul style="list-style-type: none"> • Lack of community support • Lack of trained human resources • Lack of predictors for epidemics • Lack of funds • Decentralization of activities at the country level • Lack of continuity of the programme. 	<ul style="list-style-type: none"> • Urgent need of training of personnel for management of DHF • Field research on community approach • Aedes aegypti density reduction interventions. • Restrengthening of actions which we know work.

Highlights

	Achievements in last year	Capacity Building Literature Materials	Constraints	Future Issues Targets and Research Needs from Country programme perspectives
Dengue/DHF			<p>Lessons should be learned from this programme to avoid failures in other programmes.</p> <ul style="list-style-type: none"> • Overcrowding and poor environmental hygiene • Lack of community awareness • Lack of funding • Poor understanding of transmission dynamics • Lack of cost effective vector control data • Social and economic conditions of the affected population • Potential for <u>A. albopictus</u> transmission 	<ul style="list-style-type: none"> • Selection of priority areas • Improve surveillance • Strengthen vector control • Promote community awareness • Transmission dynamics • Research on cost effectiveness of intervention • Social/behavioural studies
WHOPES	<ul style="list-style-type: none"> • New compounds under evaluation. • Enhanced cooperation with industry 	<ul style="list-style-type: none"> • Vector control handbook 	<ul style="list-style-type: none"> • Cost of insecticide to vector control programs • lack of specifications for all pyrethroids on the market • Human resource in endemic countries (vector control and entomological expertise) to carry out the field evaluation of pesticides and application equipment 	<ul style="list-style-type: none"> • Define specifications for all pyrethroids available for vector control • Pesticide policies that lessen the risks of insecticide resistance. • To concentrate action on promising product.
Human Resource Development/ Education	<ul style="list-style-type: none"> • Extensive high quality training materials developed and widely disseminated • Courses organised in collaboration with ROs 	<ul style="list-style-type: none"> • Guinea worm game • Cartoon health education materials in schistosomiasis, African trypanosomiasis 	<ul style="list-style-type: none"> • Lack of job descriptions for technical and professional staff in career structures in MOH and universities • Insufficient financial responses to attend to all needs. • Lack of appropriate training courses 	<ul style="list-style-type: none"> • Develop Manuals for each disease • Train professional and technical staff and develop career structures in MOHs and universities • Intensification of activities in priority areas of each programme

Highlights

	Achievements in last year	Capacity Building Literature Materials	Constraints	Future Issues Targets and Research Needs from Country programme perspectives
Human Resource Development/ Education			<ul style="list-style-type: none"> • Withdrawal of WHO coordination • Lack of core technical staff • Poor supervision and in-service training 	<ul style="list-style-type: none"> • Establish collaborating centres for training • Strengthen information sharing • Support supervision and maintain quality assurance
HealthMap	<ul style="list-style-type: none"> • Development of CD-ROMS /Internet/ public health atlases • GIS developed to improve public health programme management for Dracunculiasis, Onchocerciasis, African Trypanosomiasis (+ trachoma + tetanus) • GIS for malaria and filariasis control • Opportunities for integration strategies further developed, e.g. public health Atlas for Mali 		<ul style="list-style-type: none"> • Lack of trained personnel at national level • Lack of hardware and software facilities at national level • Cost of setting up and sustaining introduction of the programme into countries with other competing demands • Lack of computer training and use of internet • Availability of hardware and of trained personnel • Impossibility of providing the computer and other equipment to all the potential users. • Lack of counterpart funding • Lack of trained staff • lack of equipment and supplies 	<ul style="list-style-type: none"> • Training of national programme managers • Availability of hardware and software at country level • Evaluation of impact on health policy decision making • Prospects for predictability of specified health problems • Develop Web pages for CTD Disease Control Strategies • Limit languages to French and English so that frequent update is possible. • To ensure the programme is operational at the periphery • Develop programmes and extend to Regional and country level • Train staff and introduce technology • Ensure the possibility, thanks to a special software on the Internet, to help an international coordination of the different control programmes of vector transmitted tropical diseases

Highlights

General remarks:

Coordination at an international level of the different control programs of vector transmitted tropical diseases:

- Optimize the field work (polyvalence of the teams through an adapted training) ex. Onchocerciasis and HAT control
- Improve the sensibilisation of the rural population - different field team talking about the same message (whatever the disease)
- Rationalize at local level the different control programmes.

This could be done thanks to the WHO Regional Centres (Offices) and helped by the Internet network.