

**The WHO Regional
Office for Europe**

The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

Member States

Albania
Andorra
Armenia
Austria
Azerbaijan
Belarus
Belgium
Bosnia and Herzegovina
Bulgaria
Croatia
Cyprus
Czech Republic
Denmark
Estonia
Finland
France
Georgia
Germany
Greece
Hungary
Iceland
Ireland
Israel
Italy
Kazakhstan
Kyrgyzstan
Latvia
Lithuania
Luxembourg
Malta
Monaco
Montenegro
Netherlands
Norway
Poland
Portugal
Republic of Moldova
Romania
Russian Federation
San Marino
Serbia
Slovakia
Slovenia
Spain
Sweden
Switzerland
Tajikistan
The former Yugoslav
Republic of Macedonia
Turkey
Turkmenistan
Ukraine
United Kingdom
Uzbekistan

5061325

E89991

Original: English

CROSS-BORDER MEETING FOR CENTRAL ASIAN COUNTRIES AND AFGHANISTAN -
ELIMINATION OF *P. FALCIPARUM* MALARIA IN CENTRAL ASIA



EUROPE

Cross-border meeting for Central Asian countries and Afghanistan

Elimination of *P. falciparum*
malaria in Central Asia

**Dushanbe, Tajikistan
21-23 November 2006**

**World Health Organization
Regional Office for Europe**

Scherfigsvej 8, DK-2100 Copenhagen Ø, Denmark
Tel.: +45 39 17 17 17. Fax: +45 39 17 18 18. E-mail: postmaster@euro.who.int
Web site: www.euro.who.int



Cross-border meeting for central Asian countries and Afghanistan

**Elimination of *P. falciparum* malaria in
central Asia**

**Report on a WHO meeting
Dushanbe, Tajikistan
21–23 November 2006**

ABSTRACT

The meeting took place following the endorsement of the Tashkent Declaration "The Move from Malaria Control to Elimination" and the Kabul Declaration "Health for All. Health by All: Communicable Diseases Recognize No Borders". The ultimate goal of the new strategy, which has recently been published, is to interrupt the transmission of malaria by 2015 and eliminate the disease within affected countries of the WHO European Region. In areas and countries where malaria had been eliminated, attention is given to maintaining the malaria-free status. The reduction in the number of *P. falciparum* malaria cases by more than ten-fold over the past six years (2000–2005) is the most conspicuous achievement of the regional malaria programme to date.

The main purpose for organizing the meeting was to outline a strategic direction towards undertaking the new elimination effort within malaria-affected countries of central Asia, and to enhance cross-border cooperation in the field of malaria control and elimination between central Asian countries and Afghanistan. The results achieved by countries, WHO and partners were greatly appreciated, and the countries of central Asia reaffirmed their commitment to move further from malaria control to elimination, with the aim to interrupt the transmission of *P. falciparum* malaria in central Asia by 2010. Participants also emphasized the need to promote inter-regional collaboration and coordination between the WHO European and Eastern Mediterranean Regions on issues related to malaria control and elimination, and to ensure that their bordering countries, in particular Tajikistan and Afghanistan, are fully supported in the endeavours to achieve the stated objectives.

Keywords

MALARIA, FALCIPARUM – prevention and control
STRATEGIC PLANNING
GUIDELINES
ASIA, CENTRAL
AFGHANISTAN

EU/07/5061325

Address requests about publications of the WHO Regional Office for Europe to:

Publications
WHO Regional Office for Europe
Scherfigsvej 8
DK-2100 Copenhagen Ø, Denmark

Alternatively, complete an online request form for documentation, health information, or for permission to quote or translate, on the Regional Office web site (<http://www.euro.who.int/pubrequest>).

© World Health Organization 2007

All rights reserved. The Regional Office for Europe of the World Health Organization welcomes requests for permission to reproduce or translate its publications, in part or in full.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Where the designation "country or area" appears in the headings of tables, it covers countries, territories, cities, or areas. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

The World Health Organization does not warrant that the information contained in this publication is complete and correct and shall not be liable for any damages incurred as a result of its use. The views expressed by authors or editors do not necessarily represent the decisions or the stated policy of the World Health Organization.

CONTENTS

	<i>Page</i>
Executive summary	1
Abbreviations	7
Introduction	8
Scope and purpose of the meeting.....	8
Inaugural session.....	8
Organization of the meeting	9
The WHO European Region.....	9
The challenges to eliminate <i>P. falciparum</i> malaria in central Asia	9
Progress made with malaria control and elimination in Tajikistan	12
Malaria control project – funded by GFATM in Tajikistan.....	13
Anti-malaria programmes in Kazakhstan, Kyrgyzstan, Turkmenistan and Uzbekistan	14
ACTED and its involvement in malaria control and elimination in central Asia.....	16
The WHO Eastern Mediterranean region	16
Progress made and challenges to control and eliminate malaria in the WHO Eastern Mediterranean Region	16
Malaria control in Afghanistan, particularly in areas bordering Afghanistan and countries of central Asia	17
ACTED and its involvement in malaria control in Afghanistan.....	19
Strategy development.....	19
Malaria elimination: GMP/HQ perspective and the WHO certification process	19
New regional strategy The Move from Malaria Control to Elimination, 2006–2015”	21
Approaches to eliminate <i>P. falciparum</i> malaria and their application in affected countries of central Asia	26
A strategic framework for the elimination of <i>P. falciparum</i> malaria in central Asia	29
Research to meet current and future needs	33
A review of malaria vectors and their biology in countries of central Asia.....	33
PCR-diagnostics of malaria in central Asia.....	34
GIS-based mapping of malaria in central Asia	34
Successful scale-up of anti-malaria programmes.....	35
Success story: Armenia	35
Conclusions.....	36
Recommendations	40
Annex 1 Programme	44
Annex 2 List of participants	47

Executive summary

The meeting, organized by the WHO Regional Office for Europe (EURO) in collaboration with the Government of Tajikistan, the Agency for Technical Cooperation and Development (ACTED) and the WHO Regional Office for the Eastern Mediterranean (EMRO), took place (1) seven years following the development of a regional strategy to roll back malaria and its successful implementation in malaria affected countries of the WHO European Region, and (2) one year following the endorsement of the Tashkent Declaration “The Move from Malaria Control to Elimination” by all malaria-affected countries of the WHO European Region. The Kabul Declaration, “Health for All. Health by All: Communicable Diseases Recognize No Borders”, which emphasized a unique opportunity to fight malaria and other communicable diseases was also signed by a number of countries from EURO and EMRO in 2006. The ultimate goal of the new regional strategy, which has been published recently, is to interrupt the transmission of malaria by 2015 and eliminate the disease within affected countries of the WHO European Region. Top priority in the new regional strategy is given to *P. falciparum* malaria. With adequate investment and political support, the chances of interrupting transmission of *P. falciparum* malaria in Tajikistan by 2010 and preventing the re-establishment of its transmission in other central Asian countries (Kyrgyzstan, Turkmenistan and Uzbekistan) are high.

The main purpose for organizing this meeting was to outline a strategic direction towards undertaking the new elimination effort within malaria-affected countries of central Asia, and to enhance cross-border cooperation in the field of malaria control and elimination among central Asian countries, and between them and Afghanistan. The objectives of the meeting were (1) to report on progress made with malaria control and elimination in participating countries; (2) to share experiences with malaria control and elimination between countries and regions; (3) to consent to a strategic plan to achieve elimination of *P. falciparum* malaria in central Asia; and (4) to promote cross-border cooperation. The following countries were represented: Afghanistan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. WHO was represented by staff from WHO headquarters, the Regional Offices for Europe and the Eastern Mediterranean as well as Tajikistan and Afghanistan. Representatives from ACTED/central Asia, GFATM in Tajikistan, the Central Institute for Postgraduate Medical Training/Russian Federation, the Vavilov Institute of General Genetics/Russian Federation attended the meeting as well.

Participants greatly appreciated the efforts being made by the countries, WHO and its partners to consolidate the results achieved and to move further from malaria control to elimination. Participants reaffirmed their commitment to the declared goals and objectives of the new regional strategy on malaria. Taking into account the substantial progress made with malaria control in affected countries of central Asia, where the incidence of *P. falciparum* malaria has been brought down to such levels that interruption of its transmission may become a feasible objective in the near future, participants welcomed the sub-regional initiative to eliminate *P. falciparum* malaria. The strategic guidance and technical support provided by WHO was acknowledged with satisfaction and participants emphasized the need to ensure that malaria-affected countries are fully supported in their endeavours to go forward with national malaria elimination campaigns. In the context of malaria elimination, particular emphasis should be given to border areas of central Asian countries and Afghanistan, where there is a risk of spread of malaria across shared borders. In order to achieve a greater impact on the malaria situation and proceed with malaria elimination in countries of the WHO European and Eastern Mediterranean Regions, participants underlined the need to create greater awareness of the successes of anti-malaria programmes and to intensify partnership actions, and urged partners and donors to increase the level of financial assistance for malaria elimination as well.

It was recommended for Member States:

- to remain committed to the Tashkent Declaration “The Move from Malaria Control to Elimination” endorsed by all malaria-affected countries of the WHO European Region, and to the Kabul Declaration “Health for All. Health by All: Communicable Diseases Recognize No Borders” endorsed by a number of countries of the European and Eastern Mediterranean Regions;
- in collaboration with WHO, to make all possible efforts required to interrupt the transmission of *P. falciparum* malaria by 2010 in Tajikistan and to prevent the re-establishment of its transmission in other countries of central Asia:
 - to develop/revise and implement plans of action directed at eliminating *P. falciparum* malaria;
 - to streamline mechanisms for a more coordinated action aimed at malaria elimination between all parties concerned (governmental bodies, international agencies, non-governmental organizations and the private sector) at inter-country and country levels;
 - to scale-up anti-malaria programmes, paying particular attention to strengthening health systems and human resource capacities at national and district levels, improving national epidemiological services and research capabilities, and promoting social mobilization;
- in collaboration with WHO, to promote cross-border collaboration for solving malaria-related issues for countries of central Asia and Afghanistan:
 - to provide all possible support to Afghanistan, particularly in the northern part bordering countries of central Asia, to intensify malaria control interventions;
 - to work out an intervention cross-border strategy to solve common malaria-related issues, with particular emphasis on treatment policy, vector control, epidemic warning and response, and information and research exchange;
 - to consider the opportunity to develop and implement a joint action plan in order to coordinate and synchronize malaria control and elimination in border areas;
 - to appoint malaria focal points for each country in order to coordinate cross-border issues related to malaria control and elimination;
- to support the initiative to establish a World Malaria Day.

It was recommended for WHO and partners:

- to continue supporting countries in their efforts towards implementing the new regional strategy with the goal of eliminating *P. falciparum* malaria in countries of central Asia by 2010;
- to assist in drawing up and submitting by April-May 2007 a joint project proposal to strengthen cross-border coordination and cooperation in the field of malaria control and elimination between Tajikistan and Afghanistan;
- to assist in organizing a regional meeting (with participation of neighbouring countries of the WHO Eastern Mediterranean Region) in order to report on achievements and to share experiences on malaria control and elimination, to be held in 2007;
- to assist in establishing an inter-regional secretariat for coordination of cross-border activities for malaria elimination and control in countries of central Asia and Afghanistan;

- to assist in building adequate malaria epidemiological services and information systems, with an operational research component, capable of planning, monitoring and evaluating anti-malaria activities at national level;
- to assist developing training/learning programme/materials and organizing an international training course on malaria elimination;
- to support the establishment of a roster of experts on malaria elimination; and
- to assist in creating greater awareness of the successes of anti-malaria programmes and mobilizing additional financial resources to support countries' endeavours to control and eliminate malaria.

РЕЗЮМЕ

Данное совещание, организованное Европейским Региональным Бюро ВОЗ в сотрудничестве с Правительством Таджикистана, Агентством по Техническому Сотрудничеству и Развитию (АКТЕД) и Восточно-Средиземноморским Региональным Бюро ВОЗ, проводится (1) семь лет спустя после разработки и успешного осуществления региональной стратегии «Обратим Вспять Малярию» в пораженных малярией странах Европейского региона ВОЗ, и (2) год спустя после принятия Ташкентской Декларации «Вперед от Борьбы к Элиминации малярии». Кабульская Декларация «Инфекционные Болезни не Распознают Границ», отметившая уникальную возможность для проведения совместных действий, направленных на борьбу с малярией и другими инфекционными болезнями была также принята рядом стран Европейского и Восточно-Средиземноморского регионов ВОЗ в 2006 году. Целью новой региональной стратегии, которая недавно была опубликована, является перерыв передачи малярии к 2015 и её элиминация во всех пораженных странах Европейского Региона. Приоритет в новой стратегии отдается тропической малярии. При наличии адекватных инвестиций и политической поддержки, шанс прервать передачу тропической малярии в Таджикистане к 2010 году и предупредить восстановление её передачи на прилегающих территориях других Центрально-Азиатских странах (Кыргызстан, Узбекистан и Туркменистан) является довольно высоким.

Основной целью данного совещания являлось обсуждение и разработка стратегического направления по элиминации тропической малярии в странах Центрально-Азиатского региона, и укрепления пограничного сотрудничества в области борьбы и ликвидации малярии между странами Центральной Азии, а также между ними и Афганистаном. Цели вышеуказанного совещания включали: (1) показать успехи, достигнутые в деле борьбы и элиминации малярии в странах-участниках; (2) обменяться опытом между странами и регионами по проведению противомаларийных программ; (3) прийти к согласию в отношении стратегического плана, направленного на элиминации тропической малярии в Центральной Азии; и (4) стимулировать пограничное сотрудничество. На совещании присутствовали представители Афганистана, Казахстана, Кыргызстана, Таджикистана, Туркменистана и Узбекистана. Всемирная Организация Здравоохранения была представлена персоналом из штаб-квартиры, Европейского и Восточно-Средиземноморского бюро, а также представителями Таджикистана и Афганистана. Представители из АКТЕД (Центральная Азия), Глобально Фонда по борьбе с СПИДом, туберкулезом и малярией (проект по внедрению, Таджикистан), Центрального Института постдипломного медицинского образования/Москва, Института Общей Генетики имени Вавилова/Москва также присутствовали на совещании.

Участники совещания с удовлетворением отметили те серьезные усилия, прикладываемые странами, ВОЗ и партнерами по консолидации достигнутых результатов и дальнейшему продвижению от борьбы с малярией к её элиминации. Участники подтвердили обязательства, взятые в отношении поставленных задач и целей новой стратегии, направленной, в конечном счете, на элиминацию малярии. Принимая во внимание значительный прогресс, достигнутый в деле борьбы с тропической малярией в странах Центральной Азии, где ее заболеваемость была снижена до таких уровней, что перерыв ее передачи может быть возможен в ближайшем будущем, участники совещания приветствовали инициативу элиминации тропической малярии в Центральной Азии. Стратегическое руководство и техническая поддержка со стороны ВОЗ было оценено с благодарностью, и участники подчеркнули необходимость гарантировать, что страны

пораженные малярией будут полностью поддержаны в дальнейшем в их усилиях по поведению национальных кампаний по элиминации малярии. В контексте элиминации малярии, особое внимание должно быть уделено прилегающим пограничным территориям стран Центральной Азии и Афганистана, где существует риск распространения малярии между прилегающими пограничными территориями соседних стран. Для достижения больших результатов в деле борьбы с малярией в странах Европейского и Восточно-Средиземноморского бюро ВОЗ, участники подчеркнули необходимость улучшить оповещение международного сообщества об успехах, достигнутых странами, в деле борьбы с малярией, усилить партнерское сотрудничество, а также продолжить поиск дополнительных финансовых ресурсов для проведения программ по элиминации малярии.

Следующие положения были рекомендованы для стран-участников:

- Оставить за собой прежние обязательства, изложенные в Ташкентской Декларации «Вперед от Борьбы к Элиминации Малярии», одобренной всеми пораженными странами Европейского региона ВОЗ; а также в Кабульской Декларации «Инфекционные Болезни не Распознают Границ», принятой рядом стран Европейского и Восточно-Средиземноморского регионов ВОЗ;
- В сотрудничестве с ВОЗ, предпринять все необходимые усилия, которые потребуются для перерыва передачи тропической малярии к 2010 году в Таджикистане и предупредить восстановление передачи тропической малярии в остальных странах Центральной Азии:
 - разработать/скорректировать и реализовать планы мероприятий, направленные на элиминацию тропической малярии;
 - оптимизировать механизмы для улучшения координации противомаларийной деятельности и более эффективного партнерского сотрудничества (среди государственных структур, международных агентств, негосударственных организаций и частного сектора), направленных на элиминацию малярии на субрегиональном и странном уровнях;
 - усилить национальные противомаларийные программы, уделяя особое внимание укреплению систем здравоохранения, подготовке кадров на всех уровнях, улучшению эпидемиологических служб и укреплению научного потенциала, а также мобилизации населения;
- В сотрудничестве с ВОЗ, улучшить взаимодействие между странами Центральной Азии и Афганистана при проведении противомаларийных мероприятий на пограничных территориях:
 - обеспечить полную поддержку Афганистану, особенно в его северной части, граничащей со странами Центральной Азии в деле усиления противомаларийной деятельности;
 - разработать совместную стратегию для решения общих проблем, связанных с малярией, уделяя особое внимание вопросам в области политики лечения, борьбы с переносчиками, своевременного оповещения об эпидемиях и борьбы с ними, и обмена практической и научной информацией;
 - рассмотреть возможность составления и реализации совместных оперативных планов с целью координации и синхронизации проводимых мероприятий по борьбе и элиминации малярии в пограничных районах;

- назначить ответственных в каждой стране, отвечающих за вопросы координации вопросов, связанных с пограничным сотрудничеством в области борьбы и элиминации малярии;

Поддержать инициативу, направленную

- Продолжить оказание помощи странам в их усилиях по претворению в жизнь новой региональной стратегии, направленной на элиминацию тропической малярии в странах Центральной Азии к 2010 году;
- Оказать помощь в подготовке и предоставлении для рассмотрения к апрелю-маю 2007 года совместного проекта по малярии, направленного на усиление координации и взаимодействия в проведении противомаларийных мероприятий на пограничных территориях между Таджикистаном и Афганистаном;
- Оказать содействие в организации регионального совещания в 2007 году (с участием представителей соседних стран Восточно-Средиземноморского региона) для отчета о достигнутых результатах и обмена опытом в области борьбы и элиминации малярии;
- Оказать помощь в создании межрегионального секретариата для координации вопросов, связанных с противомаларийной деятельностью в пограничных странах Центральной Азии и Афганистана;
- Оказать содействие в создании адекватных национальных эпидемиологических служб и информационных систем, с научно-практическим компонентом, способных решать задачи, связанные с планированием, мониторингом и оценкой проводимых противомаларийных мероприятий;
- Оказать помощь в разработке обучающих программ и учебных материалов, а также содействовать в организации международного обучающего курса по элиминации малярии;
- Поддержать создание группы экспертов по вопросам элиминации малярии;
- Оказать помощь в улучшении оповещения международного сообщества о положительных результатах, достигнутых странами на пути к ликвидации малярии, и в мобилизации дополнительных ресурсов для борьбы и элиминации малярии.

Abbreviations

ACT	Artemisinin-based combination therapy
ACTED	Agency for Technical Cooperation and Development
AMDs	Antimalarial drugs
BPHS	Basic Package of Health Services
CIS	Confederation of Independent States
CQ	Chloroquine
ECHO	European Commission's Humanitarian Aid Office
EPHS	Essential Package of Hospital Services
G6PD	Glucose-6-Phosphate Dehydrogenase
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
GIS	Geographical information system
GMP	Global Malaria Programme
IRS	Indoor residual spraying
LLITNs	Long-lasting insecticide treated nets
M&E	Monitoring and evaluation
MPTP	Mass prophylactic treatment with primaquine
PCR	Polymerase chain reaction
RBM	Roll Back Malaria
S-P	Sulfadoxine-pyrimethamine
UAE	United Arab Emirates
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
UNDP	United Nations Development Programme
WHO	World Health Organization

Introduction

The meeting organized by the WHO Regional Office for Europe in collaboration with the Government of Tajikistan, the Agency for Technical Cooperation and Development (ACTED) and the WHO Regional Office for the Eastern Mediterranean took place in Dushanbe, Tajikistan from 21 to 23 November 2006. Officials (Annex 2) from Afghanistan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan; WHO staff from headquarters and the two above regions, Tajikistan and Afghanistan, experts and partners attended the meeting.

Scope and purpose of the meeting

The main purpose of organizing this meeting was to outline a strategic direction towards undertaking the new elimination effort within malaria-affected countries of central Asia and to enhance cross-border cooperation in the field of malaria control and elimination among central Asian countries and between them and Afghanistan.

The objectives of the meeting were:

- to report on progress made with malaria control and elimination in participating countries;
- to share experiences with malaria control and elimination between the WHO Regional Office for Europe, the Regional Office for the Eastern Mediterranean and their neighbouring countries;
- to consent to a strategic plan to achieve elimination of *P. falciparum* malaria in central Asia; and
- to promote cross-border cooperation and collaboration related to malaria control and elimination between the two WHO Regions.

Inaugural session

The meeting was inaugurated by Dr Avgonov, Deputy Minister of Health of Tajikistan, who emphasized the results achieved in fighting malaria in the country and the need for better cross-border cooperation in the field of malaria control and elimination between countries.

Dr Avgonov also expressed his appreciation to The WHO Regional Office for Europe and ACTED for sponsoring the meeting. Dr Severoni, Head of WHO Country Office, Tajikistan, welcomed all participants and stressed that the meeting represented a unique opportunity for participating countries and partners to gather together in order to discuss and facilitate future decisions towards undertaking the new elimination effort within malaria-affected countries of central Asia. Mr Paton, UNDP Office, Tajikistan, underlined that the challenge of malaria represents a regional threat, and that work towards its elimination demands a regional response stressing that the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) and UNDP as a Principal Recipient work very closely with WHO in Tajikistan; and with GFATM grants, Tajikistan and other central Asian countries will be able to strengthen their national capacities and capabilities to cope with malaria.

Organization of the meeting

The first day of the three-day meeting was devoted to a world update on malaria elimination, WHO guidelines and certification of malaria elimination, the present malaria situations and progress/challenges to malaria control/elimination in the WHO European and Eastern Mediterranean Regions, as well as to country presentations on progress with and challenges to malaria control and elimination at country level. On the second day, scientific presentations were made related to the new regional strategy “The Move from Malaria Control to Elimination, 2006–2015”; approaches to eliminate *P. falciparum* malaria and their application in affected countries of central Asia; the distribution and biology of malaria vectors in countries of central Asia; PCR detection of malaria parasites infecting human subjects in central Asia; GIS-based mapping on malaria in central Asia; and a malaria-related success story in Armenia. Issues regarding malaria control and elimination interventions funded by ACTED in countries of central Asia and Afghanistan were also presented and discussed. Subsequently, two groups were formed to consent to a strategic framework to eliminate *P. falciparum* malaria in central Asia (Group 1), and to discuss issues related to malaria control/elimination and cross-border cooperation within central Asian countries and Afghanistan (Group 2). The working groups had in-depth discussions on the assigned subjects and formulated recommendations. On the third day, the group work continued and finally the conclusions and recommendations were presented and formally adopted in a plenary session. A press-conference on the results of the meeting took place on the last working day.

Dr Avgonov was elected as Chairman of the meeting, and Dr Niyazmatov, Deputy Minister of Health, Uzbekistan and Professor Davidyants, Head, National Centre for Health Information Analysis, Ministry of Health, Armenia, were elected as Co-Chairmen. Dr Usenbaev, Manager, National Malaria Control Programme and GFATM Manager, Malaria Control Project, Ministry of Health, was elected to serve as Rapporteur.

The WHO European Region

The challenges to eliminate *P. falciparum* malaria in central Asia

At the beginning of the 1990s, large-scale epidemics broke out in central Asia and the Trans-Caucasian countries, and a total of 90 712 malaria cases were officially reported in the Region in 1995. In those years, Azerbaijan, Tajikistan and Turkey suffered explosive and extensive epidemics, while Armenia, Turkmenistan and Kyrgyzstan faced outbreaks on a smaller scale. From 1995–2005, the reported number of malaria cases in the Region declined from 90 712 to 5072. Although this represents an overall decrease in the reported number of cases in comparison with 1995 figures, the magnitude of the malaria problem in the Region is thought to be greater than that which statistics indicate. It is estimated that between 35 and 40 million people currently live in areas at varying degrees of risk of malaria. At present, malaria continues to pose a challenge in 8 out of the 52 Member States of the Region, namely Armenia, Azerbaijan, Georgia, Kyrgyzstan, Tajikistan, Turkey, Turkmenistan and Uzbekistan.

In central Asia, where malaria was nearly a forgotten disease in the 1980s, nearly 13 million people, or 30% of the total population, live in areas at risk of malaria at present. At the beginning of the 1990s, the residual reservoir of malaria infection, aggravated by political and socio-economic situations, mass population migration, and almost discontinued activities on malaria

prevention and control constituted conditions favourable for malaria transmission. As a result, large-scale epidemics broke out in central Asia, and Tajikistan suffered explosive and extensive epidemics, while Turkmenistan and Kyrgyzstan faced outbreaks on a smaller scale. From 1997–2005, the reported number of malaria cases in the sub-region declined from 29 798 to 2600 (See Table 1). Although this represents an overall decrease in the reported number of cases in comparison with 1995 figures, the magnitude of the malaria problem in the sub-region is thought to be greater than that which statistics indicate.

Table 1: Reported number of autochthonous malaria cases in countries of central Asia and Kazakhstan, 1997–2005

Year Country	1997	1998	1999	2000	2001	2002	2003	2004	2005
Kyrgyzstan									
<i>P. vivax</i>	0	5	0	7	15	2712	465	90	226
<i>P. falciparum</i>	0	0	0	0	0	0	0	1	0
Sub-total	0	5	0	7	15	2712	465	91	226
Tajikistan									
<i>P. vivax</i>	29 794	19 351	13 493	18 233	10 561	5651	5176	3437	2228
<i>P. falciparum</i>	ND*	ND*	ND*	831	826	509	252	151	81
Sub-total	29 794	19 351	13 493	19 064	11 387	6160	5428	3588	2309
Turkmenistan									
<i>P. vivax</i>	4	115	10	18	5	15	6	3	1
<i>P. falciparum</i>	0	0	0	0	0	0	0	0	0
Sub-total	4	115	10	18	5	15	6	3	1
Uzbekistan									
<i>P. vivax</i>	0	0	7	46	9	11	33	31	64
<i>P. falciparum</i>	0	0	0	0	0	0	0	0	0
Sub-total	0	0	7	46	9	11	33	31	64
Kazakhstan									
<i>P. vivax</i>	0	4	1	7	2	0	0	0	0
<i>P. falciparum</i>	0	0	0	0	0	0	0	0	0
Sub-total	0	4	1	7	2	0	0	0	0
All central Asian countries									
<i>P. vivax</i>	29 798	19 475	13 511	18 311	10 592	8389	5680	3561	2519
<i>P. falciparum</i>	0	0	0	831	826	509	252	152	81
Total	29 798	19 475	13 511	19 142	11 418	8898	5932	3713	2600

ND*- No data available

The number of malaria cases reported in Tajikistan peaked in 1997, when nearly 30 000 cases were registered. The deterioration of the malaria situation in the country in the 1990s was linked to armed conflict, mass population movement across zones of intense transmission of malaria in Afghanistan, where malaria is endemic, and the disruption of public health care services and vector control activities. Noticeable changes in agricultural practices, particularly the increase in the cultivation of rice, have led to an increase in vector breeding grounds. Despite an almost thirteen-fold reduction in the reported cases since that time, the remaining problem of *P. falciparum* malaria in the southern part of the country is a matter of particular concern. There is CQ and S-P resistance to *P. falciparum* malaria in Tajikistan. A total of 2309 cases of malaria, out of which 81 cases due to *P. f.* malaria, were reported in the country in 2005. The explosive resumption of malaria transmission in Kyrgyzstan, when a total of 2267 autochthonous *P. vivax* cases were reported in the south-western regions of the country, was a result of immigration of a number of infected people from Tajikistan into the Batken region where the Anopheles vector

exists and conditions for malaria transmission are very favourable. In 2004–2005, as a result of the application of large-scale epidemic control measures, there was a significant decrease in the reported number of autochthonous malaria cases (42 in 2005). However, in 2004 the first autochthonous case of *P. falciparum* malaria was reported in the Aravan district of the southern part of Kyrgyzstan, an area bordering Uzbekistan, and in 2005 the number of autochthonous cases of *P. vivax* malaria increased in the outskirts of the capital, Bishkek. Cases of autochthonous malaria are reported annually in Uzbekistan and Turkmenistan, and these countries remain highly receptive to a resumption of malaria transmission, which could lead to outbreak situations. In 2005, 64 autochthonous cases of *P. vivax* malaria were reported in Uzbekistan. All reported cases occurred in the region which borders Tajikistan and Afghanistan. In 2004–2005 only four autochthonous cases of *P. vivax* malaria were reported in Turkmenistan: three in 2004 and one in 2005. Kazakhstan is the only country where autochthonous cases of malaria have not been reported over the past four years.

The geographical distribution of malaria parasite species is far from uniform; it is clearly seen that *P. falciparum* malaria thrives in Tajikistan, where it is focal, primarily affecting the remote areas, and it is linked to rural populations. In 2004, the first autochthonous case of *P. falciparum* was reported in a district of the southern part of Kyrgyzstan bordering Uzbekistan. In other countries of central Asia *P. falciparum* retains its imported character. In contrast to this, however, *P. vivax* is widely distributed in central Asia. At present, five types of these settings are identified within malaria-affected areas of central Asia (See Table 2).

Table 2: Epidemiological settings in central Asia

Epidemiological Setting	Geographical Area
<ul style="list-style-type: none"> • There is no malaria transmission at present • There is importation of malaria 	<ul style="list-style-type: none"> • The entire territory of Kyrgyzstan except the south-western part • The entire territory of Uzbekistan except some areas bordering Tajikistan and Kyrgyzstan • The entire territory of Turkmenistan except some areas bordering Afghanistan
<ul style="list-style-type: none"> • <i>P. vivax</i> transmission is focal and localized to small areas • Incidence of <i>P. vivax</i> is very low (less than 5 per 100 000 population) • There is risk of outbreaks • There is importation of malaria 	<ul style="list-style-type: none"> • Some areas of Turkmenistan bordering Afghanistan • Some areas of Uzbekistan bordering Tajikistan and Kyrgyzstan
<ul style="list-style-type: none"> • <i>P. vivax</i> transmission is on a larger scale, but not widespread • Incidence of <i>P. vivax</i> is moderate (from 5 to 50 per 100 000 population) • Outbreaks of <i>P. vivax</i> may take place • There is importation of malaria 	<ul style="list-style-type: none"> • Most districts in the central, northern and western parts of Tajikistan • Most districts in the south-western part of Kyrgyzstan
<ul style="list-style-type: none"> • <i>P. vivax</i> transmission is widespread • Incidence of <i>P. vivax</i> is high (more than 50 per 100 000 population, in some districts reaching 200 and more) • <i>P. falciparum</i> transmission is focal and localized to small areas • Incidence of <i>P. falciparum</i> is very low (less than 5 per 100 000 on average) • Outbreaks of <i>P. vivax</i> may take place • Endemic malaria is present 	<ul style="list-style-type: none"> • Most districts in the southern part of Tajikistan, particularly those bordering Afghanistan
<ul style="list-style-type: none"> • There is imported malaria only 	<ul style="list-style-type: none"> • Mountain and arid areas

Progress made with malaria control and elimination in Tajikistan

As mentioned earlier, the number of malaria cases reported in Tajikistan peaked in 1997, when nearly 30 000 cases were registered. Despite a substantial reduction in the reported cases since that time the malaria situation remains a public health problem. A total of 2309 cases of malaria were reported in the country in 2005. The number of cases and foci of *P. falciparum* malaria cases was on the steady decline reaching 81 and 49 respectively in 2005. All autochthonous *P. falciparum* cases are reported in the southern part of Tajikistan (the Khatlon Region – the most affected area of the WHO European Region), with a total population of nearly 2.2 million people. Malaria vectors in Tajikistan include *An. superpictus*, *An. pulcherimus*, *An. macullipennis*, *An. hyrcanus* and *An. martinius*.

National authorities work closely with the WHO Regional Office for Europe in areas of disease management, vector control, training, surveillance, operational research, health education and community participation. Anti-malaria activities are presently carried out in cooperation with the Ministry of Health and with the support of WHO, GFATM, ECHO, the Martsinovskiy Institute of Medical Parasitology and Tropical Medicine/Moscow, the Central Institute for Postgraduate Medical Training/Moscow, the Vavilov Institute of General Genetics/Moscow, ACTED and UNICEF. A WHO Malaria Office (funded by The WHO Regional Office for Europe), which was opened in 2001 is still functional in Tajikistan. In 2005, the Government of Tajikistan revised the national strategy on malaria, and the goal of the new strategy is to eliminate *P. falciparum* malaria by 2010. A number of national guidelines and training/learning materials on disease management and prevention were published and widely disseminated during the last years. A grant of US\$ 5 383 510 to support country-level malaria control activities over five years (2006–2010) was approved by the GFATM in 2005. Within the framework of this project, Tajikistan receives technical assistance, including training of malaria specialists, and support for the implementation of adequate disease management and prevention activities, including vector control, malaria surveillance and operational research and community-based interventions.

Malaria control project – funded by GFATM in Tajikistan

GFATM supported a proposal on malaria component in the fifth round. The overall budget of the grant is US\$ 5 383 510 for 5 years. The first phase of the grant sum is US\$ 2 772 000 (April 2006 and March 2008).

The main purpose of the grant is to interrupt *P. falciparum* malaria transmission, reduce malaria morbidity, contain and prevent malaria outbreaks, and prevent deaths caused by malaria. Specific project objectives are (1) to strengthen institutional capacities of national malaria control programme/general health services; (2) to improve capacities for and access to early diagnosis and adequate treatment of malaria; (3) to promote cost-effective and sustainable vector control; (4) to improve capacities for timely response to and prevention of malaria outbreaks and epidemics; (5) to reinforce country surveillance mechanisms; (6) to strengthen research capabilities; and (7) to increase community awareness and participation in malaria prevention. Project beneficiaries are 29 pilot districts of the Khatlon region. UNDP as a principal recipient for this grant works actively with the Ministry of Health, the Republican Centre to Fight Tropical Diseases, WHO and ACTED.

The results achieved in the course of grant implementation are as follows:

- Indoor residual spraying has been undertaken in 72 543 households. The spraying area is 15 424 000 square meters.
- Distribution of gambusia fish has been done in 71.1 hectare of stagnant ponds and 271.4 hectare of rice fields in the Khatlon region.
- Ten thousand bed nets have been distributed which provided personal protection to 4431 households. 25 159 beneficiaries have been covered.
- Mid-seasonal preventive treatment by primaquine has been undertaken. 98 694 persons have been covered.
- Population access to treatment has been improved considerably. 884 malaria patients received treatment in the course of eight months of grant implementation. Required medicines for treatment have been provided.

- 113 health facilities have been provided with means for malaria diagnostics, treatment and prevention (microscopes, expendables, medicines, equipment for indoor residual spraying and distribution of gambusia fish, bed nets, insecticides, bicycles etc.).
- Ten specialists have been trained.
- 189 medical workers have been trained in seminars: malaria laboratory, program management, entomology and epidemiology.
- In order to raise population awareness, 80 health educators have been trained on malaria prevention. Trained health educators will organize trainings among the population.
- Information and educational materials on malaria have been elaborated.
- Four project offices, two training centres, two mobile brigades and six epidemiological and operative centres to collect information on malaria have been established.
- Health care establishments have been equipped with office furniture, vehicles etc.

Problems faced in the course of grant implementation:

- Raising demand for goods necessary for malaria control activities during malaria transmission season.
- Delay in the provision of goods from suppliers.
- Inadequate capacity of malaria service specialists as a result of brain drainage from health facilities of the country.

Anti-malaria programmes in Kazakhstan, Kyrgyzstan, Turkmenistan and Uzbekistan

In Kazakhstan there have been no reported cases of autochthonous malaria in recent years (2002–2005). Imported cases of malaria have been on the decline starting from 2002 (20 in 2002 and 6 in 2005). *P. vivax* (75%) was the main malaria species imported into the country. The ecological and climatic conditions within most regions of the country could lead to a resurgence of malaria transmission following its importation. The differences in eco-climatic settings, types of landscape, vector species distribution, and occupational and migration population patterns define the heterogeneity of malariogenic potential of the country. The highest risk of resumption of malaria transmission is found in some parts of the Almaty, Jambyl, south-, west- and east-Kazakhstan regions, as well as in the cities of Almaty, Astana and Karaganda, where the transmission season may last between three and six months. *An. messeae*, the most common malaria vector in Kazakhstan, is found throughout most of the county. Secondary vectors include *An. pulcherimus*, *An. superpictus*, *An. hyrcanus*, *An. martinius*, *An. claviger* and *An. maculipennis*.

In March 2004 the Ministry of Health of Kazakhstan issued a national decree aimed at strengthening malaria surveillance in the country, and steps are being taken to reinforce surveillance. At present, malaria-related activities in the country include disease management and prevention, training, surveillance and operational research. The Ministry of Health, other governmental organizations and WHO provide support for this.

In Kyrgyzstan, the explosive resumption of malaria transmission produced an epidemic situation in 2002, and a total of 2267 autochthonous *P. vivax* cases were reported in the south-western

regions of the country. The explosive resumption of malaria transmission in Kyrgyzstan was a result of immigration of a number of infected people from Tajikistan into the Batken region where the *Anopheles* vector exists and conditions for malaria transmission are very favourable. In 2005, as a result of the application of epidemic control measures, there was a significant decrease in the reported number of autochthonous malaria cases (42). However, in 2004 the first autochthonous case of *P. falciparum* malaria was reported in the Aravan district in the southern part of Kyrgyzstan, an area bordering Uzbekistan, and in 2005 the number of autochthonous cases of *P. vivax* increased in the outskirts of Bishkek. Malaria vectors in the country include *An. pulcherimus*, *An. superpictus*, *An. hyrcanus*, *An. martinius*, *An. claviger* and *An. messeae*.

Kyrgyzstan shows a strong political commitment to controlling the malaria situation. In response to the malaria epidemic in 2002, the WHO Regional Office for Europe opened a malaria field office in Osh, in the Batken Province, which is still functional as a WHO/GFATM malaria office and responsible for coordination of all malaria-related activities in the southern part of the country. GFATM and WHO, along with ACTED, assist the country in the procurement of drugs, insecticides, and laboratory equipment and supplies. They also support disease management, vector control activities, including indoor residual spraying and biological control, malaria surveillance, operational studies and community-based interventions. In 2006, the Government of Kyrgyzstan revised the national strategy on malaria, and adopted the goal of the new strategy (2006–2010) to consolidate the results achieved and to move from malaria control to elimination. In 2005 a grant of US\$ 3 426 125 to support country-level malaria control activities over five years (2006–2010) was approved by the GFATM, which is presently implemented covering the whole territory of the country. Along with disease management and prevention, malaria surveillance, operational research, community involvement, particular attention is paid to cross-border coordination.

By 1998 the malaria situation in Turkmenistan had taken a drastic turn for the worse and 108 malaria cases were detected in areas bordering Afghanistan. To prevent further spread of malaria, national programme personnel carried out epidemic containment measures, including seasonal chemoprophylaxis and indoor residual spraying. These interventions allowed for a significant decrease in malaria morbidity within the focus area. Presumably, local malaria transmission appeared as a result of malaria importation by mosquitoes flying in from bordering Afghanistan. Sporadic cases of autochthonous malaria are reported every year, and 44 cases of local malaria cases were registered in the country during 2000–2003. At present, a broad complex of anti-malaria measures, including capacity building, disease management and prevention, malaria surveillance and community-based interventions are carried out in the country. In 2004–2005 only four autochthonous cases of *P. vivax* malaria were reported in the country. Three principal malaria vectors are found in Turkmenistan: *An. superpictus*, *An. pulcherimus* and *An. maculipennis*.

At present, malaria-related activities in Turkmenistan include disease management and prevention, training, surveillance, epidemic control and community involvement. In 2006, the national strategy on malaria has been revised, with the aim to eliminate *P. vivax* malaria by 2010. A national malaria committee to coordinate all malaria-related activities at the country level has been established. A number of national practical guidelines and training materials on malaria have recently been developed. The Ministry of Health, other governmental organizations, WHO and UNICEF provide support for this.

Taking into account the malaria situations in neighbouring countries, Uzbekistan carries out a number of activities aimed at interruption of on-going malaria transmission and the prevention of

the re-establishment of malaria in areas, which are presently free from malaria. A more than five-fold increase in the number of autochthonous malaria cases was witnessed during 1999–2000. In 2001–2003, 225 cases were registered, 53 of which were due to local transmission. In 2004–2005, 95 autochthonous cases of *P. vivax* malaria were reported in the country. All reported cases occurred in areas which border Tajikistan and Afghanistan. Particular attention is paid to malaria surveillance in the country. Epidemiological investigations of all reported cases of malaria are carried out systematically, and all malaria cases are correctly treated. Furthermore, biological means of vector control, including the use of larvae-consuming Gambusia fish, are being used in selected areas of the country. There are seven Anopheles species registered within the territory of Uzbekistan: *An. pulcherimus*, *An. superpictus*, *An. maculipennis*, *An. hyrcanus*, *An. martinius*, *An. claviger*, and *An. algeriensis*.

At present anti-malaria activities are supported by the Ministry of Health, other governmental organizations, the WHO Regional Office for Europe, GFATM and ACTED and include the strengthening of malaria surveillance, training of general and specialized health personnel, disease management and prevention, operational research and health education. With a GFATM grant of more than US\$ 2.5 million over five years (2004–2008), the country strengthens the capacities and capabilities to cope with the remaining malaria problems.

ACTED and its involvement in malaria control and elimination in central Asia

ACTED began its activities in central Asia in 1996. One of the activities of ACTED is to address the need of local communities in their fight against malaria in Tajikistan, Uzbekistan and Kyrgyzstan. The malaria prevention programme funded by ACTED, which is implemented in the above countries is aimed at promoting cost-effective and sustainable vector control measures (distribution of impregnated mosquito nets, biological control, environmental management and entomological/epidemiological studies), at applying epidemic control measures (indoor residual spraying in areas highly affected by malaria in Tajikistan), at conducting prevalence studies, and at increasing community awareness and participation in malaria prevention.

The WHO Eastern Mediterranean Region

Progress made and challenges to control and eliminate malaria in the WHO Eastern Mediterranean Region

In the Eastern Mediterranean Region, malaria is still a public health threat. In 2005, the total estimated number of malaria cases reached 10.5 million with 37 000 deaths under five years of age. In the region, 248 million live in areas where there is a risk of malaria transmission, out of them 43% are at risk of both *P. falciparum* and *P. vivax*.

Countries in the region are categorized into three distinct groups according to the state of malaria transmission. Group 1 comprises countries which have eliminated malaria or those with very limited malaria transmission in residual foci. Group 2 comprises countries with a low malaria burden limited to certain areas and with effective malaria programmes. Group 3 comprises countries with moderate to high malaria burden, weak health systems and/or complex emergencies. For countries in group 1, the objective is to prevent re-establishment of malaria transmission in malaria-free areas and to eliminate residual foci of malaria. For group 2, the

objective is to eliminate malaria and prevent its reintroduction and for those in group 3, the objective is to halve the malaria burden (incidence, severity and mortality) by the end of 2010.

The Regional strategic malaria elimination plan 2006–2010 includes the following elements: assessment of the feasibility of elimination, support to development of a country strategy and plan of action, support to implementation/evaluation of malaria elimination programmes, verification/certification of malaria free status, support to cross border coordination/interregional cooperation, capacity building and development of technical guidelines and advocacy and resource mobilization for sub-regional initiatives.

Countries in this Region are at different stages of implementation of the malaria elimination strategy. Iran and Iraq developed their strategy in 2004–2005 and are at the preparatory stage. The malaria burden has decreased tremendously during recent years in Iraq. In 2005 only 47 cases were reported in the country, and most of them were from three northern governorates. The malaria situation in Iran during last five years is more or less in plateau. Saudi Arabia is in the attack phase, and implementation of identified strategies is under way and being evaluated every six months by WHO consultants. In 2005 the number of autochthonous cases decreased to as low as 204 cases in the south-eastern part of Saudi Arabia. Oman and Morocco have reached the consolidation phase, and the United Arab Emirates (UAE) is in the final stages of receiving the WHO certificate for malaria free status. Significant reductions in the malaria burden in Socotra Island, Yemen and Khartoum and Geziara in Sudan are examples of success for the malaria elimination strategy even in high-burden countries.

Limited human capacity for vector control, malaria microscopy, planning; and evaluation of malaria elimination activities, weak collaboration/coordination of cross border activities among certain countries, massive population movement, lack of proper collaboration with other relevant sectors including the private sector, resistance to drugs and insecticides, weak monitoring and evaluation and epidemic preparedness, inadequate transparency in some countries, risk of losing the political commitment and financial support, particularly due to frequent changes in health authorities, and lack of support from international donors are among the main challenges that countries targeting malaria elimination are facing.

In order to strengthen the malaria control and elimination programme in northern Afghanistan we have to overcome specific challenges, including the non-existing capacity for entomology and vector control intervention, particularly IRS, a very weak surveillance system, bearing in mind that a high proportion of *P. vivax* malaria confirmation, either by microscopy or RDTs, is not included in services provided by Basic Health Centres as part of Basic Package of Health Services.

Malaria control in Afghanistan, particularly in areas bordering Afghanistan and countries of central Asia

Malaria transmission in Afghanistan is seasonal and unstable. The duration and intensity of malaria transmission are dependent on altitude, temperature and rainfall. The highest malaria transmission intensity is observed in altitudes <1500m in rice growing areas of eastern and north-eastern Afghanistan. Population movements, low socioeconomic status of the people, breakdown of the health infrastructure and the national control programme, appearance and spread of drug resistance and poor access to malaria treatment are the main reasons for an increased risk of malaria transmission, which have put approximately 60% of Afghanistan's

population (15 million) at risk of malaria. In recent years, a change in malaria epidemiology has been observed. More than 50% of the total annually recorded cases are reported from the north-eastern provinces neighbouring Tajikistan, where the proportion of *P. falciparum* has increased with CQ resistance of more 80%.

Afghanistan is a country undergoing massive reconstruction. With assistance from the international community, the newly developed health sector is shaped around the delivery of two packages of health services, namely The Basic Package of Health Services (BPHS) to address priority diseases, including malaria through 4 levels of health facilities, and The Essential Package of Hospital Services (EPHS) to provide quality secondary and tertiary health services with a built-in referral system linked to the BPHS.

Afghanistan's new malaria control program is at its infancy. The pre-war vertical National Malaria and Leishmaniasis Control Program was redesigned to be an integral part of the general health services at the health facility level and remained vertical at the provincial and central levels. Afghanistan is strongly committed at the highest political level to the regional approach to combat malaria as spelled out in the Tashkent and Kabul declarations.

Malaria situation in border areas:

Eight malaria endemic provinces in the north, northeast and northwest of Afghanistan share a 1700 km long and rather porous border with CIS countries, namely Tajikistan, Turkmenistan, and Uzbekistan.

Due to the expansion and improvement of the healthcare delivery system in the country, along with the availability of additional resources and, to some extent, the prolonged drought, the trend of malaria in general and in the provinces neighbouring the CIS countries in particular witnessed a remarkable decline over the past four years (from 626 839 cases nationwide in 2002 to 281 888 cases in 2005). During this period the proportions of *P. falciparum* malaria among microscopically confirmed cases ranged between 20.4 % in 2002 to 3.6% in 2005.

Progress with malaria control in Afghanistan:

At the national level:

- development of seven national programme policy documents;
- adoption of ACT for the treatment of falciparum malaria;
- establishment of the National Malaria Institute;
- intensive fellowship training programmes for all managers;
- establishment of a master trainers programme for pre-service and in-service training on malaria diagnosis and treatment;
- revival of units to carry out entomological surveillance;
- development of a national malaria training curriculum;
- development of tools for monitoring and evaluation;
- field research studies to support evidence-base intervention; and
- resource mobilization, including Round 5 of the GFATM (US\$ 28 million).

At the provincial level in provinces bordering CIS countries:

- establishment of provincial malaria units staffed with trained managers;
- expansion of the general health services to all districts through the BPHS;
- intensified distribution of the LLITNs for disease prevention;
- establishment of an entomology unit in the Kunduz province (neighbouring Tajikistan);
- establishment of sentinel sites to regularly monitor the efficacy of AMDs in two provinces bordering Tajikistan and Turkmenistan; and
- provision of means of transportation and communication equipment.

ACTED and its involvement in malaria control in Afghanistan

In Afghanistan, ACTED assisted in the establishment of Malaria Reference Centres, in training of local public health staff on disease management and prevention and in carrying out community-based interventions on malaria prevention and control. Five Malaria Reference Centres, which provide diagnosis and treatment of malaria and assist in conducting demographic and parasitological surveys related to malaria, were set up by ACTED in Imam Sahib, Khowja Gahar, Khowja Bauddin, Darkhad and Yangi Qala districts in areas bordering Tajikistan. Trainings on malaria for participants from Afghanistan were organized in the southern part of Tajikistan, with assistance provided by ACTED in 2004–2005.

Strategy development

Malaria elimination: GMP/HQ perspective and the WHO certification process

Since the 1950s, 24 countries have been listed in the WHO Official register of areas where malaria eradication has been achieved, with Australia and Singapore as the last two in 1986. While WHO changed focus from malaria eradication to control in the early 1970s, two additional countries achieved malaria elimination in the ensuing years: Tunisia (last case in 1979) and the Maldives (last two cases in 1983). Starting in the 1990s, several countries requested WHO to be certified as malaria-free, but mechanisms for doing so no longer existed. In 2003, subsequent to the initiatives on malaria elimination already taken by The WHO Regional Office for Europe and the WHO Regional Office for the Eastern Mediterranean, the WHO Malaria Programme (at that time WHO Roll Back Malaria) decided to respond positively to a request from the United Arab Emirates for official assessment and certification of their malaria-free status. In early 2006, WHO's Global Malaria Programme (GMP) renewed the focus on malaria elimination. Since then, GMP activities included an update of concepts, definitions and feasibility criteria for malaria elimination,¹ support to WHO regional elimination initiatives, drafting of GMP guidelines on malaria elimination, and piloting of certification procedures in the United Arab Emirates. A major meeting linking elimination with tourism development and travellers' health is planned for April 2007.

¹ *Informal Consultation on Malaria Elimination: Setting up the WHO agenda*, Tunis, 25–26 February 2006. Global Malaria Programme, WHO, Geneva, 2006 (WHO/HTM/MAL/2006.1114).

The framework of the 1950s malaria eradication strategy with its principles of phasing and surveillance is still sound, however, there are new tools, new epidemiological realities and changes in vector and parasite ecology to be taken into account in present day elimination efforts. Also, continued measures to prevent re-establishment of transmission are required due to the ongoing importation of parasites by international travellers.

Malaria elimination has been defined as the interruption of local transmission of malaria parasites by mosquitoes. An indication that this has been achieved is the occurrence nationwide of less than three malaria infections per year without an identifiable risk factor other than local mosquito transmission (such as blood transfusion, relapses, history of travel), which are epidemiologically linked, for three consecutive years. The minimum geographical area for certification by WHO is one country. Certification covers all species at the same time. In practice, to reach the goal of malaria elimination, most countries first go through a phase of “good” malaria control (i.e. elimination of malaria as a public health problem), then adopting a geographically step-wise and phased approach to elimination of transmission from the entire territory. *P. falciparum* will usually disappear first where more species are present.

Experiences from the eastern Mediterranean Region show that the last remaining foci of transmission in a country are difficult to extinguish, because they usually have: more efficient vectors and a longer transmission season than in the rest of the country; poor overall development, marginalized populations and weak health systems with inadequate coverage; common borders with neighbouring countries with a high burden; and intense cross-border population movement and a high immigration rate from usually well-identified endemic countries.

In order to feel confident that interruption of transmission has been achieved, a number of preconditions must be met. These include:

- a good surveillance mechanism with full coverage of all geographical areas;
- adequate, total coverage health services to diagnose and treat malaria and prevent re-establishment of transmission;
- high quality laboratory services, based on malaria microscopy;
- a central case register and full reporting by public and private health services;
- epidemiological investigation of each and every malaria case,² and
- a national, comprehensive plan of action with continued political and financial support from all partners to achieve activities needed to maintain the malaria-free status.

Inspection and recommendation for certification will be made by a WHO-led evaluation team. The final decision on certification is made by the Director-General of WHO. Certification will be published in the *Weekly Epidemiological Report*.

Continuing importation of parasites threatens the malaria-free status, and official certification can thus be for one date only. Countries will need to report back to WHO on the maintenance of their malaria free status; a system for such reporting still needs to be designed and implemented. An indication for re-establishment of transmission would be the occurrence of more than two epidemiologically linked malaria infections without an identifiable risk factor other than local

² Typically, epidemiological investigation would show that cases are overwhelmingly imported or relapsing, with few *P. malariae* cases, a limited number of introduced cases and occasional cryptic cases.

mosquito transmission, in the same geographical focus, for two consecutive years for *P. falciparum*, and for three consecutive years for *P. vivax*. In addition, to protect international travellers, reports of falciparum malaria outbreaks in “malaria-free” countries will be published in WHO's *Weekly Epidemiological Record*.

GMP is currently developing a field manual on malaria elimination, covering the “what to do – why do it – when to do it – where to do it” for each of the four phases of elimination programmes. The manual will include sections on realistic target setting, planning and budgeting, as well as operational aspects. A focus will be on tools that are used differently in control and elimination programmes. These include, but are not limited to: legislation, case notification and investigation, surveillance, vigilance (e.g., mapping of transmission foci, case register, sero-surveys), diagnosis and microscopy quality control systems, case management, management of the supply of antimalarial drugs, population-based interventions for parasite control (e.g. mass prophylactic treatment with primaquine, seasonal chemoprophylaxis, active case detection), vector control and surveillance, entomological investigations, special measures for travellers and migrants, and (inter-)country coordination mechanisms. The 2006 Tunis meeting report, the Regional Strategies from the WHO Regional Office for Europe and Regional Office for the Eastern Mediterranean, and available Regional Office for the Eastern Mediterranean guidelines for the elimination of residual foci of malaria transmission and for the prevention of re-introduction of transmission form the basis for this manual, complemented with practical country experiences.

New regional strategy “The Move from Malaria Control to Elimination, 2006–2015”

The reduction in the number of malaria cases by more than seven-fold over the past seven years (1999-2005) is the most conspicuous achievement of the WHO Regional Office for Europe regional RBM programme to date. Presently the incidence of *P. falciparum* and *P. vivax* malaria in some countries of the European Region has been brought down to such levels that interruption of their transmission may become a feasible objective in the near future.

The rationale for development of the new malaria strategy aimed at moving from control to elimination is based on the following principles:

- the demonstrated feasibility of malaria elimination in Europe in the past;
- the visible impact of RBM interventions at present;
- the strong political commitment to achieve a greater impact on malaria situations at national level; and
- the efficacious technologies and tools available to control and eliminate malaria in the regional context.

All the above mentioned, along with clear evidence of technical feasibility and operational applicability of malaria elimination may facilitate decisions towards undertaking the new elimination effort within malaria-affected countries of the WHO European Region.

Malaria-affected countries which participated in the Inception Meeting on the Malaria Elimination Initiative in the WHO European Region held in Tashkent, Uzbekistan, 18–20 October 2005, consented to the Tashkent Declaration “The Move from Malaria Control to Elimination”, which has recently been endorsed by the Ministers of Health of the respective countries.

The ultimate goal of the new regional strategy is to interrupt the transmission of malaria by 2015 and eliminate the disease within affected countries of the Region. In areas and countries where malaria had been eliminated, attention is given to maintaining the malaria-free status. Particular emphasis is also placed on tackling the growing problem associated with imported malaria.

The new strategy will target malaria by:

- ultimately interrupting transmission in countries where malaria is a focal problem and there is clear evidence of political support, technical feasibility and operational applicability of malaria elimination;
- further reducing the incidence and prevalence of malaria in countries where elimination does not appear to be feasible at present;
- preventing the re-establishment of malaria transmission in countries and territories where it had been eliminated; and
- reducing and preventing deaths due to imported malaria.

Malaria elimination

Taking into account a remarkable progress in the control of autochthonous *P. falciparum* malaria, which is presently limited to the southern part of Tajikistan, top priority is given to *P. falciparum* malaria in the new regional strategy. With adequate investment and political support, the chances of interrupting transmission of *P. falciparum* malaria in Tajikistan by 2010 and preventing the re-establishment of its transmission in other central Asian countries (Kyrgyzstan, Turkmenistan, and Uzbekistan) are high.

The results achieved in Armenia and Turkmenistan, where malaria transmission continues in a few minor foci and malaria incidence/risk is extremely low/minimal, need to be further consolidated with the goal of interrupting the transmission of *P. vivax* malaria by 2010.

The specific programme objectives in this epidemiological setting should be as follows:

1. to interrupt transmission of malaria
2. to notify early on all suspected and confirmed cases
3. to detect any possible continuation of malaria transmission
4. to determine the underlying causes of residual transmission
5. to apply rapid remedial actions
6. to prevent re-introduction of malaria transmission
7. to ascertain malaria elimination.

The timeframe for malaria elimination needs to be set up separately for *P. falciparum* and *P. vivax* malaria bearing in mind that the elimination of both malaria species will be certified at the same time.

The following timetable is proposed for implementation of the regional strategy aimed at moving from malaria control to elimination:

Between 2006 and 2007:

1. Development of a revised Regional Strategy: from Malaria Control to Elimination, 2006-2015 completed and published.
2. Development of strategic plans of action for malaria elimination in pilot countries completed and endorsed:
 - Tajikistan to have prepared a national plan of action for *P. falciparum* malaria elimination and a campaign to have been launched.
 - Armenia and most probably Turkmenistan to have prepared national plans of action for *P. vivax* malaria elimination and the respective campaigns to have been launched.

Between 2008 and 2010:

1. The remaining malaria affected countries (Azerbaijan, Georgia, Kyrgyzstan, Tajikistan, Turkey, and Uzbekistan) to have revised their national malaria strategies and have developed their national plans of action to eliminate *P. vivax* malaria.

By the end of 2010:

1. Transmission of *P. vivax* malaria to have been interrupted in Armenia and most probably in Turkmenistan.
2. Transmission of *P. falciparum* malaria to have been interrupted in Tajikistan.

Between 2011 and 2014:

1. The remaining malaria-affected countries (Azerbaijan, Georgia, Kyrgyzstan, Tajikistan, Turkey, and Uzbekistan) to have launched their campaigns to eliminate *P. vivax* malaria.
2. Malaria elimination to have been certified in Armenia and Turkmenistan.

By the end of 2015:

1. Transmission of malaria to have been interrupted in Azerbaijan, Georgia, Kyrgyzstan, Tajikistan, Turkey, and Uzbekistan.

Beyond 2015:

1. Malaria elimination to have been certified in Azerbaijan, Georgia, Kyrgyzstan, Tajikistan, Turkey, and Uzbekistan.

Malaria control

In countries where elimination does not appear to be feasible at present, malaria control operations may form a transitional stage towards the future launching of an elimination programme. In the existing *P. vivax* malaria settings, where the number of active malaria foci remains large and its incidence is moderate or relatively high (Azerbaijan, Georgia, Kyrgyzstan, Tajikistan, and Turkey), malaria control is still recommended in the years to come, and the move from malaria control to elimination may be recommended when it will be feasible. Wherever malaria elimination programmes have good prospects they should be pursued with vigour towards their defined goal.

Despite visible progress in controlling malaria in all affected countries, the goal of elimination may be more distant because the rapidity in achieving the declared goal is under the influence of ongoing socio-economic changes and unstable ecological conditions in the above-listed countries.

The specific programme objectives in this epidemiological setting should be as follows:

1. to contain and prevent outbreaks of malaria;
2. to reduce further the incidence and prevalence of malaria;
3. to reduce further the number of active foci of malaria.

Prevention of the re-establishment of malaria transmission

Today in most malaria-free industrialized countries of the Region the risk of sustained re-introduction of malaria transmission is minimal: either transmission has been eliminated and never occurred again or socio-economic development is so advanced that cases of imported malaria can be identified and re-introduction of malaria can be eliminated in a timely manner. However, when importation of malaria coincides with socio-economic degradation, the disintegration of health and social services and uncontrolled cross-border migration, the re-establishment of malaria transmission could take place.

The specific programme objectives in this epidemiological setting are as follows:

1. to notify early on all suspected and confirmed cases;
2. to detect any possible re-establishment of malaria transmission;
3. to determine the underlying causes of resumed transmission;
4. to apply rapid curative and preventive measures;
5. to maintain malaria-free status in areas and countries where it has been eliminated.

Reduction and prevention of deaths caused by imported malaria

As a result of human migration and the current tidal wave of tourist travel to malaria-endemic countries, malaria continues to be imported into areas, which have been classified as “malaria free”. Travel-associated and imported malaria is becoming a growing medical and health issue in many developed countries of Europe where the disease had been successfully eliminated. This situation poses a hazard to the individuals who acquire malaria because the disease may remain undiagnosed or be incorrectly diagnosed, resulting in high case-fatality rates.

The specific programme objectives in this epidemiological setting are as follows:

1. to improve early diagnosis of all cases of imported malaria and to strengthen case notification systems;
2. to treat promptly and adequately all cases of imported malaria within the public and private health sectors and to reduce case-fatality rates of imported *P. falciparum* malaria; and
3. to improve preventive practices among travellers through effective and evidence-based pre-travel health advice.

Strategic approaches

In affected countries of the Region, where the malaria elimination programme is recommended, actions aimed at interrupting transmission should be swift and energetic. At the attack phase a two-pronged action is required aimed at: (1) disease prevention through vector control and (2) disease management. The attack operations consist of indoor residual spraying (IRS) with insecticides of houses and shelters of domestic animals, on a strict total coverage of all active foci of malaria, with a view to interrupting transmission as soon as possible all over the target area, and preventing transmission for the required number of years. The minimum duration of the phase based on IRS (excluding particular cases of previous intensive control or hypoendemic malaria) should be not less than three years. The planning of IRS operations and other vector control measures in the attack phase should be based on assessment and analysis of local malaria epidemiological situations, including epidemiological investigation and classification of malaria cases and foci. In support of these operations, mass prophylactic treatment with PQ (MPTP) may be given to all those who reside in an affected area for a rapid depletion of the reservoir of *P. vivax* hypnozoites before the beginning of the following transmission season (e.g. after outbreaks in the attack phase or in residual foci in the consolidation phase). The anti-relapse treatment of all *P. vivax* positive cases of previous years along with seasonal chemoprophylaxis to the affected population during the season of *P. vivax* malaria transmission (e.g. in foci of malaria in which IRS does not fully interrupt transmission in the attack phase) could also be of particular interest. All steps should be taken to detect malaria cases as early as possible and to treat them adequately with antimalarial drugs in accordance with national policies and guidelines for malaria treatment.

Malaria elimination is supposed to comprise four stages:

1. Preparatory phase (after the elimination plan has been signed by concerned parties) – one year;
2. Attack phase (when the preparatory phase is over. It consists of the attack and evaluation operations to determine whether malaria transmission has been interrupted or not, and to indicate when the attack phase can be terminated) – three years or less in case of previous intensive malaria control;
3. Consolidation phase (when attack measures have been discontinued. It consists in deploying all efforts to discover any possible continuation of transmission, to determine its causes and eliminate them, to prevent re-introduction of sources of infection and to ascertain if and when elimination has been achieved) – the fundamental criteria determining that malaria has been eliminated – malaria may be assumed to have been eliminated when adequate surveillance operations have not revealed any evidence of local transmission and the absence of indigenous cases, in spite of continuous importation of cases from abroad, during at least the three last consecutive years prior to the request for certification; and
4. Maintenance phase (after elimination has been achieved).

In cases where the malaria control programme is aimed at reducing the incidence of the disease to such levels where it no longer constitutes a major public health problem, the strategy should be focused on strengthening national capabilities and capacities to provide early diagnosis and adequate treatment; to plan and implement cost-effective and sustainable preventive measures; to detect early and contain or prevent epidemics; and to reassess regularly a country's malaria situation, in particular the ecological, social and economic determinants of the disease. This strategy, which duration is indefinite, does not propose a single solution but gives broad lines of

approach to achieving a common goal. The approaches are to be adapted by the countries concerned according to the structures of their health systems and existing control operations, their resources, and a realistic assessment of the control needs and risk factors.

For the areas and countries, where malaria transmission has been interrupted, particular emphasis should be placed on maintenance of the results achieved by deploying all efforts to detect any possible continuation or new occurrence of malaria transmission, notifying as soon as possible all suspected and confirmed malaria cases and applying rapid remedial actions, in order to prevent re-introduction of malaria transmission. Prevention of re-introduction of malaria is a long-term policy that requires continuous investment of funds and personnel.

In countries of the Region, particularly in the western part of Europe where imported malaria is a growing medical and health issue and where imported malaria is associated with high case-fatality rates, special attention should be given to case notification systems and to sound national policies for early diagnosis and prompt treatment of imported cases, including the management of severe and complicated *P. falciparum* malaria. It is important for all physicians advising travellers to be cautious in their advice about antimalarial drugs recommended for treatment and chemoprophylaxis. The physician investigating and treating a febrile traveller must be aware of the difficulties that are now commonplace in diagnosing and treating cases of drug-resistant malaria. The danger of delayed and inappropriate treatment should not be underestimated. Travellers need to be better informed about (1) the very real dangers of contracting malaria in endemic countries; (2) the appropriate types of prevention, including prevention of mosquito bites, chemoprophylaxis and/or stand-by emergency treatment; and (3) the early recognition of symptoms so that adequate treatment may be initiated early enough to be effective, both in saving the patient's life as well as to avoid complications.

Approaches to eliminate *P. falciparum* malaria and their application in affected countries of central Asia

Biological properties of *P. falciparum* and the three other human malaria parasites are so different that the former has been placed in a particular subgenus *Laverania*. Some argue that it would be even more correct, from the point of view of taxonomy, to consider *Laverania* a particular genus. Only historic tradition prevents us from accepting this.

The main differences between the two most widespread species related to the epidemiology of the respective diseases and influencing the decision making regarding the strategy of their control are given in Table 3.

Table 3: Main differences between *P. vivax* and *P. falciparum*

Properties	<i>P. vivax</i>	<i>P. falciparum</i>
Temperature threshold of parasite's development in mosquitoes	16°C	18°C
Presence of dormant forms (hypnozoites) in the liver	yes	no
Maturation of gametocytes	slightly exceeds 48 hours	12 days
Life span of mature gametocytes	hours	up to 6 weeks
Sequestration of schizonts in internal organs' vessels	no	yes
Sequestration of immature gametocytes	no	yes
Very high parasitaemia (5+)	no	not unusual
Fatality rate	nearing zero	considerable
Immunogenicity	higher	lower
Development of resistance to drugs	slow	speedy
Presence of parasitaemia after a single inoculation	intermittent, as a rule	continuous
Overall duration of infection		
• usual	about 1 year	less than 1 year in 80% of cases
• maximum, for planning purposes	2 years	1.5 years
• exceptional	4.5 years	3 years
Susceptibility of mosquitoes to the species	does not depend on the geographical origin of the parasite	depends on the geographical origin of the pathogen, e.g. Palaearctic mosquitoes practically never pick up Afrotropical parasites

The following features of *P. falciparum* may help malaria control:

- a relatively short duration of infection
- non-infectivity of the cases during the first 12 days
- high temperatures required for development in mosquitoes
- being finicky as concerns the vector.

On the opposite, the following features may hinder malaria control:

- insensitivity of mature gametocytes to drugs, except primaquine
- low immunogenicity
- long life span of mature gametocytes
- rapid build-up of drug resistance.

In planning malaria elimination, a step-wise, species-wise approach is justified. Priority should be given to *P. falciparum* malaria, because it is a more severe problem; it is more vulnerable (as temperate areas are concerned); elimination in the whole zoogeographical region may be irreversible (e.g. in the Palaearctic region where *P. falciparum* malaria is being transmitted only in Afghanistan and limited areas in Tajikistan).

Anti-falciparum activities would also affect the *P. vivax* malaria, and thus allow proceeding to an elimination of malaria as a whole at a later stage.

The leading anti-malaria measure in the above-mentioned countries is indoor residual spraying. Its target is a reduction of the life span of the mosquitoes. Reduction of mosquito densities, although a desirable outcome, is only a by-product of spraying. Particular attention should be paid to *An. (Cellia) superpictus*, as a species which is most susceptible to *P. falciparum*.

Case detection should be prompt. It is essential that the presence or absence of *P. falciparum* gametocytes be systematically recorded. This would allow saying how old the given case is and, consequently, whether the case detection is prompt enough. To facilitate the search for gametocytes, a «dry system» x 40 x 10 may be used. At this magnification, gametocytes are perfectly identifiable, and the amount of the blood in the microscopic field is higher, thus the sensitivity of the microscopy increases.

Parasite densities also need to be systematically recorded which gives additional information about the potential severity of the case and is useful for laboratory quality control. This may also be useful for an epidemiological assessment, e.g. to measure the parasitic load in various population groups. In field conditions, a method, which is sufficiently precise (but not requiring additional time for measurements) is assessing the mean numbers of parasites per field using a logarithmic scale from 1+ to 5+.

Mainstream of treatment of cases in foci with *P. falciparum* malaria should be the artemisinin based combination therapy (ACT) even in the presence of a *P. vivax* transmission. If blood examination cannot be done within a few hours, a presumptive treatment may be given, including a rectal application, if necessary. Cases should be hospitalized whenever possible. An intravenous treatment with quinine or artemisinin derivatives (preference should be given to artemisinin derivatives) is indicated in severe and complicated cases.

Artemisinin derivatives are active against young sequestered gametocytes. In timely treatment, the patient does not become a source of infection. However, if treatment is started late (more than six days after the beginning of symptoms) and/or if gametocytes are already present in the peripheral blood, and if the patient's condition is not severe, one dose of 45mg primaquine base may be given. This may be done without assessing the G6PD activity.

Monitoring of foci of *P. falciparum* malaria is carried out according to the general principles. However, due to a shorter duration of the infection the residual focus may be reclassified into a cleared-up focus earlier than for *P. vivax*, e.g. after one year of absence of autochthonous cases. The same focus may have a different status in relation to either species of malaria, e.g. a cleared-up focus of *P. falciparum* malaria may remain a residual active in relation to *P. vivax*, and so on.

A strategic framework for the elimination of *P. falciparum* malaria in central Asia

The rationale for the undertaking the *P. falciparum* malaria elimination campaign within central Asia is based on the following principles:

- the demonstrated possibility of *P. falciparum* malaria elimination in countries of central Asia in the past;
- the absence of autochthonous cases of *P. falciparum* malaria over four decades in central Asian countries;
- there has been a substantial decrease in the incidence of *P. falciparum* malaria over the past six years;
- the strong political commitments to achieve a greater impact on malaria situations at national level, namely to interrupt transmission of *P. falciparum* malaria and eliminate this disease by 2010; and
- the clear evidence of technical feasibility and operational applicability of *P. falciparum* malaria elimination.

Strategies for eliminating *P. falciparum* malaria and preventing the re-establishment of its transmission include the following:

1. Enhancing the capacity of national entomological services to apply indoor residual spraying (IRS) with insecticides of houses and shelters of domestic animals, on strict total coverage of all active foci of *P. falciparum* malaria, with a view to interrupting its transmission as soon as possible all over the target area, and preventing re-establishment of transmission for a required number of years. Indoor residual spraying could be supplemented by other attack measures. Particular attention should be given to assess the response of malaria transmission to the attack measures.
2. Strengthening the capacity of public health services to detect and treat all cases of malaria. Active case detection should be advocated in the elimination programmes, particularly in the attack and consolidation phase.
3. Building adequate malaria surveillance services, with the aim to notify early on all malaria cases, to detect any possible continuation of malaria transmission, to determine the underlying causes of residual transmission, to apply remedial action and to prevent re-introduction of malaria transmission

Activities to be carried out, outputs and outcomes to be expected and partners to be responsible for implementation are shown in Tables 4 and 5.

Table 4: Activities, outputs/outcomes, timeframe and responsible partners

Objective: To interrupt transmission of <i>P. falciparum</i> malaria			
Timeframe	Activities	Outputs/Outcomes	Responsible partners
Preparatory phase	To assess the present malaria situation and conduct pre-elimination surveys	<ol style="list-style-type: none"> 1. Pre-elimination survey including geographical, epidemiological and entomological reconnaissance conducted 2. Districts affected by <i>P. falciparum</i> malaria identified, and needs assessment completed in targeted districts 	Ministry of Health (specialized and general health services) Other Ministries Non-governmental bodies WHO Communities
	To prepare and present the Law on Malaria Elimination	The Law on Malaria Elimination presented to the government	
	To establish a National Malaria Elimination Service or an equivalent organization	<ol style="list-style-type: none"> 1. Organization 2. Authority 3. Responsibility 4. Policy 5. Its relationship with general health services and with other governmental departments 	
	To set up a National Malaria Elimination Coordination Committee	National Malaria Elimination Coordination Committee set up	
	To evaluate the current human resources and decide on their development	<ol style="list-style-type: none"> 1. Health personnel of different categories involved in malaria elimination at all levels identified 2. All necessary categories of specialized and general health personnel trained on various aspects of malaria and its elimination 	
	To evaluate the existing service delivery/commodity management and make it relevant to planned elimination operations	<ol style="list-style-type: none"> 1. Forecast needs and demand 2. Logistics 3. Communication 4. Infrastructure 5. Coordination 6. Quality control 7. Supervision 	
	To establish a system of public relations and health education	A system of public relations and health education in malaria elimination established	

	To work out a detailed country-level plan of action to eliminate <i>P. falciparum</i> malaria with budget	Detailed elimination plan with budget (calculation of expenses and distribution of costs), including time-table and advisory services (assignment of international staff and their terms of reference) worked out	
Attack phase	To carry out attack operations as planned	Attack measures carried out on a strict total coverage of all active foci of <i>P. falciparum</i> malaria	Ministry of Health (specialized and general health services) Other Ministries Non-governmental bodies WHO International partners Communities
	To detect and notify early on all suspected and confirmed <i>P. falciparum</i> cases	All cases of malaria detected, and case notification system in place	
	To treat promptly and adequately all <i>P. falciparum</i> cases	All cases of malaria treated properly	
	To determine whether <i>P. falciparum</i> malaria transmission has been interrupted or not	Determined whether <i>P. falciparum</i> malaria transmission has been interrupted or not	
	To indicate when the attack phase can be terminated	The time to stop attack operation indicated	
Consolidation phase	To detect any possible continuation of <i>P. falciparum</i> malaria transmission	Any possible continuation of <i>P. falciparum</i> malaria transmission detected	Ministry of Health (specialized and general health services) Other Ministries Non-governmental bodies WHO International partners Communities
	To determine the underlying causes of residual transmission of <i>P. falciparum</i> malaria	The underlying causes of residual transmission of <i>P. falciparum</i> malaria determined	
	To apply rapid remedial actions	Rapid remedial actions applied	
	To prevent re-introduction of <i>P. falciparum</i> malaria transmission	Re-introduction of <i>P. falciparum</i> malaria transmission prevented	
	To confirm the absence of indigenous <i>P. falciparum</i> cases	The absence of indigenous <i>P. falciparum</i> cases confirmed	

Table 5: Activities, outputs/outcomes, timeframe and responsible partners

Objective: To prevent the re-establishment of <i>P. falciparum</i> malaria transmission in countries and territories where it has been eliminated (as part of routine disease management and preventive activities being carried out by specialized and/or general health services)			
Timeframe	Activities	Outputs/Outcomes	Responsible parties
Maintenance phase	To detect and notify early on all suspected and confirmed <i>P. falciparum</i> cases	All <i>P. falciparum</i> cases detected, and case notification system in place	Ministry of Health (specialized and general health services) Communities
	To treat promptly and adequately all <i>P. falciparum</i> cases	All <i>P. falciparum</i> cases treated properly	
	To apply rapid remedial actions, if required	Rapid remedial actions applied, if required	

If a government decides to eliminate malaria, it should be aware of what elimination implies. A malaria elimination campaign should be considered as a major national enterprise of an exceptional character, which therefore requires an exceptional approach. Once approved, a national plan of operations to achieve malaria elimination is a formal commitment for all parties concerned and this plan must be implemented in all its details. The main spheres in which government negligence or reluctance often cause failure are those of budget, personnel, administration and co-operation of the various governmental departments. The government's approval of the plan and of its budget should include the possibility of increased financial needs due to difficulties, of any nature, arising during the implementation of the programme. In the late stage of an elimination programme, when the disease has become extremely rare, the government generally fail to appreciate the need for a much larger provision of funds. The number and quality of personnel should be adequate for the programme to be successful. WHO urged all governments concerned to ensure that their central and peripheral malaria elimination services be provided with adequate administrative machinery to meet the stringent demands of such a time-limited programme. A malaria elimination programme, though primarily a responsibility of the ministry of health, is a programme of the government as a whole. With the purpose of securing collaboration of the various governmental departments, a co-ordinating council or board at the highest level is absolutely necessary, and it is believed that the Chief of the State's patronage and assistance to the programme is highly important. Once an elimination programme for both malaria species in our regional context (*P. falciparum* and *P. vivax*) has been successfully implemented, the government would like to officially proclaim the elimination of malaria on the whole territory of the country. Any government can decide that malaria has been eliminated from its territory; but to give international recognition to the declaration it is expected that WHO will certify it by listing the country in an official register.

WHO provides strategic guidance and technical assistance in the planning, implementation, monitoring and evaluation of elimination programmes. International organizations and agencies are particularly interested in good administration, both for the resources of the enterprise they have been assisting, i.e. the achievements of elimination programmes, and for ensuring that the funds contributed are well spent. In order to certify that malaria has been eliminated the

government would request WHO to undertake an inspection and review the accomplishments of the programme through a country visit by a special certification team acting on behalf of WHO. The team subsequently submits its report with recommendations to the Regional Director, and finally to the Director General of WHO. Registration of certification will be published in the *Weekly Epidemiological Record* as well as in an official register of Member States where malaria elimination has been achieved.

The success of the malaria elimination programme will depend not only on the coverage and quality of the various activities implemented, but also to a great extent on the involvement of the community and their partnership with the health sector. Experience has shown that IRS campaigns cannot be forced upon the public. Local communities need to be shown that they will benefit from protecting themselves from malaria and other vectors, including household insects. Health education and community participation can greatly facilitate the work, reduce the cost and ensure the success. The involvement of local people can be fostered by community awareness sessions to explain the procedures and benefits of the IRS campaigns in order to avoid refusal problems and uncooperative attitudes of households when preparing their houses for spraying.

Research to meet current and future needs

A review of malaria vectors and their biology in countries of central Asia

Eight *Anopheles* species are listed in countries of central Asia: *An. superpictus*, *An. pulcherimus*, *An. artemievi*, *An. hyrcanus*, *An. maculipennis*, *An. martinius*, *An. messeae* and *An. multicolor*. The principal malaria vectors (4) include *An. pulcherimus*, *An. superpictus*, *An. maculipennis* and *An. messeae*, and the secondary vectors (2) are *An. hyrcanus* and *An. martinius*. For *An. artemievi* and *An. multicolor* the role as malaria vectors has not yet been confirmed, and need to be investigated further. Molecular and cytogenetic data from central Asia suggested that a new species of *An. artemievi* belongs to the *An. maculipennis* species complex. *An. artemievi*, which was found in 2004 in the southern part of Kyrgyzstan, where malaria epidemic occurred during 2002–2003. During the next years this species was revealed in some other parts of Kyrgyzstan, in the southern part of Kazakhstan, in the eastern part of Uzbekistan and the northern part of Tajikistan, where malaria is well established.

In the WHO European Region vector biology and control research is of particular interest, which has been neglected, but is presently being reconsidered in order to make vector control more effective. The following studies are presently conducted: species identification and distribution, species complexes and the role of siblings' species in malaria transmission. Further research on species distribution and vector incrimination will contribute to a better understanding of malaria vector populations and their epidemiological role in countries of central Asia. The rational use of insecticides largely depends on a broad knowledge of the susceptibility and irritability levels of malaria vectors to currently used insecticides. The irritability to insecticides may reduce the effectiveness of residual application of the insecticides. An investigation of irritability level of malaria vectors and an assessment insecticide resistance should be carried out before planning any indoor residual programme.

PCR-diagnostics of malaria in central Asia

Polymerase chain reaction (PCR) assays are the most sensitive and specific methods to detect malaria parasites and have acknowledged value in research settings. The advantages of PCR-diagnostics consist of: technological adaptability, high speed of the analysis and its high sensitivity (a diagnostic limit - from 1 up to 10 parasites in 1 ml of blood). Blood samples for this study were collected from malaria patients in the southern part of Kyrgyzstan in July-October 2006. Samples of blood have been received from patients with a clinical picture of malaria, and also from those who had fever in the recent past. Before receiving the sample each patient or his/her trustee has been informed that blood will be used for research investigations.

The gene of dihydrofolate reductase in *P. vivax* has been studied for an estimation of the parasite resistance to antimalarial drugs. Dihydrofolate reductase is one of the key enzymes of a cellular metabolism. The inhibition of activity of this enzyme reduces the maintenance in a cell tetrahydrofolate which is one of the main co-factors of synthesis DNA, amino acids and proteins. DNA of malaria patients from central Asia has been studied for the analysis of structure of a gene dihydrofolate reductase. As a result of the sequencing and the alignment of the received sequences with sequences from the GeneBank, it has been shown that all patients were infected by wild type allele of *P. vivax*, which was sensitive to the antimalarial drugs used. In order to study dynamics of action of antimalarial drugs, it is planned to conduct a quantitative estimation of parasites in blood of patients before treatment, and also on the second, on the third and on the seventeenth day of treatment. Findings (by a method of routine PCR) have shown that up to the seventeenth day of treatment parasites in the blood of patients did not show. The process of parasite elimination will also be estimated by method of real time PCR. In the long term the analysis of *Plasmodium* variability will be conducted using different genetic markers. The research was financed by The WHO Regional Office for Europe, the GFATM malaria projects in Kyrgyzstan and Tajikistan and the Russian Fund of Basic Researches (RFBR).

GIS-based mapping of malaria in central Asia

The Geographic Information System (GIS) considers social and economical objects, with physical factors which are included in the data files and are reflected at the computer. Today, many public health administrators recognize that these technologies can help them better access information quickly and efficiently and better assess and analyse the spatial relationships of factors and constraints in the implementation of public health programmes.

Vast experience has confirmed that successful anti-malaria programmes depend on accurate identification and geographical reconnaissance of risk areas in order to target measures against malaria. Modern mapping approaches, such as computerized GIS, are economical, efficient, supportive of other health systems, and rapidly becoming user-friendly. They exceed by far the capabilities of manual approaches in terms of amount of data that can be included and of easy updating, correlating, and manipulating the data. Mapping malaria-affected locations and risk areas based on eco-geographic and demographic data helps health authorities understand the human and environmental factors that determine transmission patterns. Such an understanding is critical for effective allocation of resources to deal with malaria control.

However, although public health administrators recognize the benefits of mapping technologies, several obstacles still remain that constrain their full operational implementation. These include:

- Commercial GIS software systems can be complex and users require significant training and re-training.
- Public health databases are often in incoherent formats with lack of standardized geo-referencing. This makes their integration into a GIS time-consuming and difficult.
- Public health users typically make good use of perhaps only 10 to 20 per cent of the functions of large GIS packages.
- Public health users often have difficulty in accessing digital data such as boundary maps, elevation maps, and information on the location of population settlements etc. To address some of the limitations of GIS encountered by users in public health, WHO has developed a simple user-friendly application called HealthMapper, customized specifically for public health purposes.

Three GIS projects on malaria have been conducted by WHO in recent years in central Asia: (1) creation of graduation colour maps for distribution of malaria cases and morbidity rates in space and time using Global Positioning System (GPS) in the south oblast of Kyrgyzstan, 2004; (2) the same project in selected districts in Tajikistan; (3) further implementation of GIS for entomological activities and malaria surveillance in Kyrgyzstan, supported by the Global Fund, 2006. The strong collaboration of different international partners for GIS should be promoted at inter- and country levels.

GIS provides an excellent means of analysing epidemiological and programmatic data, revealing trends, dependencies and interrelationships that are difficult to discover in tabular format. Moreover, experience shows that mapping of events not only facilitates epidemiological analysis but is also a very effective tool for advocacy through the media and for generating action by the decision makers and the population at large.

Successful scale-up of anti-malaria programmes

Success story: Armenia

In the middle of the 1990s a downgrading of malaria preventive services and a weakening of the malaria surveillance system resulted in a steady increase in the number of malaria cases, reaching 1156 by 1998. Over 98% of these cases were detected in the Masis district of the Ararat valley, an area bordering Turkey. In recent years, owing to epidemic control interventions, the number of autochthonous malaria cases has continued to decrease, dropping to three in 2005. Over the course of the last years, Armenia has demonstrated strong political commitment to curb an epidemic and move further from malaria control to elimination. A wide range of malaria control interventions have been supported by the Ministry of Health, other governmental entities, WHO, UNICEF, the International Federation of Red Cross and Red Crescent Societies, and the World Food Programme. In 2005–2006, Armenia redefined and adjusted the present strategy and action plan on malaria, bearing in mind the results achieved to date, the actual extent of the problem and potential threats in future. The goal of the new strategy is to interrupt transmission of *P. vivax* malaria by 2010 and to eliminate malaria in the country. A multi-sectoral approach, both public and private, is being promoted actively at all levels with the aim to eliminate malaria.

Clearly, the success of the malaria programme in Armenia was the result of a confluence of a number of factors. A sound targeted technical approach, skilled human resources and good infrastructure at national and sub-national levels, strong technical and programmatic support from WHO and its partners and sufficient financial support were essential to accomplish the goals. WHO played an important role in the success, and its consistent and proactive technical and financial support was a crucial contribution to this success. Without the national leadership and ownership, it is doubtful that all these success factors would have been in place. Government and community leaders from national to local levels considered malaria as a priority problem and dedicated their resources and manpower to address it. Many of the lessons learned from our programme could be adapted by other countries. Countries interested in achieving such successes must strive to address most or all of the key factors.

Conclusions

The meeting organized by the WHO Regional Office for Europe in collaboration with the Government of Tajikistan, the Agency for Technical Cooperation and Development (ACTED) and the WHO Regional Office for the Eastern Mediterranean, took place (1) seven years following the development of a regional strategy to roll back malaria and its successful implementation in malaria-affected countries of the WHO European Region, and (2) one year following the endorsement of the Tashkent Declaration “The Move from Malaria Control to Elimination” by all malaria-affected countries of the WHO European Region. The Kabul Declaration “Health for All. Health by All: Communicable Diseases Recognize No Borders”, which emphasized a unique opportunity to fight malaria and other communicable diseases together was also signed by a number of countries from the two above WHO Regions in 2006. The ultimate goal of the new regional strategy on malaria, which has been published recently, is to interrupt the transmission of malaria by 2015 and eliminate the disease within affected countries of the WHO European Region. Top priority is given to *P. falciparum* malaria. With adequate investment and political support, the chances of interrupting transmission of *P. falciparum* malaria in Tajikistan by 2010 and preventing the re-establishment of its transmission in other central Asian countries (Kyrgyzstan, Uzbekistan and Turkmenistan) are high.

The results achieved by countries, WHO and partners were greatly appreciated, and countries of central Asia reaffirmed their commitment to reach the goal and objectives of the new regional strategy “The Move from Malaria Control to Elimination” in the WHO European region. Taking into account the substantial progress made with malaria control in affected countries of central Asia, where the incidence of *P. falciparum* malaria has been brought down to such levels that interruption of its transmission may become a feasible objective in the near future, participants welcomed the sub-regional initiative to eliminate *P. falciparum* malaria. The rationale for undertaking this elimination campaign within central Asia is based on the following principles:

- the demonstrated possibility of *P. falciparum* malaria elimination in countries of central Asia in the past;
- the absence of autochthonous cases of *P. falciparum* malaria over four decades in countries of central Asia;
- the visible impact of control interventions on *P. falciparum* malaria at present;
- the strong political commitment to achieve a greater impact on malaria situations at national level, namely to interrupt transmission of *P. falciparum* malaria and eliminate this disease by 2010; and

- the clear evidence of technical feasibility and operational applicability of *P. falciparum* malaria elimination.

The technical guidance and assistance provided by WHO was acknowledged with satisfaction and participants emphasized the need to ensure that malaria-affected countries are fully supported in their endeavours to go forward with their national malaria elimination campaigns. In the context of malaria elimination, particular emphasis should be given to border areas of central Asian countries and Afghanistan, where a risk of spread of malaria across shared borders exists. In order to achieve a greater impact on the malaria situation and proceed with malaria elimination in countries of the WHO European and Eastern Mediterranean Regions, participants underlined the need to create greater awareness of the successes of anti-malaria programmes and to intensify partnership actions, and urged partners and donors to increase the level of financial assistance as well.

ВЫВОДЫ

Данное совещание, которое было организовано Европейским Региональным Бюро ВОЗ в сотрудничестве с Правительством Таджикистана, Агентством по Техническому Сотрудничеству и Развитию (АКТЕД) и Восточно-Средиземноморском Региональном Бюро ВОЗ, проводится (1) семь лет спустя после разработки и успешного осуществления региональной стратегии «Обратим Вспять Малярию» в пораженных малярией странах Европейского региона ВОЗ, и (2) год спустя после принятия Ташкентской Декларации «Вперед от Борьбы к Элиминации малярии». Кабульская Декларация «Инфекционные Болезни не Распознают Границ», отметившая уникальную возможность для проведения совместных действий, направленных на борьбу с малярией и другими инфекционными болезнями была также принята рядом стран Европейского и Восточно-Средиземноморского регионов ВОЗ в 2006 году. Целью новой региональной стратегии, которая недавно была опубликована, является перерыв передачи малярии к 2015 и её элиминация в пораженных странах Европейского Региона. Приоритет в новой стратегии отдается тропической малярии. При наличии адекватных инвестиций и политической поддержки, шанс прервать передачу тропической малярии в Таджикистане к 2010 году и предупредить восстановление её передачи на прилегающих территориях других Центральнo-Азиатских странах (Кыргызстан, Узбекистан и Туркменистан) является довольно высоким.

Участники совещания с удовлетворением отметили те серьезные усилия, прикладываемые странами, ВОЗ и партнерами по консолидации достигнутых результатов и, подтвердили свои обязательства, взятые в отношении поставленных целей и задач новой стратегии, направленной, в конечном счете, на элиминацию малярии в Европейском регионе ВОЗ. Принимая во внимание значительный прогресс, достигнутый в деле борьбы с малярией в странах Центральной Азии, где заболеваемость тропической малярией была снижена до такого уровня, что перерыв ее передачи может стать выполнимой задачей ближайшем будущем, участники приветствовали инициативу элиминации тропической малярии и странах Центральной Азии. Логическое обоснование проведения программы по ее элиминации в Центральной Азии базируется на следующих принципах:

- Возможность перерыва передачи тропической малярии и её элиминация в этих странах, доказанная в прошлом,
- Отсутствие случаев аутохтонной тропической малярии на протяжении четырех десятилетий в странах Центральной Азии,
- Очевидные успехи в снижении заболеваемости тропической малярии в настоящее время,
- Твердая политическая поддержка, направленная на достижение более весомых результатов в деле борьбы с малярией на национальном уровне, в особенности желание прервать передачу тропической малярии и элиминировать её к 2010 году,
- Очевидная техническая и практическая осуществимость элиминации тропической малярии.

Стратегическое руководство и техническая поддержка со стороны ВОЗ было оценено с благодарностью, и участники подчеркнули необходимость гарантировать, что страны пораженные малярией будут полностью поддержаны в дальнейшем в их усилиях по проведению национальных кампаний по элиминации малярии. В контексте элиминации малярии, особое внимание должно быть уделено прилегающим пограничным территориям стран Центральной Азии и Афганистана, где существует риск распространения малярии.

Для достижения больших результатов в деле борьбы и элиминации малярии, участники подчеркнули необходимость улучшить оповещение международного сообщества об успехах, достигнутых странами в деле борьбы с малярией, укрепить партнерское сотрудничество, а также продолжить поиск дополнительных финансовых ресурсов для проведения программ по элиминации малярии.

Recommendations

The following recommendations are based upon those formulated by the working groups and subsequently adapted and approved by participants in plenary session:

For Member States:

- To remain committed to the Tashkent Declaration “The Move from Malaria Control to Elimination” endorsed by all malaria-affected countries of the WHO European Region, and to the Kabul Declaration “Health for All. Health by All: Communicable Diseases Recognize No Borders” endorsed by a number of countries of the European and Eastern Mediterranean Regions;
- In collaboration with WHO, to make all possible efforts required to interrupt the transmission of *P. falciparum* malaria by 2010 in Tajikistan and to prevent the re-establishment of its transmission in other countries of central Asia:
 - to develop/revise and implement action plans aimed at elimination of *P. falciparum*;
 - to streamline mechanisms for a more coordinated action directed at malaria elimination between all parties concerned (governmental bodies, international agencies, non-governmental organizations and the private sector) at inter- and country levels;
 - to scale-up anti-malaria programmes paying particular attention to strengthening health systems and human resources capacities at national and district levels, improving national epidemiological services and research capabilities and promoting social mobilization;
- In collaboration with WHO, to promote cross-border collaboration for solving malaria-related issues for countries of central Asia and Afghanistan:
 - to provide all possible support to Afghanistan, particularly in the northern part bordering with countries of central Asia to intensify malaria control interventions;
 - to work out an intervention cross-border strategy to solve common malaria-related issues, with particular emphasis on treatment policy, vector control, epidemic warning and response and information and research exchange;
 - to consider the opportunity to develop and implement joint action plans in order to coordinate and synchronize malaria control and elimination in border areas;
 - to appoint malaria focal points for each country in order to coordinate cross-border issues related to malaria control and elimination;
- To support the initiative to establish a World Malaria Day.

For WHO and partners:

- To continue supporting countries in their efforts towards implementing the new regional strategy with the goal of eliminating *P. falciparum* malaria in countries of central Asia by 2010;
- To assist in drawing up and submitting by April-May 2007 a joint project proposal to strengthen cross-border coordination and cooperation in the field of malaria control and elimination between Tajikistan and Afghanistan;

- To assist in the organization of a regional meeting (with participation of neighbouring countries of the WHO Eastern Mediterranean Region) in order to report on achievements and to share experiences on malaria control and elimination, to be held in 2007;
- To assist in establishing inter-regional secretariat for coordination of cross-border activities for malaria elimination and control in countries of central Asia and Afghanistan;
- To assist in building adequate malaria epidemiological services and information systems, with an operational research component, capable of planning, monitoring and evaluating anti-malaria activities at national level;
- To assist in development of training/learning programme/materials and organization of international training course on malaria elimination;
- To support for the establishment of a roster of experts on malaria elimination;
- To assist in the creation of greater awareness of the success of anti-malaria programmes and the mobilization of additional financial resources to support countries' endeavours to control and eliminate malaria;

РЕКОМЕНДАЦИИ

Нижеприведенные рекомендации исходят из обсуждений в рабочих группах и последующего одобрения участниками во время пленарной сессии:

Для стран-участников:

- Оставить за собой прежние обязательства, изложенные в Ташкентской Декларации «Вперед от Борьбы к Элиминации Малярии», одобренной всеми пораженными странами Европейского региона ВОЗ; а также в Кабульской Декларации «Инфекционные Болезни не Распознают Границ», принятой рядом стран Европейского и Восточно-Средиземноморского регионов ВОЗ;
- В сотрудничестве с ВОЗ, предпринять все необходимые усилия, которые потребуются для перерыва передачи тропической малярии к 2010 году в Таджикистане и предупредить восстановление передачи тропической малярии в остальных странах Центральной Азии:
 - разработать/скорректировать и реализовать планы мероприятий, направленные на элиминацию тропической малярии;
 - оптимизировать механизмы для улучшения координации противомаларийной деятельности и более эффективного партнерского сотрудничества (среди государственных структур, международных агентств, негосударственных организаций и частного сектора), направленных на элиминацию малярии на субрегиональном и странном уровнях;
 - усилить национальные противомаларийные программы, уделяя особое внимание укреплению систем здравоохранения, подготовке кадров на всех уровнях, улучшению эпидемиологических служб и укреплению научного потенциала, а также мобилизации населения;
- В сотрудничестве с ВОЗ, улучшить взаимодействие между странами Центральной Азии и Афганистана при проведении противомаларийных мероприятий на пограничных территориях:
 - обеспечить полную поддержку Афганистану, особенно в его северной части, граничащей со странами Центральной Азии в деле усиления противомаларийной деятельности;
 - разработать совместную стратегию для решения общих проблем, связанных с малярией, уделяя особое внимание вопросам в области политики лечения, борьбы с переносчиками, своевременного оповещения об эпидемиях и борьбы с ними, и обмена практической и научной информацией;
 - рассмотреть возможность составления и реализации совместных оперативных планов с целью координации и синхронизации проводимых мероприятий по борьбе и элиминации малярии в пограничных районах;
 - назначить ответственных в каждой стране, отвечающих за вопросы координации вопросов, связанных с пограничным сотрудничеством в области борьбы и элиминации малярии;
- Поддержать инициативу, направленную на празднование Всемирного Дня Малярии.

Для ВОЗ и партнеров:

- Продолжить оказание помощи странам в их усилиях по претворению в жизнь новой региональной стратегии, направленной на элиминацию тропической малярии в странах Центральной Азии к 2010 году;
- Оказать помощь в подготовке и предоставлении для рассмотрения к апрелю-маю 2007 года совместного проекта по малярии, направленного на усиление координации и взаимодействия в проведении противомаларийных мероприятий на пограничных территориях между Таджикистаном и Афганистаном;
- Оказать содействие в организации регионального совещания в 2007 году (с участием представителей соседних стран Восточно-Средиземноморского региона) для отчета о достигнутых результатах и обмена опытом в области борьбы и элиминации малярии;
- Оказать помощь в создании межрегионального секретариата для координации вопросов, связанных с противомаларийной деятельностью в пограничных странах Центральной Азии и Афганистана;
- Оказать содействие в создании адекватных национальных эпидемиологических служб и информационных систем, с научно-практическим компонентом, способных решать задачи, связанные с планированием, мониторингом и оценкой проводимых противомаларийных мероприятий;
- Оказать помощь в разработке обучающих программ и учебных материалов, а также содействовать в организации международного обучающего курса по элиминации малярии;
- Поддерживать создание группы экспертов по вопросам элиминации малярии;
- Оказать помощь в улучшении оповещения международного сообщества о положительных результатах, достигнутых странами на пути к ликвидации малярии, и в мобилизации дополнительных ресурсов для борьбы и элиминации малярии.

Annex 1

PROGRAMME

Tuesday, 21 November	
08:30–09:00	Registration
09:00–09:15	Welcoming address by <i>Minister of Health, Tajikistan</i>
09:15–09:30	Welcoming address by <i>Head, WHO Country Office, Tajikistan</i> <i>UNDP Resident Representative and UN Resident Coordinator, Tajikistan</i>
09:30–09:45	Meeting objectives and arrangements Introduction of participants Election of Chairperson and Rapporteur
09:45–10:15	<i>Coffee break</i>
10:15–10:35	Malaria situation in the WHO European Region with emphasis on progress and challenges to eliminate <i>P. falciparum</i> malaria in central Asia (<i>Dr M Ejov</i>)
10:35–10:55	Malaria situation in the WHO Eastern Mediterranean Region with emphasis on progress and challenges to eliminate malaria in the WHO Eastern Mediterranean Region (<i>Dr G Zamani</i>)
10:55–11:15	GMP malaria elimination guidelines and WHO certification process of malaria elimination (<i>Dr A Rietveld</i>)
11:15–11:30	Plenary discussion
11:30–12:15	Progress with malaria control giving emphasis on possibility of elimination of <i>P. falciparum</i> malaria by 2010 (<i>Ministry of Health/GFATM, Tajikistan</i>)
12:15–12:30	Plenary discussion
12:30–13:30	<i>Lunch break</i>
13:30–15:30	Progress with malaria control paying particular attention to the prevention of re-introduction of <i>P. falciparum</i> malaria (<i>Kyrgyzstan, Uzbekistan, Turkmenistan, Kazakhstan</i>)
15:30–15:45	Plenary discussion
15:45–16:15	<i>Coffee break</i>
16:15–16:45	Progress with malaria control paying particular attention to border areas between Afghanistan and countries of central Asia (<i>Afghanistan</i>)
16:45–17:00	Plenary discussion
17:00–17:15	Wrap-up session – closure of first day (<i>Rapporteur</i>)

Wednesday, 22 November	
09:00–09:20	New regional strategy “The Move from Malaria Control to Elimination”, 2006–2015” (<i>Dr M Ejov</i>)
09:20–09:40	Approaches to eliminate <i>P. falciparum</i> malaria and their application to affected countries of central Asia (<i>Dr A Beljaev</i>)
09:40–10:00	Plenary discussion
10:00–10:20	A review of malaria vectors and their biology in countries of central Asia (<i>Dr A Zvantsov</i>)
10:20–10:40	PCR detection of malaria parasites infecting human subjects in central Asia (<i>Dr M Gordeev</i>)
10:40–11:00	Plenary discussion
11:00–11:30	<i>Coffee break</i>
11:30–11:50	ACTED and its involvement in malaria control in Tajikistan and Afghanistan (<i>Representative of ACTED</i>)
11:50–12:10	GIS-based mapping on malaria in central Asia (<i>Dr G Kurtsikashvili</i>)
12:10–12:30	Success story: Armenia (<i>Dr V Davidyants</i>)
12:30–12:50	Plenary discussion
12:50–14:00	<i>Lunch break</i>
14:00–14:15	Introduction of group work (<i>Dr M. Ejov</i>)
14:15–17:45	Group work: Working group 1: Consenting to a strategic framework to eliminate <i>P. falciparum</i> malaria in central Asia (<i>Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, Kazakhstan, WHO representatives, experts, partners</i>) Working group 2: Malaria control/elimination and cross-border cooperation within central Asian countries and Afghanistan (<i>Afghanistan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, WHO representatives, experts, partners</i>)
17:45–18:00	Wrap-up session – closure of second day (<i>Rapporteur</i>)

Thursday, 23 November	
09:00–11:00	Group work continued
11:00–11:30	<i>Coffee break</i>
11:30–12:00	Working group presentations - conclusions/recommendations
12:00–12:45	Plenary discussion and adoption of recommendations
12:45–13:00	Closing statements and remarks
13:00–13:30	Press conference
13:30–15:00	<i>Lunch break</i>

Annex 2

LIST OF PARTICIPANTS

Dr Botakoz Abdirova
Chief Expert
Epidemiological Department
State San-Epid Surveillance
Ministry of Health
Kazakhstan

Tursunali Adashev
Head, Malaria Prevention Department
Khatlon Office
Tajikistan

Dr Samardin Aliev
Chief Doctor
Sanitary and Epidemiological Services
Ministry of Health of Tajikistan
Tajikistan

Dr Abdul Wasi Asha
National Programme Manager
Malaria and Leishmaniasis Control
Ministry of Public Health
Afghanistan

Dr Ziyovuddin Avgonov
Deputy Minister of Health
Ministry of Health of Tajikistan
Tajikistan

Mr Muratboki Beknazarov
GFATM Grant Implementation Unit (GIU)
United Nations Development Programme CO Tajikistan
Tajikistan

Dr Andrei Beljaev
Tropical and Parasitic Diseases Department
Central Institute for Postgraduate
Medical Training
Russian Federation

Dr Vladimir Davidyants
Head, National Centre for Health Information
Analysis
Ministry of Health
Armenia

Dr Mikhail I. Gordeev
Vavilov Institute of General Genetics
Russian Academy of Sciences
Russian Federation

Namik Heydarov
Country manager
MERLIN
Tajikistan

Dr Sharif Kamilov
Head, Malaria Prevention Department
Sugd Office
Tajikistan

Dr Saifiddin Karimov
Director
Republican Centre for Tropical Diseases
Malaria Control Programme
Ministry of Health
Tajikistan

Dr George Kurtsikashvili
Medical Doctor
National Centre for Disease Control and
Medical Statistics
Georgia

Dr Rano Mansurova
Health Coordinator
ACTED Central Asia
Tajikistan

Dr Bakhtiyor I. Niyazmatov
Deputy Minister of Health
State Chief Sanitary Doctor
Ministry of Health
Uzbekistan

Dr Kalys Nogoibaeva
Assistant, Infections Diseases Chair
Kyrgyz State Medical Academy
Kyrgyzstan

Mr William Paton
UNDP Res. Rep & UN Res. Coordinator
UNDP Office
Tajikistan

Mr Aman Rahmanov
Deputy Head
Mary velayat San-Epid Service
Ministry of Health and Medical Industry
Turkmenistan

Dr Shavkat A. Razakov
Director
Isaev Scientific Research Institute of
Medical Parasitology
Uzbekistan

Dr Kasym Roziyev
Head, Parasitology Department
Scientific Production Centre
San-Epid Service
Ministry of Health and Medical Industry
Turkmenistan

Dr Nigina Sadykova
Deputy Head, Malaria Prevention Department
Sugd Office
Tajikistan

Vyacheslav L. Svetlichniy
Chargés d'Affaires
Embassy of the Russian Federation
Tajikistan

Dr Nurbolot Usenbaev
Manager, National Malaria Control Programme
GFATM Manager, Malaria Control Project
Ministry of Health
Kyrgyzstan

Ghulam Rasoul Yusufzai
Counsellor
Deputy Head of Afghan Mission
Tajikistan

Dr Andrey B. Zvantsov
Malaria Expert
Russian Federation

World Health Organization

Dr Mikhail Ejov
Medical Officer
Regional Malaria Programme
WHO Regional Office for Europe
Denmark

WHO/Europe Country Offices

Dr. Santino Severoni
WHO Representative/Head of Country Office
Tajikistan

Dr Nazira Poolatovna Artykova
Liaison Officer
WHO Country Office
Tajikistan

Dr Nargisa Saparova
Malaria Project Officer
WHO Country Office
Tajikistan

Dr Elkhan Gasimov
Technical Officer/Malaria
WHO Country Office
Azerbaijan

Other WHO Regional Offices

Dr Ghasem Zamani,
Medical Officer, Roll Back Malaria
World Health Organization
Eastern Mediterranean Region
Egypt

Dr Kamal Salih Mustafa
Technical Officer, Roll Back Malaria
World Health Organization
Eastern Mediterranean Region
Afghanistan Office
Afghanistan

WHO headquarters

Dr Aafje Rietveld
Medical Officer, Global Malaria Programme
World Health Organization
Switzerland