WHO-EM/MAL/307/E

Report on the

Responsiveness of the RBM Programme to country needs in the WHO Eastern Mediterranean Region

World Health Organization
Regional Office for the Eastern Mediterranean
Cairo
2004

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1. Introduction

The evaluation team was established by the WHO Regional Office for the Eastern Mediterranean Region to evaluate the responsiveness of the Eastern Mediterranean Region Roll Back Malaria (RBM) programme to the needs of the countries in the Region. This was in response to a request from the WHO headquarters department of programme planning, monitoring, and evaluation (PME) in the cluster on general management. The Regional Office received funding from PME for the evaluation process.

An evaluation team of seven people and a review committee of fo245ur people were established with well-defined terms of reference (see Annex 1). The main task of the review committee is to review and comment on the reports of the evaluation team and to provide guidance for the evaluation process.

The evaluation process began in the Regional Office with an informal consultation on 4 July 2002 (see Annex 2). The team held its first official meeting in Geneva, Switzerland from 23 to 25 November 2002 and its second and final meeting in Cairo, Egypt from 14 to 16 July 2003. Attending these meetings were: Dr Ahmed A. Adeel (second meeting only), Dr Hoda Atta, Prof. Peter F. Beales (chairman), Dr Kazem Behbehani (coopted member), Dr Charles Delacollette (coopted member), Dr Anatoli Kondrachine (first meeting only), Dr Akihiro Seita and Prof. Walther Wernsdorfer. Dr Guido Sabatinelli was appointed WHO Representative to Sudan and was thus unable to attend either of these meetings.

The deadline for completion of the evaluation was set as October 2003. A schedule of activities was established and revised according to circumstances (see Annex 3).

The general purpose of the evaluation was twofold. Firstly, to review the support and contribution provided by the Eastern Mediterranean Region RBM programme to the malaria endemic countries of the Region. Secondly, to determine the progress being made by these countries to prevent and control malaria and in what ways the regional RBM programme can further help them to achieve their programme objectives.

The objectives of the evaluation were:

- evaluate progress made in malaria prevention and control activities at regional and country levels in the Eastern Mediterranean Region in accordance with the objectives and targets established by the regional RBM programme to be achieved by 2006
- determine the responsiveness of the regional RBM programme to the needs of the countries of the Region
- assess the appropriateness of the strategies and planned activities established by the regional RBM programme to achieve the objectives and targets set for 2006
- indicate in what ways the regional RBM programme could be more responsive to the needs of countries
- identify, through the above evaluation and assessment, strategic and organizational changes that are needed to ensure the accomplishment of the objectives and targets by 2006 and to sustain those achievements.

The expected products of the evaluation were:

- a final report documenting the progress being made at country and regional levels
- documentation of the degree of achievement of national programme targets and the expectation of achieving national and regional objectives on time
- identification of the gap (if any) between country needs and the responsiveness of the regional RBM programme
- recommendations on how the regional strategic plan can be improved and how the regional RBM programme can be more responsive to the needs of countries.

The evaluation team analysed information on the malaria endemic countries of the Region, obtained from a questionnaire (see Annex 4) and from country visits to Morocco, Pakistan, Sudan and Yemen. In addition, information on the situation at regional and country levels based on the personal experiences of the members of the team was gathered through extensive discussion.

2. Regional targets of the Roll Back Malaria programme

The aim of RBM programme is to control malaria through a concerted and systematic effort, enabling national health systems to manage the disease in an effective way. The initiative has been designed to “roll back” malaria through a global partnership of governments, development agencies, nongovernmental organizations and the private sector. The approach is to strengthen existing health services for a better delivery of health care, especially at district and community levels, and to encourage the use of new and more effective antimalarial drugs and a better use of existing resources. The global target is to reduce the malaria burden by 50% by the year 2010.

The RBM programme in the Eastern Mediterranean Region was launched in 1999. Because the countries in the Region have reached various levels of malaria control, the objectives are equally varied. However, the overall objectives of the regional RBM programme are to:

- Halve the malaria burden (incidence, severity and mortality) in countries with a severe malaria problem and/or with damaged health systems by 2010 (Group 4: Afghanistan, Djibouti, Somalia, Sudan and Yemen)

- Prevent malaria mortality and reduce malaria morbidity by 50% by 2010 in countries with low/moderate endemicity and with functional health systems and effective malaria programmes (Group 3: Islamic Republic of Iran, Iraq, Pakistan and Saudi Arabia)

- Eliminate residual foci of malaria by 2006 in countries where malaria transmission has been recently interrupted or where there are only a few residual foci for which eradication is feasible and sustainable (Group 2: Egypt, Morocco, Oman and Syrian Arab Republic)

- Prevent re-establishment of malaria transmission in malaria-free countries (Group 1: Bahrain, Cyprus, Jordan, Kuwait, Lebanon, Libyan Arab Jamahiriya, Palestine, Qatar, Tunisia and United Arab Emirates)

The RBM programme continues to play a leading role in formulating strategies, setting standards and engaging in political and financial advocacy. The malaria situation in the Region has an impact on neighbouring WHO Regions such as the African, European and South-East Asian Regions and vice versa. Thus, consideration of malaria problems from a wider perspective is needed as well as the organization of joint activities. The strategic approach is designed to scale-up malaria control in the Region. The success of this approach depends on activating close collaboration between governments within and outside of the Region, development agencies, the private sector, professional associations, civil society, research groups and the media, with each partner contributing resources and skills.

3. Roll Back Malaria programme commitment at the regional level

3.1 Introduction

The RBM programme has been considerably strengthened at the regional level in the three years that it has been established. There has been a general increase in the regular and extrabudgetary funds available for the programme from under US$ 3 million in the biennium 1998/1999 to just over US$ 8 million in the biennium 2002/2003 (see Annex 5). Most of the increase has gone to country activities, but the intercountry budget and activities have increased five to six-fold.

3.2 Human capacity strengthening

The RBM programme has been instrumental in increasing support to countries locally and at the regional level through a reorientation of staff and human capacity strengthening (see Annex 6). Prior to the regional RBM programme, there was a regional adviser for malaria and a regional adviser for vector control and chemical safety. With the advent of the regional RBM programme, the posts of Regional Adviser for Malaria, Medical Officer RBM and Vector Control Specialist were established. This has greatly increased the capacity at the regional level to respond to the needs of countries. The all-important post of Regional Adviser for Malaria, vacated in April 2002, was filled in September 2003.

A significant contribution that the RBM programme has made to the national programmes in Afghanistan, Djibouti, Somalia, Sudan and Yemen (Group 4 countries) and Saudi Arabia and Pakistan (Group 3 countries) has been the establishment of 13 posts at country level for malaria (see Annex 6). At the time of preparing this report all posts were occupied with the exception of the National Programme Officer in Djibouti and the RBM Field Officer for the southern states of Sudan, although recruitment for the latter has now been completed.

3.3 Resource mobilization

The extrabudgetary funds alone from RBM WHO headquarters in the biennium 2002/2003 is greater than US$ 6 million, of which US$ 4 million have been allocated to country activities and the remainder to intercountry activities such as seminars, workshops and cross-border collaboration. The latter is a major change since previously there were virtually no funds for intercountry activities (US$ 228 000) as a result of a World Health Assembly resolution reducing the regional budget by 3%. As a consequence, extrabudgetary funds raised by the Regional Office have increased but the allocation to malaria from the WHO regular budget has decreased compared to the previous biennium.

The WHO regular and additional budget for country level activities has been allocated mainly for those countries with intense malaria transmission. The mild to moderate malaria transmission countries received about a tenth of that allocated to the intense transmission countries. The countries in the remaining two categories have received even less. Funds for national training activities have been increasing in each biennium.

The resource mobilization activities of the regional RBM programme have increased considerably in 2002 (see Annex 7). Major sources of funding have come from the United States Agency for International Development (USAID) and Qatar. Moreover, resources are beginning to be made available from the Global Fund to Fight AIDS, Tuberculosis and Malaria. The Region has been particularly active in helping countries prepare submissions to the Global Fund. In the second funding round, support of US$ 96.7 million in total has been approved from the Global Fund for Pakistan (Group 3) and Afghanistan, Somalia, Sudan and Yemen (Group 4) over a period of one and a half to five years.

3.4 Human resources development

The Regional Office responded to the request contained in Regional Committee resolution M/RC40/R.10 on malaria control (1997) with regard to capacity-building by developing a regional malaria training centre in Bandar Abbas, Islamic Republic of Iran. An international course on the planning and management of malaria control programmes was supported by WHO and held annually from 1997 to 2001. RBM programme support began in 2000. In 2001, it was upgraded to a diploma course issued by the Teheran University of Medical Sciences. Since then, the RBM programme has proposed to fund this course on a biennial basis in the second year of WHO's biennium. There will be two courses in 2003, one in English and the other, principally for Afghans, in Farsi. To date, a total of 90 professionals have been trained from 18 countries, including the Islamic Republic of Iran, in three WHO Regions (see Annex 8).

Regional Office support to malaria training in the Region is increasing. Since the establishment of the national malaria diploma course at the Blue Nile Research and Training Institute in Wad Medani, Sudan in 1995, WHO has provided support for the four courses that have been held to date (see Annex 8). A total of 39 professionals have been trained.

The regional RBM programme has taken capacity-building very seriously and continues to expand its activities in this area. Intercountry courses have been developed and held on vector management and national courses have been supported on malaria vectors and malaria microscopy (see Annex 8).

3.5 Meetings and workshops

There has also been an increasing trend in meetings and workshops held in the Region since the inception of the RBM programme (see Annex 9). Between November 1996 and September 1999, seven meetings or workshops on malaria were held. In this period, the maximum number of countries attending any one meeting or workshop was five, with a mean attendance of four. From the inception of the RBM programme in September 1999 up to May 2003 a total of 11 malaria meetings were held. The maximum number of countries attending any one meeting was 21, with a mean attendance of 12. While the number of countries participating varies according to the objectives of the meeting, it does indicate a wider dissemination and involvement than previously.

Another important innovation that the RBM programme has brought to the Region is the introduction of national malaria programme manager's meetings. These were successfully held in 2001 (22 countries), 2002 (20 countries) and 2003 (21 countries).

3.6 Advocacy and publications

Since the inception of the RBM programme, more attention has been given to advocacy. A website was launched in 2001 and is maintained up to date. In addition, calendars, posters, mouse pads, coasters, folders and pens that promote various aspects of malaria control have been produced.

Several important documents have also been produced. These include brochures on the RBM programme in the Region, the use of fish for mosquito control and on integrated vector management. In the process of being produced are guidelines on the elimination of residual foci of malaria, on the prevention of the re-establishment of malaria transmission and on quality assurance in laboratory diagnosis of malaria. In addition, some basic malaria publications have been translated into Arabic including one on management of severe malaria, one on malaria microscopy, the 20th Report of the WHO Expert Committee on Malaria and a brochure on malaria in Africa (see Annex 10).

4. Questionnaire survey of countries

4.1 Quantitative evaluation

Introduction

The questionnaire (see Annex 4) was divided into nine sections covering the essential areas of the RBM initiative, namely: political commitment, partnership, intersectoral collaboration, coordination of border activities, planning and management, financial support, technical support, human resources development and applied research. Within these areas, one or more statements were made and the responder invited to either strongly disagree (score 1), disagree (score 2), agree (score 4) or strongly agree (score 5).

The value three was omitted so that an indecisive response could not be given. This enabled a satisfaction index, expressed as a percentage, to be calculated. A value of 60% or more for any statement was considered a positive satisfaction, and that the RBM programme was fulfilling its role as seen by the country. However, below 60% represented a potential deficiency in the responsiveness of the RBM programme to the needs of the country, which required further investigation.

Of the completed questionnaires received from 14 countries, only one, Saudi Arabia, did not provide a quantitative evaluation and is therefore excluded from this part of the evaluation. The collective quantitative results for the 13 countries that completed this part of the questionnaire may be seen in Annex 11. It may be noted that for questions 6, 9, 10, 13, 18, 21 and 25, only 12 countries gave a numerical score. This means that in calculating the satisfaction index for these questions the denominator was 12 and not 13 as with all the remaining questions. The response given to each question by each country is also apparent in Annex 11.

However, since the activities of the RBM programme are targeted to the high priority countries, the numerical responses have been further analysed separately for each of the three groups of malarious countries (for information on the grouping of countries according to malaria problem and status of the malaria control programme see Annex 12). This analysis is presented by section and by question, as well as by section for each country. These analyses can be seen in Annex 13 and are elaborated section by section in the following paragraphs.

Political commitment

It is interesting to note that increased political commitment is scored as satisfactory in all groups of countries but that greater satisfaction is expressed in Group 4 and Group 2 countries. In addition, satisfaction of managers with RBM programme support is also lower at 53.3% for Group 3 countries, while it is just 60% in Group 4 countries, but 78% in Group 2 countries.

Partnership

Partnerships have increased very satisfactorily for Group 4 countries and also for Group 2 countries but less so. For the Group 3 countries of Islamic Republic of Iran and Iraq this area was not satisfactory.

Intersectoral collaboration

All Group 2 countries with the exception of the United Arab Emirates were not satisfied with the level of intersectoral collaboration for malaria, including community awareness and involvement. Group 3 countries were also not satisfied with community awareness and involvement.

Border activities

There was a marked satisfaction (80%) with border collaboration and coordination among Group 2 countries with the exception of Morocco (20%). For Group 3 countries the satisfaction index was only 40% with the exception of Iraq and Yemen (100%). There is little doubt that considerable attention has been paid by the regional RBM programme to promoting and supporting cross-border collaboration.

Planning and management

Most countries completing the questionnaire expressed great satisfaction with this element. Only Afghanistan (40%) and Somalia (53.3%) expressed a satisfaction index of less than 60%. A workshop to formulate a multi-year strategic plan for malaria control in Afghanistan was planned for March 2003, after the completion of the questionnaire by the country. Somalia has not yet established a multi-year strategic plan but has conducted a situation analysis outlining strategic objectives. A multi-year strategic plan developed in a participatory manner is planned with the support of the Global Fund.

Financial support

Countries in Group 3 and Group 4, with the exception of Afghanistan (40%), were generally satisfied with the additional financial support received. Group 2 countries, with the exception of Syrian Arab Republic and United Arab Emirates, were not satisfied (49%). However, with the exception of Egypt, they felt that the overall financial support generated for the country by the RBM programme was quite adequate.

Technical support

All countries in all groups, with the exception of Oman (33%), were very satisfied with the technical support provided by the RBM programme. With the exception of Djibouti (66.7%), they expressed a satisfaction index of 80% or more.

Human resources development

Overall satisfaction for all groups was above 60% and above 80% in the area of intensified national human resources development. However, on a country basis, Djibouti (53.3%) and United Arab Emirates (46.7%) expressed lesser satisfaction.

Applied research

All three groups of countries shared a similar satisfaction index in the 62%–66% range. However, there were some very marked differences in individual country responses. The responses for Djibouti, Egypt, Iraq and Syrian Arab Republic were in the 20%–40% range;

those for the Islamic Republic of Iran, Sudan and the United Arab Emirates were in the 60%–70% range; and the remainder were in the 80%–100% range.

4.2 Qualitative evaluation

Introduction

The questionnaires returned by all 14 countries contained valuable written qualitative information regarding the statements made under each section. The team analysed the information provided by each country for each question. A summary of this analysis is given below.

Afghanistan (Group 4)

Over the past 10 years, until autumn 2001, support to the diagnosis and treatment of malaria at general health care facilities has come from WHO through eight WHO sub-offices in Afghanistan, as there was no formal national malaria control structure during this time. In 2002, following the war, the provision of essential material and supplies was resumed. The country has recognized malaria as one of the most important problems affecting the health of the population and has given priority to the re-building of a functional operational structure for countrywide malaria control. It is expected that the central unit will be functional by the end of 2002. The national strategic plan for malaria control (*cum* plan of action) will be developed in line with the principles of RBM and should become available by mid-2003. Malaria diagnosis and treatment will remain the mainstay of malaria control. The implementation of comprehensive malaria control will require a major training effort, and technical and material support. Coordination with neighbouring countries (Islamic Republic of Iran and Pakistan) has been resumed.

Djibouti (Group 4)

The government has established and appreciates partnership with the RBM programme in the control of malaria, but acknowledges that infrastructure problems in Djibouti still inhibit full benefit from the partnership. There remain deficiencies in the leading and peripheral structures for malaria control. While community participation and public awareness are well developed, intersectoral cooperation with other government departments has not yet been forthcoming. The strategic plan for malaria control is under preparation and should become available in 2003. WHO has hitherto assisted malaria control with regular budget and extrabudgetary resources, especially in logistics, documentation and technical aspects. The national budgetary provisions remained stagnant and there has been no bilateral assistance. There is a very important need for staff training, although the number of staff of the various categories is too small to merit the establishment of a national training centre. There is no training facility in neighbouring countries that would offer courses in French. Thus, appropriate training arrangements with centres, preferably in the western savannah and Sahel zone, would have to be made in the framework of technical support from the RBM programme. International cooperation with neighbouring countries is not yet developed and the country hopes for implementation under the Horn of Africa Initiative.

Somalia (Group 4)

WHO has provided technical support through training health professionals and supporting several baseline surveys in the northwest zone. A malaria working group was established in mid-2001 composed of representatives from UN agencies, international nongovernmental organizations, bilateral donors and community-based organizations, and is co-chaired by WHO and the United Nations Children's Fund (UNICEF). It meets monthly to discuss ways of scaling up malaria control activities in the country. The partnership approach of the working group has promoted greater intersectoral collaboration.

Several stakeholders meetings have been held in different zones of the country. RBM partners are now submitting more reliable data on morbidity and mortality. However, they require support in supplies. Although the introduction of intermittent prophylactic treatment for pregnant women and the use of insecticide treated nets (ITN) for personal protection have been accepted by the community, a major constraint is the shortage of ITN. There is also demand for mosquito larvae-eating fish as a biological control measure, especially in the northwest and northeast zones of the country. The RBM programme could also provide funds for translation of RBM community awareness materials into Somali. Greater support could be given by translating the high-level advocacy and awareness creation materials provided by the RBM programme for Africa Malaria Days into local languages.

A cross-border meeting has been held between Ethiopia and Somalia on scaling up control activities along common borders. Somali participants have attended ITN training sessions in Ethiopia through the Horn of Africa Initiative. The RBM programme could support more meetings between Horn of Africa countries including Djibouti, Ethiopia, Kenya and Somalia.

The country has not yet established a multi-year strategic plan but has conducted a situation analysis outlining the strategic objectives. A multi-year strategic plan developed in a participatory manner is in the proposal to the Global Fund. The RBM programme has been initiated in various zones in the country, but is lagging behind due to the lack of an effective central Ministry of Health to coordinate control activities at the country level. The ever-changing security situation, especially in the southern zone, is a major constraint.

RBM partners supporting the primary health care programmes in different regions or districts collect morbidity and mortality data on malaria. Malaria focal points in the different zones conduct quarterly monitoring and supervision activities. Data is collected during supervision visits to health facilities and malaria is now included in the weekly outbreak detection surveillance system for communicable diseases. Supplies are in place in sub-offices in the country to respond rapidly to outbreaks, and rapid response teams in all regions have been trained and rapid response kits containing rapid tests for falciparum, slides for blood films and other equipment for outbreak detection are available in the major laboratory centres. Feedback to health facilities remains weak and needs to be strengthened.

The logistics system continues to be a major problem due to high operational costs. The number of malaria microscopy centres has been expanded from 20 in 1999 to 41 in 2002.

Supplies have been pre-positioned in different WHO sub-offices for ease of distribution to partners supporting primary health care programmes. Health professionals from the private and public sectors have been trained in case management and practical guidelines have been distributed.

The major source of funding for malaria control in Somalia comes from the WHO with a sizable amount coming from the RBM programme extrabudgetary resources. Due to the lack of central government there have been no national contributions to the programme. However, local health authorities in the northwest and northeast provide a conducive environment for support to partners. WHO has provided microscopes, reagents, ITNs, spraying equipment and drugs to the major hospitals for the management of severe malaria.

The regional RBM programme has provided useful documentation support through consultation in strategic objectives and approaches, situation analysis and basic malariometric surveys. Documents still required include a national multi-year strategy, drug policy guidelines and guidelines on biological control measures using fish.

There has been increased technical support to Somalia since the inception of the RBM programme. Fellowships have been provided for nationals to be trained in Bandar Abbas, Wad Medani and Arusha. Short-term consultants have developed a situation analysis for malaria and integrated vector control, and strategic objectives and approaches, and have trained professionals and medical coordinators in the management of severe malaria. The WHO Regional Advisor and Medical Officer RBM have visited and supported the programme.

In the area of applied research, UNDP/WHO/World Bank Special Programme for Research and Training in Tropical Diseases (TDR) has funded a study on the use of fish in Somaliland. The first baseline malariometric survey was in June 2003 and drug efficacy studies on chloroquine and sulfadoxine pyrimethamine are ongoing.

Sudan (Group 4)

Malaria is the most important health problem in the Sudan. The government is committed to re-building effective malaria control and has developed an effective linkage with the regional RBM programme. From the start many local nongovernmental organizations have become partners in the RBM country programme. Their support is particularly marked in stimulating community participation and public awareness. A federal unit and three state units for malaria control have been established, and nine more state units are nearly complete. In these areas an epidemic early warning system has been established. A strategic plan for malaria control has been developed in line with the principles of RBM, and is regularly updated. There has been increased financial support from RBM programme and extrabudgetary resources, and from the government. WHO has also provided massive material, logistic and technical support. The development of human resources has been successfully undertaken. Since early 2002, malaria control under the strategic plan of action has been at full scale in three states and is beginning to show an impact on the malaria situation. In nine more states, full operations are to be implemented in 2003 and 2004. Future extension of the national programme to the hyper- or holoendemic southern states will depend on the improvement of the political situation. Operational coordination with neighbouring countries includes Egypt and Ethiopia. Support from, and partnership with, the RBM programme has been crucial for the revitalization of malaria control in Sudan and has shown high momentum.

Yemen (Group 4)

There is strong governmental commitment to control malaria in the country. A supreme national malaria control committee was established by prime ministerial decree, involving 15 ministries, UN organizations, local and international nongovernmental organizations, academic and educational organizations, and the private sector. The national malaria control programme, established in April 2001, is satisfied with the support it receives from the RBM programme, particularly the posting of two WHO staff and short term consultants with the programme, as well as the support for workshops and training, including funding to attend courses in the Islamic Republic of Iran, Sudan and Saudi Arabia. Partnerships are well established in the country through the support of the RBM programme, which has brought into the country partners from Italy, Japan, Oman and Saudi Arabia. Greater intersectoral collaboration involves many different ministries, the private sector and nongovernmental organizations. Community involvement is well-established in areas of the national RBM programme. Community awareness has been improved through the development of television programmes and other media. Recruitment of community members as insecticide sprayers has further strengthened community awareness.

The RBM programme has been instrumental in the revitalization of coordination of border activities between Yemen and Saudi Arabia. Attention is being given to geographical reconnaissance and epidemiological surveys, and information exchange. Malaria data collection has improved with the availability of standard forms and a modest improvement seen in malaria surveillance. A national strategic plan was developed in 2002 that incorporates eight strategic directions and conforms to RBM guidelines and approaches. Annual targets have been achieved, particularly in training, and new qualified staff have joined the programme. The logistics system is still up to standard. Financial support given by the RBM programme from extrabudgetary resources, particularly to the national epidemic preparedness plan, has brought about an increase in national funding.

The malaria programme is the recipient of the highest national budget for any health programme in the country. Bilateral aid and collaboration has increased, especially from the World Bank, Japan, Oman and local nongovernmental organizations. Technical support from the RBM programme is particularly felt in areas of surveillance and epidemiology (laboratories, geographic information systems (GIS), vector control, and provision of drugs, ITNs and vehicles). The government is satisfied with the provision of RBM technical documentation, guidelines and with the increase of technical support to the country in terms of WHO staff availability and the organization of various training activities. Several training courses have been conducted and WHO fellowships to attend courses in the Islamic Republic of Iran provided. Training activities have improved operational performance of the programme in case management and vector control. The RBM programme, in cooperation with TDR, provides support for studies on severe malaria, on the efficacy of antimalarials and for knowledge, attitude and practices (KAP) studies relevant to the needs of the programme.

RBM programme support will be needed for the expansion of malaria activities in the remaining parts of the country, especially in training of laboratory technicians, establishment of reference laboratories and the training of clinicians in both governmental and private sectors on clinical management of malaria, including its severe forms. Support is also needed in promotion of use of mosquito nets, training in vector control methods, establishment of an early epidemiological warning system and strengthening the malaria surveillance system. Logistics and surveillance need to be improved by the training of supervisors and the national malaria drug policy should be standardized among all health institutions, in both public and private sectors. Funds are needed to sustain applied research.

Islamic Republic of Iran (Group 3)

The government places the highest priority on malaria control, as exemplified by a national budget increment of 30% over the previous years, complemented by an increase in extrabudgetary funding. Inter-ministerial collaboration has been institutionalised by the establishment of a national intersectoral committee; fruitful collaboration has been established with the Ministry of Education. As a result of this collaboration, about 20 workshops on various aspects of malaria control have been held. Although the RBM programme supports the national programme through training and provision of technical material, the leadership of the programme would like greater support in its different activities. Partnership with nongovernmental organizations and the private sector has not been initiated as they are not related to malaria control in the country. Coordination of border activities has been started with neighbouring countries. Programme planning and management has considerably improved, particularly with the development of a strategic plan of action, as well as reporting and recording systems. Logistics do not pose any appreciable problem. Technical support from the RBM programme is satisfactory, particularly in logistics and provision of technical material. Positive results have been achieved in human resource development with strong supported from the RBM programme. A recent study tour to Oman was also provided. Supervision has also improved. Applied research is funded by national funds and is relevant to the needs of the national malaria control programme.

Support from the RBM programme is needed in the identification of collaborating agencies within and outside the country. Potential also exists for improvement in social mobilization and advocacy. RBM programme support is further needed for the improvement of monitoring and evaluation, particularly in reporting vector data.

Iraq (Group 3)

In the near future, Iraq hopes to establish a specific committee for malaria. The government is satisfied with the support provided by the RBM programme, which has taken the form of training, reinforcement of entomological surveys, publications and consultations. However, support has not been provided in laboratory supplies and equipment, laboratory furniture and polymerase chain reaction capability.

The RBM programme has not been very successful in increasing the number of partners for malaria control in Iraq. Partners that plan to participate in a national conference on RBM include the Ministries of Agriculture, Interior, Irrigation, Higher Education, Transport and Communications, and Information and Mass Media. Some nongovernmental organizations also plan to attend, in particular the Federation of Iraqi Women.

There has been greater collaboration with the Ministries of Agriculture and Irrigation to gain information about new irrigation projects and planned agricultural activities, especially rice cultivation. There is also collaboration with the Ministry of Defence and information exchange concerning the epidemiological situation and control measures.

Social mobilization has not been satisfactory. An initiative to increase community mobilization through collaboration with the Federation of Iraqi Women in training leaders at government and district levels has not been executed due to lack of funds.

There has been no improvement in border collaboration. The areas concerned are the north of Iraq and southern Turkey, the southeast part of Iraq and the Islamic Republic of Iran, and some parts adjacent to Syrian Arab Republic. Due to administrative difficulties, proposed meetings have not taken place.

The country has a well-prepared national plan for malaria control prepared at central level and disseminated to health directorates. It conforms to RBM programme guidelines and strategic approaches. Its targets are to: decrease the incidence of malaria in the country to a level where the disease is no longer regarded as a public health problem; prevent the re-emergence of endogenous malaria in the areas declared free from the disease; prevent epidemics; and prevent the introduction of pernicious malaria from other countries.

The incidence of malaria cases in the last few years has declined from 4134 in 1999 to 1859 in 2000 and 1120 in 2001. The recording and reporting of cases (confirmed by laboratory diagnosis) is done at the different levels of the health system starting from the primary health care centres to the district and provincial levels. The early diagnosis and treatment of malaria has been strengthened by the provision of microscopes to the primary health care level.

RBM programme support to the country has strengthened vector control by the provision of supplies and equipment for monitoring and evaluation of entomological activities. Furthermore, the RBM programme has been instrumental in increasing national funding to support personnel for malaria control (incentives) and for supervision (monitoring and evaluation). However, bilateral aid has not increased.

The RBM programme has provided equipment and supplies, in particular microscopes, entomological field supplies, laboratory equipment including balances, two mobile laboratories, one Toyota land cruiser and other items. The national programme has also received many publications. The RBM Medical Officer visited in 2000. Since the inception of the RBM programme, human resources development has intensified through continuous training at central and peripheral levels. There were 11 training courses and workshops in

2000/2001, and 19 in 2002/2003. In addition, four WHO fellowships permitted three medical officers to be trained in malaria at Bandar Abbas and one vector control unit manager to be trained in integrated vector control management in Khartoum.

As a result of human resources development there has been improvement in many aspects of the malaria control programme, particularly vector surveys and control, and laboratory diagnosis at primary health care centres, which in 2000 were all staffed with well-trained personnel. However, applied malaria research has not benefited from the RBM programme.

Pakistan (Group 3)

Political commitment to malaria control has been expressed through an increase of more than 250% in the national malaria budget. A national scientific committee and malaria working group had become operational, and PC-1 (project concept 1) was developed and approved by the government. Support from the RBM programme was felt to be inadequate until the recent employment of a national programme officer. RBM programme partners include nongovernmental organizations, WHO, World Bank, and the Department for International Development (DFID). Intersectoral collaboration appears to function reasonably well, as exemplified by the involvement in malaria-related activities of departments such as agriculture, religion, information and education. A nationwide media campaign has been launched, including television documentaries and messages in newspapers. A public/private partnership has been established for promotion of the use of mosquito nets, studies on community management have been done and advocacy meetings held. Border activities do not exist. Planning and management of the programme appears to be on a right track, and a strategic plan has been developed conforms to RBM principles. Positive improvement has been observed in data collection, reporting and computerization, and an information resource centre and library has been established at federal level. Due to the considerable increase in the national budget and support from the RBM programme, there has been considerable improvement in supplies and equipment at various tiers of the programme, particularly at the periphery of its operation.

Overall, WHO support to the malaria programme has increased since the inception of the RBM programme and is being maintained. RBM programme staff were instrumental in the development of the national programme proposal for the Global Fund. At present, the RBM programme assists in discussions on the possible contribution from DFID. Technical support from the RBM programme is also appreciated, and the country has benefited from the RBM web page. Technical support from the national programme officer will continue in 2002. Human resource development is being done through training, supported by national funds. As a result of training, the operational performance of the programme has improved considerably, particularly in relation to case management, drug resistance monitoring, health education and early diagnosis of malaria. Applied research exists on monitoring of drug resistance, as well as studies on the efficacy of care providers and community involvement in malaria control.

RBM programme support appears to be crucial to the establishment of border activities and in the strengthening of partnerships. Consideration should be given to support from extrabudgetary funds for vector control operations, applied research and training. There is an urgent need to establish collaboration with the Meteorology Department and to initiate joint surveillance activities, as well as to identify a malaria prevention day. Assistance is needed to conduct community awareness studies, to update the surveillance system and integrate it into the national surveillance system, to computerize malaria-related data, to increase the number of sentinel sites to monitor malaria mortality and to establish an early epidemiological warning system. The RBM programme should also support the strengthening of reference laboratories and more WHO fellowships should me made available.

Egypt (Group 2)

The government is committed to malaria control and recently increased its support from US$ 1 million to US$3 million. Intersectoral cooperation, staff training, coordination with Sudan and involvement of the private sector were already well developed before the advent of the RBM programme. Active technical support from WHO took place before, covering all areas of the programme. However, as from the beginning of 2003, the government will conduct malaria control activities in partnership with the RBM programme. The malaria problem in Egypt has limited dimensions and is expected to disappear within the next few years. This is a technical area that will require support from the RBM programme.

Morocco (Group 2)

Malaria control in Morocco is in a highly advanced stage and the country has joined the RBM initiative and is fully committed to this partnership. Intersectoral cooperation between ministries and departments functions well, and the motivation and participation of the public is satisfactory. The national strategic plan is in line with the principles of RBM and the achievement of targets on schedule. The early recognition and control of malaria outbreaks has been considerably improved. Until now the government considers that financial and technical support from WHO has been adequate, but it would appreciate increasing support for applied research in the near future. This appears to be justified as Morocco facing a situation of malaria elimination and needs to develop the tools for meeting this challenge. The experience will benefit several other countries of the Region that are likely to face the same problems soon after Morocco.

Oman (Group 2)

The government has been firmly committed to intensive malaria control (with the aim of eradicating the disease from the country) since 1991. It has built up a highly competent and efficient malaria control service that has adequate national financial resources for carrying out its work. The WHO has supported the programme with modest (yet symbolically important) assistance, especially in training and research. Oman has become a partner of the RBM programme. It is envisaged that through this partnership coordination with neighbouring countries will be expanded. The country is already close to the goal of eradicating malaria. This is a very sensitive stage that will require applied research supported by the RBM programme for developing the appropriate tools and methods for finally achieving and maintaining malaria eradication in a receptive area. Oman could coordinate this research with Egypt and Morocco, countries that are facing similar challenges, though under different epidemiological circumstances.

Saudi Arabia (Group 2)

There is strong political commitment to malaria control by the government, as demonstrated by an increase in the financial support and the number of programme staff. A national coordination committee has been established, consisting of representatives from health, agriculture, municipalities, rural affairs and education. This broad cooperation was instrumental in the improvement in malaria surveillance and vector control operations in 2002. The role of the RBM programme is only as a partner, as the government provides full support to all malaria-related activities in the country. There is high community involvement in training on the use of mosquito nets and advocacy meetings on the prevention and control of malaria have been held for teachers and community leaders. Border cooperation has been revitalized and strengthened through the assistance of the RBM programme, particularly in geographical reconnaissance, malariometric surveys and exchange of information with Yemen. In the spirit of the RBM initiative, Saudi Arabia has provided bilateral support to Yemen for certain commodities. The country is approaching the end of the 5-year national strategic plan, which began in 1998, and which is similar to the regional RBM plan. Objectives and targets set in the plan have been achieved. The data collection and evaluation system has been established for many years and the government has maintained adequate supplies for diagnosis, treatment and in-service training. Proper surveillance has been stabilised and regular refresher training provided to all categories of programme personnel. In terms of financial support, the WHO has provided training in entomological techniques, vector control and laboratory diagnosis. Extrabudgetary resources were made available for international training, as well as for technical support. Since the national budget is subjected to regular annual increase, the RBM programme provided no bilateral support.

The government provides adequate support for surveillance and epidemiology, while the RBM programme has supplied documentation and guidelines. In addition, the RBM programme has supported a short term consultant on the operational use of insect growth regulators in 2002. Human resource development consists of national training courses, which are conducted at Gazan National Training Centre, funded by the government, and established before the inception of the RBM programme in 1998. Three WHO fellowships have been provided for international training in Sudan, and two for training in the Islamic Republic of Iran. On the whole, there has been a marked improvement in the function of the malaria programme due to systematic training and refresher courses for field personnel. Ongoing applied research studies are being done on the distribution and bionomics of malaria vectors in various parts of the country. The programme is generally self-reliant, with the RBM programme mainly playing a training and technical support role.

Syrian Arab Republic (Group 2)

The country has had systematic malaria control activities since the 1950s. These have been quite successful and have reduced malaria to a minor public health problem. Recently, however, an epidemic of vivax malaria has occurred in the northern areas bordering Turkey, the origin of the epidemic. Due to structural/organizational constraints, the Syrian Arab Republic has not yet joined the RBM initiative, but is expected to do so in 2003 in response to the recent epidemic. The Syrian Arab Republic has an effective malaria diagnosis and treatment system, but the flow and processing of information requires streamlining. The WHO has continued to provide material, technical and staff training support to the Syrian malaria control programme, with increased WHO regular budget allocations in 2002. Priorities under the RBM partnership should be border coordination of malaria control with Turkey in 2003, the development of a strategic plan for malaria control and the strengthening of malaria control activities.

United Arab Emirates (Group 2)

The RBM initiative has brought about an increased political commitment illustrated by an increase in government financial support, the establishment of a national malaria committee and the issuing of a ministerial order for providing blood screening and malaria treatment free of charge. There is general satisfaction with the support provided by the RBM programme, in particular in training materials for malaria diagnosis, a workshop on GIS and applied research on the use of larvivorous fish for vector control.

There has been an increase in the contribution of the private health sector in case detection and treatment, as well as increased awareness among the population of malaria risk and requests for malaria chemotherapy from travellers. There is awareness in the population of malaria surveillance and vector control, and a national malaria week has been promoted.

A joint team has monitored the malaria vectors along the United Arab Emirates/Oman border. A RBM plan was developed for 1999/2002 to prevent the re-introduction of malaria. No indigenous cases have been recorded since 1997. At present 92.6% of all cases are investigated epidemiologically for source of infection. The target is 100%. The multi-year national plan conforms to RBM guidelines as regards: early detection and prompt treatment of cases; epidemiological investigation of cases for source of infection and follow-up until the case is completely cured; entomological surveillance, including monitoring of breeding places, larval and adult collections, identification and mapping of species and monitoring of resistance to insecticide; and integrated vector control.

The country has achieved its annual targets and is on track to achieve the impact objectives through a well-developed network of basic health services. There is free access to health services and selective screening for certain nationalities. Drug response is being assessed and entomological surveillance carried out. The malaria-free status is being maintained.

The RBM programme has contributed to an improvement in data collection. Notification of malaria is compulsory and each case is recorded in the national register. Data is collected by telephone, fax and from malaria agents visiting health establishments to confirm the data received and to avoid discrepancy. The cross-checking system for malaria blood films has been expanded. Epidemiological investigation of cases has been strengthened and entomological surveillance increased.

There has also been an improvement in the availability of supplies. A manual for malaria control was prepared and distributed to all units. Refresher training has been carried out for malaria microscopists and entomological personnel. Adequate supplies of laboratory equipment and antimalarial drugs have been provided. Vector monitoring has been strengthened at the peripheral level and new vehicles provided. Surveillance activities have been improved by the regularity of reporting and feedback to all partners, and entomological surveillance has been intensified.

An applied research project was carried out in the country during 1998/1999 on the use of larvivorous fish for vector control under field conditions. As a result of this, the use of fish has been expanded in the country.

5. Country visits

5.1 Morocco

Two members of the RBM evaluation team, Dr H. Atta and Dr W.H. Wernsdorfer, visited Morocco on 16–22 February 2003. Below is a summary of the main findings and outcome of the visit.[1]

Following the creation of the Central Service of Malaria Eradication and agreement with the WHO in 1961, a pre-eradication programme was launched in 1962 followed by a malaria eradication programme that operated nationwide from 1965 to 1978, according to the classical principles of malaria eradication. The main instrument for interrupting malaria transmission was intradomiciliary spraying with DDT.

Operational activities run smoothly, without any major shortcomings, bringing the malaria situation largely under control. The number of confirmed autochthonous cases had dropped from several thousand at the beginning of the programme (30 893 in 1963) to a few dozen in 1973, by which time the majority of known malaria foci had been eliminated. The elimination of autochthonous *P. falciparum* was achieved with the last case originating from local transmission occurring in 1974. This encouraging situation was consolidated until 1978, but from 1979 there was a fresh upsurge of cases as a result of the reactivation of former known foci in several provinces (e.g. Khemisset 1979, Beni Mellal, Chefchaouen, Nador and Al Hoceima in 1984, Larache in 1985).

[1] The full text of the report is available from the Roll Back Malaria unit, WHO Regional Office for the Eastern Mediterranean.

Since 1975, autochthonous transmission has been limited to *Plasmodium vivax* only. The incidence observed since then suggests that malaria can probably be eradicated in Morocco in the near future. However, cases imported from abroad are also detected each year. They are mainly infections with *Plasmodium falciparum*, originating in particular from sub-Saharan Africa and Asia where *Plasmodium falciparum* is predominantly resistant to chloroquine.

In the course of its implementation, the malaria control programme has had strategic changes adapting objectives and control methods to the epidemiological situation. The strategy initially adopted brought about a spectacular reduction in the magnitude of the problem within a few years, particularly in morbidity. The upsurge in the number of cases observed in 1979 was a result of the relaxation of control activities. The approach was therefore improved by strengthening case detection and vector control and, at the same time, by conducting more targeted surveillance and control activities.

From 1987, the strategy was strengthened by a surveillance system based on the classification of areas according to the degree of risk. Thus, in order to target control activities more precisely and to bring the epidemiological situation gradually under control, rural areas were classified as high risk, potential risk or low risk areas.

In view of the remarkable improvement in the epidemiological situation following these changes, and in accordance with the resolution adopted by the Coordination Meeting on Malaria Control in North Africa, organized by WHO in Tunis, 26 to 28 May 1997, it was decided to seek a new approach to intensive malaria control. In the recommendations specific to Morocco, the resolution adopted at the Tunis meeting stipulates:

- malaria control should be intensified in the current foci in order to achieve complete eradication by 2002
- a standard strategy should be established for the surveillance and management of imported malaria cases
- retraining of entomologists and microscopists should be promoted
- applied research programmes should be developed in order to evaluate the progress of the programme.

Furthermore, two essential conclusions may be drawn from the analysis of the epidemiological data gathered over the last ten years:

- the two major foci are in two regions of Morocco in which malaria transmission has persisted in the last ten years: the North (Al Hoceima, Chefchaouen and Taounate) and the centre (Beni Mellal, El Kelaa and Khouribga)
- Taounate province has for long been the epicentre of the northern focus, which has favoured continuing transmission in the area.

In order to accelerate the elimination of malaria in the country, the Directorate of Epidemiology and Disease Control, in cooperation with the provinces concerned, embarked upon a strategy to eradicate the disease by 2002, followed by a five-year consolidation phase. The strategy is part of WHO's global RBM strategy.

For this purpose, an action plan was drawn up and implemented in early 1999. Its objectives are to:

- eliminate autochthonous malaria throughout the country by 2002
- prevent the reintroduction of malaria during the consolidation phase in the five years following elimination (2003–2007)
- introduce a standardized strategy for the control and prevention of imported malaria.

In order to target action and to define an appropriate surveillance and control strategy based on the development of the epidemiological situation over the last few years, the country has been stratified and divided into three distinct groups of areas.

Malaria control in Morocco has a long tradition and has had a generally successful history during the first half of the 20th century. In 1962, the country embarked on a malaria pre-eradication programme. The malaria eradication programme proper started in 1965 and lasted until 1978, reducing the annual malaria incidence from 30 893 in 1963 to a few dozen cases in 1973. The last case of autochthonous falciparum malaria was recorded in 1974. Since then, infections with *Plasmodium falciparum* have been restricted to imported malaria cases. In 1978, the malaria eradication programme was converted to a malaria control programme. The relaxation of control activities produced a re-activation of former known foci, leading to a new upsurge of malaria incidence. As from 1987, the government strengthened the surveillance system, introduced epidemiological stratification, and brought the epidemiological situation again under a fair measure of control. In view of the major improvement of the epidemiological situation, the autochthonous malaria elimination strategy (AMES) meeting in Tunis, in 1997, recommended the adoption of malaria eradication as the operational goal for Morocco, envisaging its achievement by the year 2002.

The government has effected the essential re-orientation of the programme and developed a sound malaria eradication strategy. It intensified antimalarial efforts, particularly in the two regions where foci of malaria transmission have occurred over the last 10 years. As a result of these activities the malaria incidence has been sharply reduced. In 2000, only three autochthonous malaria cases were recorded, all three being relapses from infections contracted in previous years. In 2001, there were no cases of autochthonous malaria transmission. However, in 2002, there was an outbreak of vivax malaria, with 19 autochthonous cases, all of which occurred in the province of Chefchaouen in northern Morocco, affecting two localities (in two sectors). The investigation of the outbreak highlighted the vulnerability of the area, compounded by delays of microscopic diagnosis, shortcomings in information flow, and deficient passive case detection coverage resulting from difficult access to the widely dispersed primary health care facilities. The malaria control programme operates throughout the national territory. It is integrated into the primary health care system and at the peripheral level is carried out by multipurpose personnel.

After consultation with the Ministry of Health, other government agencies and semi-governmental institutions, the evaluation team made recommendations to strengthen the various component parts and activities of the national malaria eradication programme, addressing:

- urgent measures in known and suspected malaria foci

- expansion of in depth epidemiological stratification
- fine tuning of GIS in keeping with programme needs
- streamlining of diagnostic procedures and reporting
- need for urgent replenishing of diagnostic services
- revision of treatment guidelines according to WHO recommendations
- strengthening of epidemiological surveillance
- raising awareness of individuals, communities, physicians and international travellers
- guidelines for protection against malaria for international travellers
- management of transiting malaria patients at airports
- operational research related to specific problems encountered by the national malaria eradication programme
- identification of areas in which support by the WHO RBM programme and the Regional Office can assist the Government of Morocco in reaching the goal of malaria eradication with the least possible delay.

In its contacts with the Ministry of Health, the provincial and peripheral health services, as well as semi-governmental institutions, the evaluation team observed a high degree of motivation. In addition, contacts with the public in socioeconomic stratum A1 yielded evidence of a remarkable awareness of the malaria problem among individuals and communities.

5.2 Pakistan

Dr H. Atta and Dr A. Seita of the RBM evaluation team, visited Pakistan on 1–7 June 2003. Originally the team had selected Iraq for a site visit, but in view of the prevailing situation this was not possible and thus Pakistan was selected instead. Below is a summary of the main findings and outcome of the visit.[2]

Malaria remains a major public health problem in many areas of Pakistan. In 2002, a total of 108 739 malaria cases were reported to the national malaria programme, however the real incidence is estimated as being much higher at around 1 500 000 cases per year.

Transmission is seasonal. In most parts of the country, the transmission period is post monsoon i.e. from July through November, but there is also a short spring transmission period during April and May. Recently, malaria cases occur throughout the year in Sindh province. Both *Plasmodium falciparum* and *Plasmodium vivax* are widely distributed in Pakistan. Falciparum resistance to chloroquine has been reported throughout the country. It was first detected in 1981 in Sheikuura, in Punjab, and since then the problem has gradually worsened. Major vector species are *Anopheles culicifacies* and *Anopheles stephensi*. Both vectors have become resistant to organochlorines and organophosphate insecticides. In 2002, the national average annual parasite incidence (API) was 0.682 per thousand population, with a maximum of 18 per thousand in some districts. The API is highest in Balochistan (4.68) followed by the Federally

[2] The full text of the report is available from the Roll Back Malaria unit, WHO Regional Office for the Eastern Mediterranean.

Administered Tribal Areas (4.22), North West Frontier Province (1.04), Sindh (0.66) and Punjab (0.12). There were 108 739 reported cases of slides positive for malaria in 2002 with 30.9 % of cases due to *P. falciparum*.

Since the inception of the RBM strategy in 1999, Pakistan has given high priority to malaria control, expressed through political and financial commitment. The federal government increased the budget for the federal RBM programme from Pakistani rupee (PKR) 40 million in 2000/01 to PKR 146 million in 2001/02. The federal government has also developed a strategic action plan for its malaria control programme (2002/03–2005/06). The plan is in line with the global RBM strategy, aiming to expanding RBM activities nationwide by 2006 and to halve the malaria burden by 2010. Technical and operational strategies are also in line with global strategies, i.e. early diagnosis and prompt treatment, vector control, early detection and control of epidemics, partnerships, information, education and communication (IEC), and capacity-building.

Provincial governments have approved a multi-year (4 to 5 years) provincial PC-1 (project concept 1). In 2002/03, a total of PKR 84 million was allocated in the provinces: PKR 8.9 million for Punjab, PKR 17.4 million for Sindh, PKR 6.6 million for North West Frontier Province, PKR 16.3 million for Baluchistan, and PKR 4.3 million for Azad Jammu Kashmir.

Following the principles of the RBM initiative, the Government of Pakistan has pursued the development of broader partnerships and intersectoral cooperation. WHO has been effective in facilitating the above activities. At the federal level, WHO is the key international partner, and has assisted the development of the national strategic plan and a sound proposal to the Global Fund. This support was effective as the Global Fund approved financial support of US$ 4.4 million for RBM activities in Pakistan. WHO, through its country budget, has funded some critical activities for the introduction of the RBM programme. Moreover, WHO has recruited one National Programme Officer at federal level for continued technical assistance. Even though the number of malaria control staff has increased since the RBM programme began, several posts remain vacant at federal and provincial level, especially entomologists.

The national malaria programme has began implementing RBM activities in a phased manner. The federal and provincial malaria control programmes firstly selected 19 districts for RBM activities during 2002/03: five in Punjab, five in Sindh, four in North West Frontier Province and five in Baluchistan. In collaboration with district health authorities, district implementation plans for the 19 districts have been developed.

The federal programme developed national treatment guidelines for malaria through a national workshop, and published and distributed the guidelines in 2002. Adherence and awareness of malaria control staff to guidelines is yet to be achieved. Sentinel sites to monitor therapeutic efficacy to antimalarials are being established. The federal programme also strengthened malaria surveillance capacity by establishing a data management unit. The unit receives malaria data from all districts on a monthly basis, which are computerized, analysed and mapped using HealthMapper. Steps are being taken to establish a malaria early detection system. The federal programme is also trying to ensure capacity by training master trainers and reviving a national institute of malaria research and training in Lahore.

Moreover, provincial malaria control programmes have undertaken a series of activities for RBM programme expansion. These include training activities for malaria diagnosis and treatment, television and radio spots for community awareness, and the start of a number of operational research activities.

The provincial malaria control programme is still struggling to phase out old eradication strategies such as active case detection. Despite the official announcement of integration, malaria control programmes remain vertically organized. This vertical approach has resulted in the development of parallel services. Access to rapid diagnosis and early treatment at the health facility level is very limited especially in districts where the population is highly scattered and health facilities are few. There is also a lack of a functional system for quality assurance of laboratory diagnosis.

At the federal level, WHO is the main active partner in the RBM programme. Partnership is being initiated with nongovernmental organizations, World Bank, and the Global Fund. At the provincial and district levels no partnership or intersectoral collaboration were noted.

The national strategic plan conforms to RBM programme technical interventions, but this is not the case in the provinces and districts, were the concepts and strategies of RBM are not yet reflected. The federal PC-1s in the visited provinces, especially in Baluchistan, are not in line with RBM strategies and still incorporate malaria eradication activities.

The technical leadership of the malaria control programme at federal and provincial level needs to be strengthened by filling vacant posts, especially in the areas of planning, evaluation, entomology and vector control. The activities carried out by the malaria supervisor are not in line with the RBM strategy (active case detection and mass surveys).

Malaria microscopic diagnosis is still vertical and is very limited in Baluchistan, and is performed at a poor quality in Sindh. There are no standard techniques for slide taking, staining and fixation. There was a shortage of the supplies needed in most facilities visited. The system of quality assurance is not functional despite availability of reference laboratories. Treatment is not conducted in line with national guidelines. Chloroquine injection is commonly used in basic health units and basic health centres. The supply of essential antimalarial drugs included in the national guidelines is often interrupted for several months. Physicians have poor understanding and inaccurate knowledge of malaria treatment protocol. The responsibility for treatment in rural health centres is unclear and is often delegated to malaria microscopists without proper training.

Integrated vector management has not yet been introduced in Pakistan. Vector control depends mainly on insecticides, with indoor residual spraying and fogging as the main methods. The spraying and fogging are done in certain households as a response to an increase in cases or political pressure, and is not related to the timing of the transmission season or a coverage target. No entomological monitoring or surveillance activities are being conducted. Insecticide treated bednets have not yet been introduced, although a culture of bednet use exists.

Several systems (HIMS, MCP, LHW, and DEWS) are collecting and reporting malaria cases without coordination, and different case definitions of malaria case are being used. Epidemic prone districts have not developed epidemic preparedness and response plans. The developed malaria early detection system is not yet functional

In short, implementation of the RBM programme in Pakistan is in its early stages with many ongoing preparatory activities. It is commendable that Pakistan has secured sufficient funds for expanding RBM activities nationwide. In view of the fact that the programme is facing several challenges and constraints, RBM programme expansion should be done in an appropriate manner. It is critical for the programme to select one (or maximum two) districts in each province as pilot areas for the introduction of the full RBM strategy package.

5.3 Sudan

One member of the RBM evaluation team, Dr W. Wernsdorfer, visited Sudan from 12–22 November 2002. Below is a summary of the main findings and outcome of the visit.[3]

Malaria is the leading cause of morbidity and mortality in Sudan. The annual number of malaria cases is estimated at 7.5 million. Clinically manifest malaria affects nearly one quarter of the country’s population and accounts for 20%–40 % of the total outpatient attendance and approximately 30% of the annual in-patient capacity of hospitals. The annual number of deaths from malaria is estimated at 35 000, representing about 70% of malaria deaths recorded in the Region. Almost the whole population of Sudan is at risk of malaria, albeit at different degrees regionally. *P. falciparum* is the predominant parasite species, accounting for approximately 90% of the clinical malaria incidence and practically all mortality. *P. vivax* occurs only in the northern, eastern and occasionally in the western, parts of the country, but not in the south. *P. malariae* is encountered sporadically in the northern, eastern and western states, but very frequently in southern Sudan where it is mostly associated with *P. falciparum*. The distribution of *P. ovale* is mainly limited to the southern states. The predominant vector species in the northern, eastern, and western states is *Anopheles arabiensis*. In southern Sudan *A. gambiae sensu stricto* and *A. funestus* are the main vectors. Malaria in the northern, eastern and western states is mainly hypo- or mesoendemic, with predominantly seasonal transmission. In southern Sudan it is hyper- or holoendemic, with usually perennial transmission. Sudan has a surface area of 2.7 million km^2 and a population of 31.9 million (2001 estimate), some 26.8 million of which inhabit the 16 northern, eastern and western states, and 5.1 million in the southern states.

[3] The full text of the report is available from the Roll Back Malaria unit, WHO Regional Office for the Eastern Mediterranean.

The curative part of the health care system is composed of 274 hospitals, 693 health centres, 1468 dispensaries, 1442 dressing stations and 2729 primary health care units, with a total of 4992 medical doctors, 306 pharmacists and 6193 medical assistants. The staff of the environmental health services includes 365 public health inspectors and officers, 917 sanitary inspectors and 1473 assistant sanitary inspectors. In addition, there are 2433 technical staff in the curative and environmental health services. They are mostly laboratory technicians and microscopists in 1755 laboratories. There are important differences between the states in the distribution of health care facilities and human resources, with the highest densities in Khartoum and Gezira states, and a general increasing dispersion with distance from these centres.

Between the 1970s and the mid-1990s, malaria control has suffered a major disruption. Only in the area now belonging to Gezira State did the Blue Nile Project maintain a vestige of malaria control, and even that was lost after the discontinuation of the project. In this process Khartoum State, formerly a nearly malaria-free area, suffered increasingly from malaria epidemics and an annual mean malaria incidence of more than 700 000 cases between 1998 and 2001. The situation was similar in the rest of the country.

In 1998, the government took the decision to revitalize malaria control in Sudan. Under the plan of action for 1998/1999, and with the support of the Regional Office, and from 1999 also the RBM programme, a federal malaria control office and three state malaria control units (Khartoum, Gezira, White Nile) were established. The full staffing and functioning of these was accomplished by the end of 2001. A national strategic plan for the control of malaria has been prepared, and subsequently updated, by the federal unit in consultation with state units. Malaria control units were built up in nine more states in 2000/2001, with full staffing and functioning due to be achieved by the end of 2002. This development has been accompanied by a major staff training effort to ensure competence in the federal and state malaria control units. In the priority states (Khartoum, Gezira, White Nile) the training was extended to a large part of the curative health care and environmental health structures that are an integral part of the malaria control effort. Pending the normalization of conditions and renewed feasibility of well-organized malaria control in southern Sudan, the national strategic plan for malaria control essentially pertains to the northern, eastern and western states of the country. In view of the predominantly epidemic nature of malaria in these areas, the major approach to malaria control is based on the rapid recognition (early warning system) and control of malaria outbreaks. The recognition relies on weekly information of malaria incidence from sentinel stations. This system has been fully operational in the three priority states since the end of 2001, and in nine more states since mid-2002. The establishment of the early warning system required the training of laboratory personnel and the streamlining of diagnostic procedures. While the network of sentinel stations is already quite dense in Khartoum and Gezira states, it is yet to be strengthened in the other states. The target is an extension to all health care stations with laboratory facilities (and the extension of diagnostic facilities as well).

Rapid diagnosis and treatment of malaria (following standardized procedures and national drug policy) and control of mosquito breeding by environmental sanitation or larviciding of permanent breeding places are the mainstay of malaria control. Intradomiciliary spraying of residual insecticides is limited to focal operations in the case of epidemic outbreaks. Since such outbreaks were quite rare in the three priority states in 2001 and 2002, the extent of residual spraying operations was very limited. *A. arabiensis* shows practically full susceptibility to permethrin, deltamethrin and fenitrothion. The susceptibility to malathion is compromised, but to DDT it is still (or again) surprisingly high.

There is some evidence that the principle of "cost sharing" inhibits the utilization of public sector diagnostic and treatment facilities by patients, resulting in delays between first manifestations of malaria and therapeutic intervention, and thus in an unduly high frequency of severe and complicated malaria, and substantial case fatality. As diagnosis and treatment in public sector health care facilities are payable by the patient, haphazard self-treatment is frequent. A wide range of antimalarial drugs is licensed and available at pharmacies. In the private sector, practitioners use medicaments and drug regimens that are not usually part of an appropriate, rational drug policy. The national guidelines for the use of antimalarial drugs require revision in the light of international recommendations. The response of *P. falciparum* to chloroquine should be urgently reassessed in the established monitoring sites as early results already show a substantial frequency of resistance in several sentinel sites.

Community mobilization and participation has been successfully stimulated and a high degree of public awareness of malaria and its control has been achieved in the areas which are now under full operation (Khartoum, Gezira and White Nile States). Partnership with numerous nongovernmental organizations has been instrumental in these developments and is expected also to be crucial in the future expansion of the use of ITN.

Despite the above-mentioned therapeutic problems, it is noteworthy that malaria control is beginning to show an impact in the three states where full control has been operational since the beginning of 2002. Malaria incidence in Khartoum State in 2002 has dropped to 50% of its previous level and the mortality rate has also shown a significant reduction by 17%. In Gezira state, the share of malaria in the total attendance level of health care services shows a significant reduction and the absence of the usual incidence peak in the third/fourth quarter of 2002. In White Nile State, mortality from malaria showed a significant reduction in 2002 in comparison to the levels of previous years. This is clearly the result of a special project to improve the management of severe and complicated malaria that is being conducted in the framework of the RBM-assisted programme and is based at the state hospital in Kosti.

In summary, the revitalization of the national malaria control programme in Sudan is in full swing. Competent organizational structures have been established at federal and state levels, and in three states, malaria control has already been fully implemented. In nine more states, the programme is in active expansion and is expected to reach operational maturity in 2003 or 2004. Without doubt, the RBM partnership has been the motor of these achievements and is an essential partnership that should continue and be further strengthened.

5.4 Yemen

Two members of the RBM evaluation team, Dr H. Atta, and Dr A.V. Kondrachine, visited Yemen on 16–25 October 2002. Below is a summary of the main findings and outcome of this visit.[4]

Malaria is one of the most serious health problems in Yemen. About 60% of the total population of the country is under malaria risk. *P. falciparum* is the prevalent malaria species, being transmitted by *An. arabiensis* in the mainland, and by *An. culicifacies* in Socotra Island. Some evidence exists that importation of resistant strains of *P. falciparum* has resulted in its local transmission in certain areas of the country. Social unrest and civil wars during the 1980s and 1990s brought about the near total arrest of all antimalaria activities in the country, resulting in serious aggravation of the malaria situation. Against this background, the Regional Office assisted the Government of Yemen to establish the RBM programme in 2000.

The Government of Yemen accords the highest priority to malaria control through its political and financial commitments. Following a statement of intent issued by the Ministry of Public Health and Population in January 2000 committing Yemen to the RBM approach, the Supreme National Malaria Committee was established by prime ministerial decree. A national malaria control programme headquarters was established in Sana'a in March 2001 and a five-year plan of action for malaria control though the RBM programme was finalized at the beginning of 2001. The implementation of this plan started from the first quarter of 2001. The plan of action outlines the strategic directions for human resource development, early diagnosis and prompt treatment of cases, selective vector control, prevention of malaria in pregnancy, epidemic preparedness and response, strengthening the malaria surveillance and information system, community involvement and operational research.

To facilitate the achievements of the RBM programme in malaria control in Yemen, the Government allocated 370 000 000 Yemeni rials for 2002, one of the highest budgets for any health programme in the country. To meet the human resource development requirements, a National Centre for Malaria Training and Research was established in Abyan in a newly-erected building with all facilities. National Malaria Day was inaugurated in August 2001 by the Vice-President, Minister of Public Health and Population, and the [WHO] Regional Director for the Eastern Mediterranean.

Broad partnership and intersectoral cooperation is being pursued, following the principles of the RBM initiative. WHO is one of the major partners of the Government of Yemen in malaria control, providing the services of a long-term medical officer and a short-term entomologist to support the RBM programme in its various activities with funds of US$ 550 000 for the biennium 2000/2001, more than a three-fold increase over the previous biennium. Other major partners are the Governments of Italy, Japan, Oman and Saudi Arabia. Various nongovernmental organizations are engaged in various antimalaria activities.

[4] The full text of the report is available from the Roll Back Malaria unit, WHO Regional Office for the Eastern Mediterranean.

Intersectoral collaboration involves various ministries and departments, such as the Ministries of Finance, Agriculture and Irrigation. There has been greater and stronger collaboration with the private sector, both within the country and outside it.

Given the complexity of the problem, the RBM programme has focused initially on certain areas of highly malarious risk for the population, including:

- Tihama coastal belt
- Selected districts in some governorates in foothill and mountainous areas
- Socotra Island

It is envisaged that the remaining malarious areas of the country will be brought gradually under the RBM programme over the next few years. The main thrust of the RBM programme is case management training for various categories of medical personnel, improving laboratory skills, establishing reference laboratories, and ensuring the availability of first and second-line drugs in all health institutions, particularly at the peripheries of the health service. To meet the goals and objectives of the 5-year plan of action, the national antimalaria drug policy and guidelines on the clinical management of severe malaria have been developed, printed and distributed to various health institutions (more than 20 000 copies each). Training has been given to 117 laboratory technicians, 81 medical doctors, over 100 sanitary inspectors and 20 malaria microscopists. Indoor residual insecticide spraying and larviciding has been carried out in selected areas of Hooded Governorate, Socotra Island, Taiz Governorates and Dhamar Governorate.

Monitoring of insecticide and drug resistance has been started in selected areas and the strengthening of malaria surveillance through new reporting systems is being carried out. Exchange of malaria-related information with Saudi Arabia on border areas has also been initiated. A few workshops on various aspects of malaria activities have been held, supported by the Regional Office and other RBM partners. As a result of all these activities, there has been a considerable reduction of malaria incidence and mortality in areas under the RBM programme.

6. Conclusions and recommendations

6.1 Introduction

The evaluation team collectively analysed the country responses to the questionnaire, reviewed the country-visit reports (Morocco, Pakistan, Sudan and Yemen) and reviewed other available reports from the regional RBM programme. The detailed outcome of this evaluation for Group 2, 3 and 4 countries (those under elimination, mild to moderate transmission and intense transmission) is documented in Annex 13. It is also useful to look at Annex 11, which reflects how the countries graded the response to the questions under each element.

The countries clearly recognized the achievements that have been made by the regional RBM programme, and the evaluation team has highlighted these below. In addition, in order to guide the regional RBM programme on how to better respond to the needs of countries, the evaluation team has made some recommendations.

6.2 Appropriateness of the Region's RBM strategies

The evaluation team considered the appropriateness of the strategies established by the regional RBM programme (2003–2006) and concluded that the strategies are appropriate to the needs of the countries of the Region.

However, the evaluation team noted that a strategic plan has not yet been officially endorsed by the WHO Regional Committee for the Eastern Mediterranean and has not yet been disseminated to the Member States. The strategic plan does not have any identified activities, targets and indicators, and countries have not yet been consulted.

Recommendation

- The RBM programme, in collaboration with Member States and the Regional Malaria Technical Advisory Group (MTAG), should elaborate the regional RBM strategic plan to cover the period 2005 to 2010, specify appropriate activities and monitoring indicators, and submit it to the Regional Committee in 2004 for endorsement.

6.3 Political commitment

In countries with a high malaria burden, there has been political recognition of the RBM programme. This political commitment has been demonstrated by the establishment of national malaria coordination committees in all of these countries except Afghanistan. In addition, the national RBM budget has been significantly increased in Sudan and Yemen.

The moderately malarious countries have made good progress in strengthening political commitment. This is indicated by increases in the national budget allocated for malaria control (Annex 11) and the activities of the national coordination committees.

The elimination countries have reinforced efforts to improve political commitment towards the RBM programme. However, Egypt has yet to translate this commitment into action and the Syrian Arab Republic has not demonstrated a political commitment to the programme.

Recommendation

- The RBM programme should catalyse the political commitment towards the goals of RBM in countries that have not translated the declared commitment into action and in those that should continue to consolidate the commitment towards achieving these goals.

6.4 Partnership

Partnerships are an as essential element of the RBM approach. They have increased in all countries with a high malaria burden. New partners include governmental sectors other than the Ministry of Health, national and international nongovernmental organizations, the private health sector, the mass media, bilateral and multilateral agencies, and funding institutions including The Global Fund to Fight AIDS, Tuberculosis and Malaria. However, RBM programme funding partners such as the United Nations Development Programme (UNDP), UNICEF and the World Bank are not fully participating in RBM programme activities in some countries.

In countries with a lesser burden of malaria, partnerships have been promoted and consolidated. However, partnership development is limited in the Islamic Republic of Iran, Morocco and Saudi Arabia, primarily because the Ministries of Health have sufficient financial and human resources for malaria control, and also in the Syrian Arab Republic because the Government has yet to declare its political commitment.

Partnerships are still in need of strengthening in all country groups, especially those with a high burden of malaria.

Recommendations

- WHO and the countries of the Region should further strengthen and expand partnerships to support malaria control at both the regional and country level.

- The three co-founders of the RBM initiative, namely UNICEF, UNDP and the World Bank, should provide effective support to the programme in the Region and should play an active role as partners under the technical leadership of WHO.

- WHO, in consideration of the major role played by various international and national nongovernmental organizations in different fields of malaria prevention and control, should continue to provide them with technical guidance and leadership

- WHO and countries should build, expand and promote by all means possible the current successful collaboration of the RBM programme with the private sector (e.g. health education through private broadcasting and the availability/distribution of insecticide treated nets through private channels in Sudan, and the participation of private companies in vector control operations in Yemen).

- Countries who have interested RBM programme partners should carry out careful needs assessments to identify the technical support and human resources development required.

- Member States, with the support of WHO, should enact and reinforce legislation and regulations regarding registration, importation, quality and availability of antimalarial drugs in private and public sector pharmacies, hospitals and other facilities. RBM programme partners at country level should promote such regulations. Moreover, private practitioners should comply with national drug policies.

6.5 Intersectoral collaboration

Intersectoral collaboration continues to be weak in all countries except Egypt, Morocco, Oman, Sudan and, to some extent, Yemen. Examples where the RBM programme has positively contributed to increased intersectoral collaboration are: rehabilitation of the application of malaria control ordinances by the Ministries of Agriculture and Irrigation in Sudan; involvement of the Ministry of Agriculture and Information in supporting malaria control activities in Yemen; wide scale intersectoral collaboration in Morocco (transport, agriculture, communication, defence, public works) towards the goals of the RBM programme; and the strengthening and/or consolidation of community involvement and awareness in most countries.

Recommendation

- WHO, governments and partners at country level should continue to promote greater intersectoral collaboration among all relevant sectors and all levels, especially among decision-makers. Collaboration should not be limited to the private sector and nongovernmental organizations, but should also be significantly promoted with other relevant government departments.

6.6 Coordination of border activities

Good examples of where cross-border cooperation has taken place are between Saudi Arabia and Yemen, and between Oman and the United Arab Emirates. The RBM programme has contributed to the strengthening of the existing cross-border cooperation between Egypt and Sudan to prevent *Anopheles arabiensis* from reinvading Egypt.

Two cross-border meetings between countries from the European Region and the Eastern Mediterranean Region have been supported by the RBM programme in Baku covering Afghanistan, Islamic Republic of Iran, Iraq and the Syrian Arab Republic. A cross-border meeting between Iraq, the Syrian Arab Republic and Turkey, scheduled for March 2003 has been postponed. Another cross-border meeting is planned in the Islamic Republic of Iran in July 2003 with representatives from Afghanistan, the Islamic Republic of Iran and Pakistan.

However, not enough has so far been achieved in revitalizing cross-border cooperation between countries of the Region and with other WHO Regions. The Regional Office invited Algeria and the United Republic of Tanzania (Zanzibar) to participate in the annual malaria programme managers meeting in 2002 and 2003, which they did.

The Regional Office has organized several intercountry meetings/technical workshops, recognized as valuable instruments for exchanging technical information and for providing information on advanced technology. However, the concept of networking as a means of continuous exchange of expertise, information and training has not yet been fully realized by the Regional Office and countries.

Recommendations

- WHO should promote regular cross-border meetings, as well as synchronization and coordination of malaria prevention and control activities, between countries experiencing high population movements from malaria endemic areas (e.g. Islamic Republic of Iran-Afghanistan-Pakistan or Horn of Africa countries). These meetings should involve RBM programme partners and should serve to exchange and document information and experiences, and to ensure a better articulation of RBM programme policies and strategies.

- WHO should promote, in countries or locations near to eradication, an exchange of epidemiological and entomological information and experience. It should also ensure that neighbouring countries, including those in other WHO Regions (e.g. Algeria and Mauritania in WHO Africa Region), maintain efficient surveillance/detection systems.

- WHO should promote the establishment of subject-oriented networks focused on specific aspects of malaria control/eradication and relevant technologies (e.g. drug policy, malaria early warning systems, eradication procedures).

6.7 Planning and management

The overall response to planning and management was very positive for all countries responding to the questionnaire, with the exception of Afghanistan and Somalia (which are in complex emergency situations and who do not yet have national multi-year strategic plans). As a result of RBM programme support, countries have better strategic plans that conform to RBM programme polices. Countries are also achieving the annual targets and are on track to achieve the impact objectives. The RBM programme plan in some provinces in Pakistan did not conform to the national strategic plan, which is in line with RBM programme policies.

There are indications that the data collection and monitoring systems could be improved. In addition, it seems that, on occasion, there are interruptions in the availability of the necessary supplies for diagnosis, and of surveillance tools at the peripheral level. Countries with mild/moderate transmission expressed the highest satisfaction and indicated that they need more help in monitoring and evaluation, surveillance, logistics and standardized antimalarial drug policies. The malaria elimination countries had effective systems before the inception of the RBM programme, although three countries in this group highlighted the need for more sensitive monitoring and surveillance tools.

Recommendations

- WHO should develop with countries standardized tools and methodology for monitoring and evaluation taking into consideration the relevant Millennium Development Goal indicators. These include data collection forms linked to standard databases and HealthMapper, and survey methodology for monitoring coverage indicators.

- WHO should promote the development of more sensitive tools for case detection and surveillance for countries with limited malaria transmission malaria (e.g. detection of hypnozoites, seroepidemiological techniques and survey methodology).

- WHO must ensure provision of technical guidance and support to the national/federal and lower administrative levels of countries with decentralized health systems so that proper strategic plans are developed for all levels.

- WHO should address the specific needs of countries in complex emergency situations, particularly in the development of strategic plans and specific tools for monitoring and evaluation.

6.8 Financial support

Countries are satisfied with overall RBM programme financial support, national funding, WHO/RBM programme extrabudgetary funding and bilateral collaboration. The RBM programme has been instrumental in improving WHO extrabudgetary support, particularly in countries with intense transmission. The effect of the RBM programme in bringing about an increase in the national malaria budget has been very positive in Group 3 countries with mild to moderate transmission. The RBM programme has brought an increase in bilateral aid and collaboration in a few countries including Afghanistan, Pakistan and Yemen.

The regional RBM programme has assisted countries to develop proposals for obtaining financial resources from the Global Fund to Fight AIDS, Tuberculosis and Malaria. This support consisted of convening regional consultation meetings, providing consultation to individual countries and providing assistance through WHO country offices and RBM programme field staff. Six out of the seven proposals (two from Sudan and one each from Afghanistan, Pakistan, Somalia and Yemen) submitted in the second round were approved for funding.

This extra funding for malaria at the country level will generate additional requests from countries to WHO for technical guidance in its utilization. Although this will be very much welcomed, it means that WHO at regional and country levels will need to be reinforced in order to be able to respond adequately.

Recommendations

- Despite the additional funding for high burden countries, WHO should continue its successful resource mobilization activities. For this purpose, WHO should strengthen its RBM programme technical support at regional and country level.

- WHO should catalyse bilateral collaboration and support for certain countries such as support from the countries of the Gulf Cooperation Council to Yemen to achieve a malaria-free Arabian Peninsula.

- The Regional Office should identify potential funding sources within countries of the Region that can be utilized to support malaria control and eradication in the Region. The role of the RBM programme should include be to define areas where collaboration could have the greatest impact and sustainability, and that could attract the donors. WHO should also assist the countries in greatest need to seek additional resources.

- Although countries have increased their national funding for antimalaria activities, they should continue to mobilize additional national resources and to better utilize the human and financial resources that they already have.

6.9 Technical support

Technical support has been the regional RBM programme's strength and there was a very positive response from countries on the provision of technical assistance, increased availability of supplies and equipment, and the availability of more documentation and guidelines. In Oman, which had a highly effective malaria eradication programme before the start of the RBM programme, WHO support was limited to applied research and training. Some countries that are now free from malaria transmission have formally requested WHO to initiate the process of certification of malaria eradication (e.g. the United Arab Emirates).

It was evident to the evaluation team, as a result of the country visits, that national drug policies on antimalarial treatment were not being followed in both the public and private health sectors. Furthermore, in most of the countries that were visited, the policy itself is not fully in line with WHO recommendations.

Recommendations

- WHO should ensure that high level technical expertise (including international/regional WHO staff and national WHO field staff) be available for strengthening capacity in high burden countries, particularly in view of the increased activity at the country level that the Global Fund to Fight AIDS, Tuberculosis and Malaria funding would bring.

- RBM programme support should be extended to establish networking among countries facing similar challenges under different epidemiological circumstances (e.g. Egypt, Morocco, Oman and United Arab Emirates) in areas such as country studies for developing/implementing appropriate tools and methods for achieving and maintaining malaria eradication

- WHO should develop subregional and interregional networks to address specific technical problems such as drug resistance, insecticide resistance, monitoring and evaluation, and early warning systems for malaria epidemics.

- WHO should update the technical guidelines and procedures for certification of malaria eradication.

- WHO should continue to assist countries in developing and updating their national antimalarial drug policies to ensure that the policies are fully in line with WHO recommendations and are implemented by all involved sectors and partners, including nongovernmental organizations.

- The regional RBM programme should establish a regional technical malaria advisory group to help revise regional policies, strategies and guidelines, and provide advice on major technical issues in support of the regional RBM programme.

6.10 Human resources development

The regional RBM programme has intensified human resources development and fellowship activities, with the result that an improvement in the functioning of programmes was observed in all countries. Countries have positively recognized the value of WHO fellowships since the inception of the RBM programme, especially through participating in regional training courses and observation visits.

However, Afghanistan has requested more WHO fellowships. The team noted that Djibouti has serious infrastructure problems that unfortunately undermine the human resource development process.

Recommendations

- WHO and countries are urged to carry out careful needs assessments in human resources development and the provision of enabling working environments. WHO, in collaboration with countries, should develop and implement a follow-up mechanism for trainees to ensure that they remain in the service for which they were trained

- The regional RBM programme should collaborate, as a high priority, with countries to urgently revitalise their national centres for malaria training and research (in local languages). The regional RBM programme should support the national centres, and the development and maintenance of a national cadre of trainers in different aspects of malaria prevention and control.

- The regional RBM programme should actively pursue and support the development of a network of national and regional training centres, and should promote new WHO collaborating centres.

6.11 Applied research

From 1992, the Regional Office, jointly with the UNDP/WHO/World Bank Special Programme for Research and Training in Tropical Diseases (TDR), started the Small Grants Scheme to support short-term applied research activities relating to control of communicable diseases, including malaria. The Scheme has succeeded in stimulating applied research activities in the Region. Over the past three years, the funds available to the Scheme have increased significantly, particularly from the RBM programme, and the scope of the Scheme has been reoriented to address the needs of control programmes. In the 2003 round, the total fund of the Scheme was US$ 275 000, to which the RBM programme contributed US$ 25 000 from its extrabudgetary funds. A total of seven proposals relating to malaria were funded in that round.

Since 1998, the Regional Office has conducted a number of workshops on proposal development and research methodology for communicable diseases in order to build research capacity in countries.

The results of the country questionnaires found that half of the countries who responded indicated that the regional RBM programme plays a positive role and has had a positive impact. Countries that indicated disagreement with this included three under elimination (Egypt, Syrian Arab Republic and United Arab Emirates), two in the moderate group (Islamic Republic of Iran, Iraq) and one with intense malaria transmission (Djibouti).

Eight countries (67% of those responding) indicated that the applied research activities carried out since the inception of the RBM programme had became more relevant to the needs of the malaria control/eradication programmes.

Recommendations

- The Regional Office should ensure that national malaria programme staff participate in workshops on proposal development and research methodology.

- The Regional Office should explore ways to encourage countries to conduct operational research to meet programme needs.

- TDR and its partners should mobilize appropriate research institutions to develop innovative diagnostic tools to meet malaria control and eradication operational needs e.g. diagnostic tools to detect hypnozoite carriers.

6.12 RBM in complex emergency situations

The countries of the Eastern Mediterranean Region that have been classified by WHO Emergency and Humanitarian Action (EHA) as being in complex emergency are Afghanistan, Iraq, Somalia and Sudan. The regional RBM programme has experienced great difficulty in responding to the needs in those parts of these countries that are under complex emergency situations. However, drawing on country visits, reports and regional experience, the evaluation team has concluded that the regional RBM programme has made great efforts to increase partnerships and to engage implementing partners (e.g. nongovernmental organizations and humanitarian funding agencies) in strategic malaria control interventions in areas/countries where there is no government leadership and in post-conflict/war situations. This is particularly the case in the southern part of Sudan where the malaria burden is very high and to a lesser extent in Afghanistan where the national programme has to be rebuilt with the assistance of WHO and the humanitarian community, including international nongovernmental organizations.

Recommendation

- WHO should maintain and strengthen the presence of competent field staff in situations of complex emergency where malaria is a major problem.

7. Looking to the future

The RBM programme evaluation team has been working for one year to review the way in which the programme has responded to the needs of the countries of the Region. In this time, and as a result of the analyses made and the discussions held, many issues have emerged that need to be considered in the future at a global level to ensure the success of malaria control and eradication.

The team has therefore outlined below the main issues for future consideration by the regional and global malaria programme.

- The momentum gained by the RBM programme should be maintained and should not be allowed to dwindle.

- WHO, with its partners, needs to scale up the disease control capacity at a country and local level on a sustainable basis. Greater emphasis must be placed on health systems development and management to deliver RBM programme control and eradication interventions and to assure sustainability.

- WHO technical expertise will be greatly needed in the future with the availability of more resources such as those of the Global Fund. WHO capacity will need to keep pace with the scaling up of programme activities to respond to the increasing demands of countries.

- The RBM programme should support specific subregional initiatives for the achievement of common goals such as a malaria-free Arabian Peninsula and a malaria-free North Africa.

- WHO should consider developing an essential package of services, including for malaria, for complex emergency situations. This would greatly help WHO to effectively operate under such circumstances.

- The RBM programme should explore mechanisms for transferring regional experiences in the implementation of the RBM programme to other WHO regions in a timely and effective manner.

- WHO should ensure the documentation of success stories and the dissemination of this experience.

Annex 1

Terms of reference of the review committee

Committee members

- Dr Giancarlo Majori, Director of Department of Parasitology at the Istituto Superiore di Sanita, Rome, Italy.
- Dr Jaouad Mahjour, Director of Epidemiology Disease Control, Ministry of Health, Morocco
- Dr Abdullah Sayed Ahmed Othman, Under Secretary, Federal Ministry of Health, Sudan
- Dr Z. Hallaj, Director, Communicable Disease Control, Regional Office for the Eastern Mediterranean (Chairman)

Terms of reference

- To endorse the selection of countries to be visited by the evaluation team
- To review and endorse the first and second reports of the evaluation team
- To provide recommendations to the evaluation team to guide them in their work
- To review the draft final evaluation report and provide feedback to the evaluation team
- To endorse the final evaluation report

Dates of meetings in the Regional Office for the Eastern Mediterranean

- 13–14 January 2003 to review the first report of the evaluation team
- 5–6 October 2003 to review and endorse the final report of the evaluation team

Annex 2

The evaluation process

The evaluation process was initiated on 4 July 2002 in Cairo, Egypt by an informal consultation held in the WHO Regional Office. Persons present were Dr G. Sabatinelli, Regional Malaria Advisor (now WHO Representative, Sudan), Dr Hoda Atta, Regional RBM Programme Officer (now Regional Malaria Adviser), Dr A.A. Adeel, WHO Consultant and Professor P.F. Beales, WHO Consultant and designated Chairman of the evaluation team.

It was agreed that information would be gathered from all malaria endemic countries in the Region by means of a mail survey to determine needs, the actions of RBM and outcomes. A questionnaire was specifically designed for this purpose (see Annex 4) and agreed upon by the team members. This was sent out to all malaria endemic countries in the Region through the offices of the WHO Representative in each country. By the first meeting of the evaluation team, responses had been received from all countries except Iraq, Somalia and the United Arab Emirates. By the second meeting, the team was in possession of completed questionnaires for all malaria endemic countries in the Region. However, it should be noted that Saudi Arabia did not provide a quantitative evaluation in the questionnaire, providing only qualitative information.

The budget available for this evaluation necessitated a limitation to the number of countries in the Region that could be visited, the number of meetings that could be held, the process followed, the number of persons on the evaluation team and the number of persons on the Review Committee.

For the RBM programme, the countries of the Region are divided into the following four groups:

- Group 1: malaria free
- Group 2: under malaria elimination
- Group 3: mild to moderate intensity of transmission
- Group 4: intense transmission

It would have been useful to visit one country from each group. However, since Group 1 countries are malaria free, it was felt that Morocco, in Group 2 under malaria elimination, could adequately reflect the situation in both these groups. The priority countries of the Region fall into Group 4 and thus the team selected Sudan and Yemen for site visits. In addition, for Group 3 countries, the team chose to visit Iraq but this was not possible due to military action taken in early 2003. Instead, Pakistan was visited from 1 to 7 June 2003.

In conducting the evaluation, the team was provided with relevant documentation from WHO country offices and the regional RBM programme. The Regional Office employed someone to compile the relevant budget data. It was agreed that the RBM evaluation team would not be able to measure impact, because this could only be expected to occur over a longer time period. The team therefore concentrated on the responsiveness of the Eastern Mediterranean Region RBM programme as perceived by national programmes.

Advantage was taken of this review to determine how the Region could respond adequately to the needs of countries. The team also determined the extent to which the countries are following the RBM strategies and endeavoured to identify any weaknesses in the strategies and their implementation. The team formulated recommendations where appropriate.

Annex 3

Roll back malaria evaluation schedule 2002–2003

Dates of country visits

- Yemen: 16–25 October 2002 inclusive
- Sudan: 12–22 November 2002 inclusive
- Morocco: 16–22 February 2003 inclusive
- Iraq: 5–10 April 2003 inclusive (this visit was not possible)
- Pakistan: 1–7 June 2003 inclusive

Dates of evaluation team meetings

- 23–25 November 2002 inclusive in Geneva to prepare the December report
- 14–16 July 2003 inclusive to review the work completed and country visits, and to prepare the final report taking into consideration the first report of the Review Committee

Dates of the review committee meetings

- 13–14 January 2003 in Cairo to review the first report of the evaluation team
- 5–6 October in Alexandria to review and endorse the final report of the evaluation team

Annex 4

Questionnaire for group 2, 3 and 4 countries

INSTRUCTIONS

Please complete the questionnaire below to the best of your ability (please see guidance, note 1). Please record your response to the statements by putting a cross in the corresponding box as follows (please see guidance, note 2):

Totally disagree = 1, Disagree = 2, Agree = 4, Strongly agree = 5

Please justify your response by brief succinct statements and provide evidence where possible

Section I: Political commitment

1. RBM has brought about an increased political commitment to the national malaria programme on the part of the government

1	2	4	5

Please provide evidence that this has been the case. Such evidence may include for example a) a demonstrable increase in the government financial support to the programme after the inception of the RBM programme in 1999; b) an increase in staff; c) establishment of a coordination committee, task force or something similar; d) a higher priority given to malaria; e) consensus meetings for RBM; and others.

If available please provide additional information to support the above response.

2. The Under Secretary for Health, the Director General of Communicable Diseases and the Programme Manager have been satisfied with the support provided to the country by the RBM programme and it has come up to their expectations

1	2	4	5

Please identify which aspects of the programme (e.g. training, research, technical support etc.) have been satisfactorily supported and which aspects where support has either been lacking or has been insufficient (Please see guidance, note 3).

If available please provide additional information to support the above response.

Section II: Partnership

3. RBM inception in the country has been instrumental in increasing the number of partners for malaria control/eradication and/or improving the nature of the support provided by existing partners

1	2	4	5

Please list the active partners (bilateral, NGO, multilateral, private, research and other sectors) supporting malaria control/eradication in the country separately for each of the years 1998, 1999, 2000, 2001 and 2002.

If available please provide additional information to support the above response.

Section III: Intersectoral collaboration

4. **Since the inception of RBM there has been a greater intersectoral collaboration to accomplish the programme objectives**

1	2	4	5

Please give examples to show that intersectoral collaboration has improved (e.g. joint decision making mechanism, joint surveillance activities), and identify the difficulties being faced in this area and how RBM could assist.

If available please provide additional information to support the above response.

5. **In the area of social mobilization for malaria control/eradication RBM has been instrumental in promoting a greater community involvement in the national programme**

1	2	4	5

Please identify in what way RBM has succeeded in this area (e.g. community participation in local committees for malaria, home treatment, mosquito nets) and where it has failed and how it could provide better support.

If available please provide additional information to support the above response.

6. **In the area of social mobilization for malaria control/eradication RBM has been instrumental in promoting a greater community awareness (advocacy) in the national programme**

1	2	4	5

Please identify in what way RBM has succeeded in this area (e.g. promoting a national malaria day or week) and where it has failed and how it could provide better support.

If available please provide additional information to support the above response.

Section IV: Coordination of border activities

7. **RBM has been instrumental in bringing about a greater collaboration and coordination of malaria control activities at the international borders**

1	2	4	5

Please list the border issues and identify the neighbouring countries where such activities have been jointly carried out in the years prior to the establishment of RBM and the subsequent years.

If available please provide additional information to support the above response.

Section V: Planning and management

8. The country now has a well prepared national strategic plan for malaria control/eradication/ vigilance than prior to Roll Back Malaria inception

1	2	4	5

Please state when this plan was written, when government endorsed it, the period that it covers and the disease reduction (impact) objectives and the operational targets (outcome objectives) of the plan.

If available please provide additional information to support the above response.

9. The national malaria multi-year strategic plan conforms to RBM guidelines, strategic approaches and recommendations

1	2	4	5

Please state the major elements of the current national plan and of the previous national plan and identify areas where the current plan does not conform to RBM strategies and guidelines.

If available please provide additional information to support the above response.

10. The country has achieved the annual targets in the existing multi-year strategic plan and is on track to achieve the impact objectives

1	2	4	5

Please state the progress being made to achieve each of the national programme impact objectives and the operational targets (outcome objectives) and identify where the programme is lagging behind and state the reasons

If available please provide additional information to support the above response.

11. RBM and been instrumental in bringing about an improvement in the malaria data collection, and monitoring and evaluation systems

1	2	4	5

Please describe the current data collection and information system and indicate the responsibilities at different levels. Please state in what way the monitoring and evaluation system has been improved since 1999.

If available please provide additional information to support the above response.

12. There has been an improvement in the monitoring and availability of supplies needed at the peripheral level for malaria diagnosis, case management and control/surveillance activities

1	2	4	5

Please identify which part of the logistics system has been strengthened since the inception of RBM in the country and the existing weaknesses that need to be remedied.

If available please provide additional information to support the above response.

13. There has been an improvement in the surveillance activities, especially in the regularity of reporting and feedback

1	2	4	5

Please identify which part of the surveillance system has been strengthened since the inception of RBM in the country and the existing weaknesses that need to be remedied.

If available please provide additional information to support the above response.

Section VI: Financial support

14. The overall WHO RBM support to the country has been strong enough

1	2	4	5

Please show the WHO Regular Budget support as reflected in the JPRM financial component for a) malaria control/eradication and b) vector control, for the biennia 1997/1998, 1998/1999, 2000/2001, 2002/2003.

If available please provide additional information to support the above response.

15. WHO RBM has been instrumental in increasing the amount of WHO extrabudgetary resources provided to the country for malaria

1	2	4	5

Please provide information on the amount and source of WHO extrabudgetary resources that have been provided to the country for malaria control/eradication in the fiscal years 1998, 1999, 2000, 2001 and 2002.

If available please provide additional information to support the above response

16. RBM inception has been instrumental in bringing about an increase in national funding for malaria control/eradication/vigilance

1	2	4	5

Please provide information on the national contribution to malaria control/eradication for the financial years 1998, 1999, 2000, 2001 and 2002.

If available please provide additional information to support the above response.

17. RBM inception in the country has been instrumental in increasing the amount of bilateral aid/collaboration being provided to the country for malaria control/eradication/vigilance

1	2	4	5

Please provide information on the amount and source of bilateral aid provided to the country for malaria control/eradication in the fiscal years 1998, 1999, 2000, 2001 and 2002.

If available please provide additional information to support the above response.

Section VII: Technical support

18. Since the inception of the RBM in the country there has been an improvement in the supplies (drugs, insecticides) and equipment available for the programme

1	2	4	5

Please identify the types of equipment and supplies (e.g. vehicles, microscopes, mosquito nets, spraying equipment, drugs, reagents, kits, insecticides etc.) that have been made available for the national malaria programme for the current biennium and each of the past three biennia and identify who provided them.

If available please provide additional information to support the above response.

19. The EMR RBM programme has provided good documentation and guidelines to support implementation of the malaria programme in the country

1	2	4	5

Please list the documents received and being used by the programme since 1999 that have been produced by the RBM programme and identify documents that are not available but are needed by the country.

If available please provide additional information to support the above response.

20. There has been increased technical support to the country since the inception of RBM in 1999

1	2	4	5

Please describe the technical support to the country, from WHO Roll Back Malaria, each year since and including 1998, up to and including 2002, and state the objectives, outcome and the source of funding.

If available please provide additional information to support the above response.

Section VIII: Human resources development

21. The national human resources development activities have intensified since the inception of the RBM programme

1	2	4	5

Please list the training activities conducted in the country for malaria control/eradication during the current biennium and carried out in each of the past three biennia. Indicate the subject, length of training, level of trainees, numbers trained, the cost and the source of funds.

If available please provide additional information to support the above response.

22. Since the inception of the RBM programme the country has received more WHO fellowships relevant to the needs of the programme

1	2	4	5

Please list the fellowships received in the current and past three biennia and identify the subjects studied and number of fellowships awarded.

If available please provide additional information to support the above response.

23. As a result of the human resources development activities there has been a marked improvement in the functioning of the programme

1	2	4	5

Please identify which elements of the programme have improved (e.g. case management, supervision, diagnosis) and in which year and what training activities this could be attributed to.

If available please provide additional information to support the above response.

Section IX: Applied research

24. Since the inception of RBM there has been an increased emphasis on applied malaria research in the country

1	2	4	5

Please list the main malaria applied research projects conducted in the country in each of the years 1998, 1999, 2000, 2001 and 2002 and identify the source of funding (e.g. national, TDR, bilateral etc.) and the department or institution that carried it out.

If available please provide additional information to support the above response.

25. The applied research being carried out since 1999 is more relevant to the needs of the control/eradication programme

1	2	4	5

Please state in what ways the applied research being carried out since 1999 is more appropriate to the country needs.

If available please provide additional information to support the above response.

GUIDANCE ON COMPLETION OF THE QUESTIONNAIRE

Note 1.

It would greatly facilitate completion of the questionnaire if you were to use the electronic version in MS Word. You could thus expand the space to accommodate your response. If you are going to provide the questionnaire as a print-out then please expand the space under each question by at least 15 spaces or more depending on the question, before printing out.

Note 2.

It is essential that 1 and 2 responses are fully justified by detailed explanatory notes.

Note 3.

This statement relates to the amount of financial support that RBM has provided for different programmatic activities such as research, training, vector control and such like. You are being asked to write down the activities where you are satisfied with the support provided and to write down those activities for which support was either not forthcoming or was insufficient.

Annex 5

RBM programme funds

Regular budget funds in US$, 1996–2002

Biennium	1996–1997	1998–1999	2000–2001	2002–2003
Group 1: malaria-free				
Bahrain				
Cyprus				
Jordan	38 502	21 565	43 356	
Lebanon				
Libyan Arab Jamahiriya				7 000
Palestine				
Qatar				2 000
Tunisia	8 846			
United Arab Emirates		3 474	6 367	5 000
Group 2: under elimination				
Egypt	21 814	36 353	51 909	40 000
Kuwait				
Morocco				
Oman	3 000	47 894		
Syrian Arab Republic	39 784			
Group 3: mild to moderate				
Islamic Republic of Iran	76 190	40 209	31 836	24 500
Iraq	4 414	56 623	124 396	47 500
Pakistan	65 233	82 656	22 564	84 000
Saudi Arabia	37 505	19 071	48 660	25 000
Group 4: intense				
Afghanistan	745 133	597 040	620 283	291 700
Djibouti	24 529	8 177	17 335	30 000
Somalia	61 346	66 551	446 826	251 200
Sudan	646 564	334 900	1 048 015	310 000
Yemen	185 519	181 539	447 092	490 000
Country regular budget total	1 958 379	1 496 052	2 908 639	1 607 900
Intercountry programme budget	25 277	30 831		70 000
Regular budget total	1 983 656	1 526 883	2 908 639	1 677 900

Extrabudgetary funds in US$, 1996–2002

	1996–1997	1998–1999	2000–2001	2002–2003
Country extrabudgetary total	2 463 245	2 564 687	3 893 980	6 192 982
Intercountry programme budget	582 293	258 839	1 561 320	1 941 375
Extrabudgetary total	3 045 538	2 823 523	5 445 300	8 134 357

Annex 6

RBM human capacity strengthening in the Eastern Mediterranean Region

Country/level	Position	Type	Date appointed	Present status	Remarks
WHO Regional Office	Regional Adviser	Fixed	Jan 2001	Vacant since April 2002	
	Medical Officer	Short term Fixed	1998 2000	 Occupied	
	Vector Control Specialist	STP Fixed	Jan 2002 1 Mar 2002	 Occupied	
	Secretary	Fixed	1998	Occupied	
	GIS Focal Person		2001	Occupied	
Saudi Arabia (Grp 3)	Senior Malariologist	STC 11 months	2003	Occupied	Funds in trust
Pakistan (Grp 3)	Nat. Prog. Officer	SSA	2002	Occupied	
Afghanistan (Grp 4)	Medical Officer	STP	2002	Occupied	
	Technical Officer	STP	1996	Occupied	
Djibouti (Grp 4)	Nat. Prog. Officer	SSA 11 months	2001	Vacant	
Somalia (Grp 4)	Malariologist	STP	2000	Occupied	
	4 Nat. Prog. Officers	SSA	2000	Occupied	
Sudan (Grp 4)	RBM Coordinator	STP	2001	Occupied	
	RBM Field Officer (South)	STP	2002 May–Nov	Vacant	Recruiting STP 11 months
Yemen (Grp 4)	Malariologist	Fixed	1999	Occupied	
	Entomologist	STP	2001	Occupied	

SSA = Special services agreement
STP = Short term professional
STC = Short term consultant

Annex 7

RBM regional resource mobilization activities 1999–2003

Recipient country	Source of funds	Total amount US$	Year funds approved	Period of funding	Remarks
Afghanistan	USAID	900 000	2002	1 year	US$ 500 000 requested for 2003
	Qatar	150 000	2002	1 year	
	Global Fund	3 125 605	2002	1½ years	100% in first year
Djibouti	Arab Fund	57 000	Not yet	1 year	Submitted 2003
Pakistan	Global Fund	7 720 500	2002	4 years	US$ 2 317 300 in first year
Somalia	Global Fund	12 886 413	2002	3 years	US$ 4 682 031 in first year
Sudan northern states	Arab Fund	260 000	Not yet	1 year	Submitted 2003
	Global Fund	33 240 453	2002	5 years	US$ 7 046 156 in first year
Sudan southern states	AGFUND	100 000	1999	1 year	
	Global Fund	27 827 045	2002	5 years	US$ 6 692 166 in first year
Yemen	Global Fund	11 878 206	2002	5 years	US$ 830 667 in first year
	Arab Fund	183 000	Not yet	1 year	Submitted 2003

AGFUND = Arab Gulf Programme for United Nations Development Organizations
Arab Fund = Arab Fund for Economic and Social Development
Global Fund = Global Fund to Fight AIDS, Tuberculosis and Malaria
USAID = United States Agency for International Development

Annex 8

WHO Regional Office for the Eastern Mediterranean supported malaria courses 1995–2003

Regional diploma course, Bandar Abbas, Islamic Republic of Iran 1997–2003

Country	Number of participants						
	1997	1998	1999	2000	2001	2003*	2003 (in Farsi)
Afghanistan	2	0	0	1	1		14
Botswana	0	0	1	0	0		
Egypt	0	1	1	1	1		
Islamic Republic of Iran	10	13	8	9	6		6
Iraq	0	0	1	0	2		
Jordan	0	0	1	0	1		
Namibia	0	1	0	0	0		
Oman	0	0	0	0	2		
Pakistan	0	0	0	0	0		
Saudi Arabia	0	0	1	1	0		
Somalia	0	3	2	0	0		
South Africa	0	1	0	0	0		
Sudan	3	0	1	0	2		
Syrian Arab Republic	0	0	1	0	1		
Turkey	0	0	0	0	2		
Yemen	1	2	2	0	2		
Zambia	1	0	0	0	0		
Zimbabwe	0	0	1	0	0		
Total	17	21	20	12	20		20
Iranians	10	13	8	9	6		6
External	7	8	12	3	14		14

Intercountry courses on vector management 2000–2001

Country	Number of participants	
	2000	2001
Djibouti	1	0
Egypt	1	0
Iraq	0	1
Morocco	1	0
Oman	0	2
Saudi Arabia	0	2
Somalia	2	3
Sudan	6	5
Yemen	3	3
Total	14	16

WHO Regional Office for the Eastern Mediterranean supported national malaria courses for specific countries* 1995–2003

Country	Course	Number of participants				
		1995	1997	1999	2002	2003
Afghanistan	Training course on malaria microscopy (planned for August–September 2003)					20
Sudan	Diploma course in malaria at BNRTI	9	10**	10	10	-
	Planning for malaria control in Sudan for state managers at BNRTI				21	
Yemen	Training course on malaria vectors in Yemen				23	
	Training course on malaria microscopy (ongoing)					84

* Provision of WHO Technical Adviser or Short Term Consultant
** One participant was from Egypt
BNRTI = Blue Nile Research and Training Institute

Annex 9

Trend of increase in malaria meetings and workshops organized by the Regional Office or the Eastern Mediterranean 1996–2003

Year	Title of meeting	Number of countries
1996	Malaria Border Meeting between Oman, Saudi Arabia, The United Arab Emirates, The Republic of Yemen and United Republic of Tanzania (Zanzibar), Muscat, Oman, 11–13 November	4 countries
1997	Meeting on Planning for Intensified Support to Malaria Control in the African Countries, Alexandria, Egypt, 3–6 March	3 countries
	Reunion de Coordination sur le Paludisme en Afrique du Nord, Tunis, Tunisia, 26–28 May	5 countries
	Intercountry Workshop on Forecast, Early Detection and Control of Malaria Epidemics, Khartoum, Sudan, 16–20 November	4 countries
1998	Workshop for Intensified Support for Malaria Control in Africa, Alexandria, Egypt, 3–5 February	4 countries
	Workshop on Evaluation of Intensified Malaria Control, Alexandria, Egypt, 20–22 May	4 countries
1999	Regional Consultation Meeting on Roll Back Malaria, Cairo, Egypt, 14–16 September	11 countries
	Coordination Border Meeting on Prevention of Malaria between Selected Countries of the Eastern Mediterranean and the European Regions of WHO, Baku, Azerbaijan, 24–25 August	4 countries
2000	Second Interregional Malaria Coordination Meeting, Baku, Azerbaijan, 31 May–1 June	3 countries
2001	National Malaria Programme Managers Meeting on Roll Back Malarial, Damascus, Syrian Arab Republic, 1–3 April	21 countries
	Intercountry Workshop on Geographic Information Systems (GIS) for Malaria, Regional Office for the Eastern Mediterranean, Cairo, 25–27 June	9 countries
	Intercountry Workshop on Quality Assurance of Laboratory Diagnosis for Malaria, Teheran, Islamic Republic of Iran, 2–5 September	15 countries
2002	Meeting on Integrated Communicable Disease Control Activities, Cairo, Egypt, 17–19 February	3 countries
	Second Intercountry Meeting of National Malaria Programme Managers, Muscat, Oman, 24–28 March	19 countries
	Intercountry Workshop on Monitoring Therapeutic Efficacy of Antimalarial Drugs, Sana'a, Yemen, 21–25 April	7 countries
	Informal Consultation on the Elimination of Residual Malaria Foci and Prevention of Reintroduction of Malaria, Rabat, Morocco, 18–20 June	3 countries
2003	Intercountry Workshop on Developing a Regional Strategy for Integrated Vector Management for Malaria and Other Vector-borne Diseases, Khartoum, Sudan, 21–23 January	18 countries
	Third Intercountry Meeting of National Malaria Programme Managers, Lahore, Pakistan, 12–15 May	20 countries

Annex 10

RBM advocacy activities and publications in the Eastern Mediterranean Region 2000–2003

Year	Advocacy activity	Documents produced and translated
Before 2000	None	• Malaria: a manual for community health workers (1998)
2000	None	None
2001	• RBM regional website launch • Desk calendars • Stickers	• Management of severe malaria
2002	• Desk calendars • Wall-poster calendars • Mouse pads and coasters • RBM folders	• Integrated vector management (English and Arabic) • WHO Expert Committee on Malaria: Report No. 20 • RMB in the Eastern Mediterranean Region brochure (English)
2003	• Posters • Give-away pens	• Malaria microscopy: a training manual • Use of fish for mosquito control (English) • Instructions for treatment and use of insecticide-treated mosquito nets • Vector control: methods to use by individuals and communities* • Africa malaria brochure/advocacy document (Arabic) • Executive summary in Arabic • Guidelines on elimination of residual foci of malaria transmission* • Guidelines on the prevention of the re-establishment of malaria transmission* • Guidelines on quality assurance of laboratory diagnosis of malaria*

* Under preparation

Annex 11

An analysis of country questionnaires

Questionnaire for group 2, 3 and 4 countries[5]

Instructions

Please complete the questionnaire below to the best of your ability (Please see guidance, note 1). Please record your response to the statements by putting a cross in the corresponding box as follows (please see guidance, note 2):

Totally disagree = 1, Disagree = 2, Agree = 4, Strongly agree = 5

Please justify your response by brief succinct statements and provide evidence where possible.

Section I: Political commitment

1. **RBM has brought about an increased political Commitment to the national malaria programme on the part of the government**

1	2	4	5	
	Syr Iraq Som	Sud, M,O,P, A,D,I	E,Y UAE	N = 13 SI = 75.4%

2. **The Under Secretary for Health, the Director General of Communicable Diseases and the Programme Manager have been satisfied with the support provided to the country by the Roll Back Malaria programme and it has come up to their expectations**

1	2	4	5	
	Syr, Sud, P,A,I Som	D,E,O UAE Iraq	M,Y	N = 13 SI = 64.6%

Section II: Partnership

3. **RBM inception in the country has been instrumental in increasing the number of partners for malaria control/eradication and/or improving the nature of the support provided by existing partners**

1	2	4	5	
	Syr I,M Iraq	Sud P,O,A, D,E Som	Y UAE	N = 13 SI = 70.8%

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5 Afghanistan (A); Djibouti (D); Egypt (E); Islamic Republic of Iran (I); Iraq (Iraq); Morocco (M); Oman (O); Pakistan (P); Somalia (Som); Sudan (Sud); Syrian Arab Republic (Syr); United Arab Emirates (UAE); Yemen (Y).

Section III: Intersectoral collaboration

4. Since the inception of RBM in the country there has been a greater intersectoral collaboration to achieve the programme objectives

1	2	4	5
A D,O	Syr I,M,P Y, UAE Iraq	Sud Som	E

N = 13
SI = 67.7%

5. In the area of social mobilization for malaria control/eradication RBM has been instrumental in promoting a greater community involvement in the national programme

1	2	4	5
E	Syr O,I,M Iraq	Sud P,A,D Y, UAE Som	

N = 13
SI = 60%

Syria no answer

6. In the area of social mobilization for malaria control/eradication RBM has been instrumental in promoting a greater community awareness (advocacy) in the national programme

1	2	4	5
E Ira	O,I,M	Sud P,A,D Y, UAE	Som

N = 12
SI = 61.7%

Section IV: Coordination of border activities

7. RBM has been instrumental in bringing about a greater collaboration and coordination of malaria control activities at the international borders

1	2	4	5
M	Sud I,A,D P Som	Syr E,O UAE	Y Iraq

N = 13
SI = 60%

Section V: Planning and management

8. The country now has a better prepared national strategic plan for malaria control/eradication/vigilance than prior to the Roll Back Malaria inception

1	2	4	5
A Som	O Syr	I,D,E Iraq	P,M, Y Sud UAE

N = 13
SI = 72.3%

Afghanistan no answer

9. The national malaria multi-year strategic plan conforms to RBM guidelines, strategic approaches and recommendations

1	2	4	5
Som	Syr	M,D E,I,O Iraq	Sud P,Y UAE

N = 12
SI = 78.3%

Sudan no answer

10. The country has achieved the annual targets in the existing multi-year strategic plan and is on track to achieve the impact objectives

1	2	4	5
A	Syr	I,P,Y	O,E,M
	D	Iraq	UAE
	Som		

N = 12
SI = 71.7%

11. RBM has been instrumental in bringing about an improvement in the malaria data collection, and monitoring and evaluation systems

1	2	4	5
	M,0	Syr	E,Y
	A,D,I	Sud	
		P	
		UAE	
		Iraq	
		Som	

N = 13
SI = 67.7%

12. There has been an improvement in the monitoring and availability of supplies needed at the peripheral level for malaria diagnosis, case management and control/surveillance activities

1	2	4	5
E	M,O,Y	Sud	
		Syr	
		I,A,D,P	
		UAE	
		Iraq	
		Som	

N = 13
SI = 66.2%

13. There has been an improvement in the Surveillance activities especially in the regularity of reporting and feedback

Oman no answer

1	2	4	5
E	A	Syr	Sud
		I,D,M	Iraq
		P,Y	
		UAE	
		Som	

N = 12
SI = 75%

Section VI: Financial support

14. The overall WHO RBM support to the country has been strong enough

1	2	4	5
E	I,A	Syr	Y
		Sud	Iraq
		P,D,M,O	
		UAE	
		Som	

N = 13
SI = 72.3%

15. WHO RBM has been instrumental in increasing the amount of WHO extrabudgetary resources provided to the country for malaria control/eradication/vigilance

1	2	4	5
O,E	M,P	Syr	D,Y
Iraq		Sud	Som
		I,A	
		UAE	

N = 13
SI = 64.6%

16. RBM inception has been instrumental in bringing about an increase in national funding for malaria control/eradication/vigilance

1	2	4	5
M,A,O	Syr	Sud	E,Y
Som	D	I,P	Iraq
		UAE	

N = 13
SI = 60%

17. RBM inception in the country has been instrumental in increasing the amount of bilateral aid/collaboration being provided to the country for malaria control/eradication/vigilance

1	2	4	5
A,E,O UAE	Syr Sud M,D,I	P,Y	Iraq Som

N = 13
SI=49.2%

Morocco no answer

Section VII: Technical support

18. Since the inception of the RBM in the country there has been an improvement in the supplies (drugs, insecticides) and equipment available for the programme

1	2	4	5
O		Syr Sud I,D,E P,Y UAE Iraq Som	A

N = 12
SI = 76.7%

19. The EMR RBM programme has provided good documentation and guidelines to support implementation of the malaria programme in the country

1	2	4	5
	O	Syr Sud M,D,I,P UAE Iraq Som	A,E,Y

N = 13
SI = 88.3%

20. There has been increased technical support to the country since the inception of RBM in 1999

1	2	4	5
	O,D	Syr Sud M,A,I,P UAE	E,Y Iraq Som

N = 13
SI = 80%

Section VIII: Human resources development

Afghanistan no answer

21. The national human resources development activities have intensified since the inception of the RBM programme

1	2	4	5
	D	Syr Sud I,P UAE	M,E,O Y Iraq Som

N = 12
SI = 86.7%

22. Since the inception of the RBM programme the country has received more WHO fellowships relevant to the needs of the programme

1	2	4	5
O UAE	M,A,E P	Syr Sud D,I,Y Som	Irq

N = 13
SI = 60%

23. As a result of the human resources development activities there has been a marked improvement in the functioning of the programme

1	2	4	5
E	D UAE Iraq	Y,P,I A,M,S yr Sud	O Som

N = 13
SI=69.2%

Section IX: Applied research

24. Since the inception of RBM there has been an increase in applied malaria research in the country

1	2	4	5
E Iraq	Syr D,I UAE	Sud Y,M, A,P Som	O

N = 13
SI = 60%

Iraq no answer

25. The applied research being carried out since 1999 is more relevant to the needs of the control/eradication programme

1	2	4	5
D E	Syr Sud	P,Y M,A,I Som	O UAE

N = 12
SI = 66.7%

Annex 12

Countries of the Eastern Mediterranean Region grouped according to the malaria problem and status of the malaria control programme 2002

Group 1 countries

Bahrain, Cyprus, Jordan, Kuwait, Lebanon, Libyan Arab Jamahiriya, Palestine, Qatar, Tunisia and United Arab Emirates

Group 2 countries

Egypt, Morocco, Oman and Syrian Arab Republic

Group 3 countries

Islamic Republic of Iran, Iraq, Pakistan and Saudi Arabia

Group 4 countries

Afghanistan, Djibouti, Somalia, Sudan and Yemen

Number of parasitologically confirmed cases in countries with no or sporadic transmission and countries with low–moderate malaria endemicity

Countries	Cases in 2000		Cases in 2001		Cases in 2002		Species transmitted locally
	Total	Autochthonous	Total	Autochthonous	Total	Autochthonous	
Bahrain	58	0	54	0	45	0	nil
Cyprus	2	0	0	0	NA	NA	nil
Egypt	17	0	11	0	10	0	nil
Iraq	3 212[a]	most	1 120	most	NA	NA	*P. vivax*
Iran, Islamic Republic of[b]	19 163	most	19 274	most	15 558	9 122	*P. vivax* > *P. falciparum*
Jordan	158	0	124	0	159	0	nil
Kuwait	235	0	233	0	NA	NA	nil
Lebanon	44	0	40	0	59	0	nil
Libyan Arab Jamahiriya	131	8	NA	NA	16	0	*nil*
Morocco	59	3	59	0	104	19	*P. vivax*
Oman	694	6	635[e]	2[f]	590	6[f]	nil
Pakistan	82 526	most	79 437	most	101 761	most	*P. vivax* *P. falciparum*
Palestine	3	0	2	0	1	0	nil
Qatar	140	0	114	0	138	0	nil
Saudi Arabia[c]	6 608	4 736	3 074	1 614	2 612	1 226	*P. falciparum* > *P. vivax*
Syrian Arab Republic[d]	42	6	78	62	27	15	*P. vivax*
Tunisia	47	0	30	0	NA	NA	nil
United Arab Emirates	27	0	35	0	36	0	nil

No transmission: Bahrain, Cyprus, Jordan, Kuwait, Lebanon, Palestine, Qatar, Tunisia, Libyan Arab Jamahiriya, United Arab Emirates
Sporadic transmission: Egypt, Morocco, Oman, Syrian Arab Republic
Low to moderate endemicity: Islamic Republic of Iran, Iraq, Pakistan, Saudi Arabia
NA not available
Predominance of one species
a 2058 cases in the three northern governorates only
b Endemic areas mostly in the south-east
c Endemic areas only in the south-west of the country
d Transmission only in the north-east
e Including 3 cryptic cases
f Introduced cases

Number of recorded and estimated cases of malaria in countries with a severe malaria problem

Countries	Year	Total cases reported	Cases confirmed	Cases estimated	Species transmitted
Afghanistan	2002	590 176	414 611	2 500 000	*P. vivax* > *P. falciparum*
Djibouti	2001	4 312	4 312	80 000	*P. falciparum* > *P. vivax*
Somalia	2002	15 772	1 851	2 000 000	*P. falciparum* > *P. vivax*
Sudan	2002	3 587 132	1 434 853	7 500 000	*P. falciparum* > *P. vivax*
Yemen	2002	172 482	68 122	3 000 000	*P. falciparum* > *P. vivax*

Annex 13

Review of analysis of country responses

Introduction

Below is set out the regular budget planned allotment 1996–2002 for each country and following that, an overview of the numeric responses of the countries to the questionnaire which was designed to evaluate their opinion of the RBM support to their programmes.

Saudi Arabia completed the written part of the questionnaire but not the numeric boxes and are therefore excluded from this overview.

The countries of the Region may be divided into four groups. Malaria free countries of which there are nine including Kuwait, were not requested to complete a questionnaire. However the countries in the other three groups were requested to do so.

The remaining countries of the Region are divided into countries under malaria elimination: Egypt, Morocco, Oman, Syrian Arab Republic and United Arab Emirates; countries with mild to moderate malaria: Islamic Republic of Iran, Iraq, Pakistan and Saudi Arabia; and countries with intense transmission: Afghanistan, Djibouti, Somalia, Sudan and Yemen.

A satisfaction index has been calculated for the collective responses to each question in nine different sections. The sections relate to political commitment, partnerships, intersectoral collaboration, coordination of border activities, planning and management, financial support, technical support, human resources development and applied research.

An analysis has been made for all countries and separately by the above-mentioned groups.

Satisfaction index by groups of countries by section and each question

Section	Question	Subject	Total	Elimination	Mild/moderate	Intense
I. Political commitment	1.	Increased political commitment	75.4	80.0	66.7	76.0
	2.	Managers satisfied with RBM support	64.6	76.0	53.3	60.0
		Total response for this section	70.0	78.0	60.0	68.0
II. Partnership	3.	Number of partners increased	70.8	68.0	53.3	84.0
III. Intersectoral collaboration	4.	Greater intersectoral collaboration	67.7	68.0	80.0	60.0
	5	Greater community involvement	60.0	44.0	53.3	80.0
	6.	Greater community awareness (advocacy)	61.7	45.0	46.7	84.0
		Total response for this section	63.2	52.3	60.0	74.7
IV. Border activities	7.	Greater collaboration and coordination	60.0	68.0	86.7	52.0
V. Planning and management	8.	Better prepared national plan	72.3	72.0	86.7	64.0
	9.	National plan conforms to RBM policies	78.3	76.0	86.7	75.0
	10.	Achieved targets and on track for objectives	71.7	88.0	80.0	45.0
	11.	Improved data collection	67.7	68.0	66.7	68.0
	12.	Improved monitoring and availability of supplies	66.2	52.0	80.0	72.0
	13.	Improved surveillance activities	75.0	65.0	86.7	76.0
		Total response for this section	71.9	70.2	81.1	66.7
VI. Financial support	14.	Overall WHO RBM support strong enough	72.3	68.0	73.3	76.0
	15.	WHO extrabudgetary resources increased	64.6	48.0	46.7	88.0
	16.	National funding increased	60.0	52.0	86.7	52.0
	17.	Bilateral aid/collaboration increased	49.2	28.0	73.3	56.0
		Total response for this section	61.5	49.0	70.0	68.0

Satisfaction index by groups of countries by section and each question (cont'd)

Section	Question	Subject	Total	Elimination	Mild/moderate	Intense
VII. Technical support	18.	Supplies and equipment more available	76.7	65.0	80.0	84.0
	19.	RBM provided good documentation and guidelines	88.3	76.0	80.0	88.0
	20.	Increased technical support	80.0	76.0	86.7	80.0
		Total response for this section	81.7	72.3	82.2	84.0
VIII. Human resources development	21.	The national human resources development intensified	86.7	92.0	86.7	80.0
	22.	More WHO fellowships	60.0	40.0	73.3	72.0
	23.	Marked improvement in programme functioning	69.2	64.0	66.7	76.0
		Total response for this section	72.0	65.3	75.6	76.0
IX. Applied research	24.	Applied malaria research increased	60.0	56.0	46.7	72.0
	25.	Applied research more relevant	66.7	68.0	80.0	60.0
		Total response for this section	63.4	62.0	63.4	66.0

Satisfaction index by section for each country

Section	Questions	Group 2 countries: elimination					Group 3 countries: mild/moderate			Group 4 countries: intense malaria				
		E	M	O	Syr	UAE	I	Iraq	P	A	D	Som	Sud	Y
I. Political commitment	1–2	90.0	90.0	80.0	40.0	90.0	60.0	60.0	60.0	60.0	80.0	40.0	60.0	100.0
II. Partnerships	3	80.0	40.0	80.0	40.0	100.0	40.0	40.0	80.0	80.0	80.0	80.0	80.0	100.0
III. Intersectoral collaboration	4–6	46.7	53.3	40.0	40.0	80.0	53.3	46.7	80.0	60.0	66.7	86.7	80.0	80.0
IV. Border activities	7	80.0	20.0	80.0	80.0	80.0	40.0	100.0	40.0	40.0	40.0	40.0	40.0	100.0
V. Planning and management	8–13	66.7	73.3	60.0	60.0	90.0	73.3	83.3	86.7	40.0	66.7	53.3	92.0	83.3
VI. Financial support	14–17	40.0	45.0	35.0	60.0	65.0	60.0	80.0	70.0	40.0	65.0	70.0	70.0	95.0
VII. Technical support	18–20	93.3	80.0	33.3	80.0	80.0	80.0	86.7	80.0	93.3	66.7	86.7	80.0	93.3
VIII. Human resources development	21–23	73.3	73.3	73.3	80.0	46.7	80.0	80.0	66.7	60.0	53.3	93.3	80.0	86.7
IX. Applied research	24–25	20.0	80.0	100.0	40.0	70.0	60.0	20.0	80.0	80.0	30.0	80.0	60.0	80.0