Islamic Republic of Afghanistan
Ministry of Public Health

General Directorate of Preventive Medicine and Primary Health Care,
National Malaria and Leishmaniasis Control Programme

Draft National Malaria Strategic Plan

2008 – 2013

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Summary

Malaria is a major public health problem in many Provinces of Afghanistan. In recognition of the intolerable burden this places on the health and economic development of individuals, families and communities living in endemic areas, the Government of Afghanistan is committed to the control of the disease. The National Malaria Strategic Plan (NMSP) outlines a strategy for translating commitment into concerted action. Implementation of the NMSP and adoption of tools such as Artemesinin-based Combination Therapy (ACT) and Long-Lasting Insecticidal Nets (LLIN) - which are proven to be effective in Afghanistan[1,2,3] - will reduce the burden on health and aid the economic development of of people affected by malaria.

Sustained government commitment, continued support from the international community, scaled-up evidence-based and effective interventions, a strengthened health system and efforts within the private sector will pave the way to roll back malaria.

Currently Afghanistan enjoys a strong partnership amongst Government, UN Agencies, Donors and NGOs. This is conducive to creating an enabling environment for successful malaria control.

- The NMSP is a tool to enable all partners to tailor delivery of their products and services to the benefit of the people of Afganistan.
- The Government will provide the leadership for Roll Back Malaria (RBM) Partners to enable them to meet their needs and maximize their institution's comparative advantages.
- The Government will leverage sufficient financial resources from international Donors, including the GFATM, to implement the Plan which places emphasis on achievement of measurable results.
- Ministry of Public Health is commited to equitable free distribution of LLIN in high riskareas.

The Basic Package of Health Services (BPHS) of the MoPH and its main Donors (World Bank, USAID, EU and ADB) endeavours to address priority health problems and to provide equitable health services to all Afghans including those living in remote and underserved areas. To effectively address malaria control in Afghanistan the BPHS should be revised to incorporate essential NMLCP needs, as follows:

- ACT and diagnostic services should be made available at the BHC level, in addition to CHC level, in priority malaria endemic areas.
- Patients with severe malaria or at risk of developing severe malaria should be managed through a well-defined referral system within the existing BPHS structures.

The rationale for malaria control as described in this document is evidence-based. It builds on a track record of operational research and extensive experience in malaria control by various agencies working in Afghanistan. The NMSP highlights new tools and interventions

[1] Rowland et al. (1996). Pyrethroid impregnated bed nets for personal protection from malaria in Afghan refugees. *Transactions of the Royal Society of Tropical Medicine & Hygiene*. 90, 357-361.
[2] Rowland et al. (2002). Prevention of malaria in Afghanistan through social marketing of insecticide-treated nets: Evaluation of coverage and effectiveness by cross-sectional surveys and passive surveillance. *Tropical Medicine and International Health*. 7; 813-822.
[3] Graham et al. (In Press). Examining the options for malaria treatment in Afghan refugee camps: efficacy and potential for transmission reduction of chloroquine or sulphadoxine-pyrimethamine alone and in combination with primaquine or artesunate.

to be explored, such as the application of a malaria risk map to improve the stratification of malaria across different districts, to have a better estimate of the malaria burden and to improve the targeting of control interventions. Entomological surveillance and operational research (including insecticide resistance monitoring) to identify the most suitable and effective interventions for vector control are seen as vital. In addition to scaling up the use of insecticide treated nets, the MoPH plans to adopt the WHO strategy of Integrated Vector Management (IVM) which is a managerial platform established to strengthen inter-sectoral coordination between different health sectors and partners (MoPH, MoA, MoE, Municipalities, NGOs, etc) and to apply evidence-based interventions (LLINs).

The current health information system is mainly designed to serve the BPHS. It provides only some of the information needed for effective malaria management; incidence of malaria in two age groups (<5 and >5), malria deaths and confirmed cases of malaria. Other important malaria information needed for proper planning and monitoring & evaluation of malaria prevention and control are not included.

- The NMLCP should be augmented to generate a minimum set of information needed for planning and mangement of the National Malaria and Leishmaniasis Control Programme (NMLCP) in collaboration with the HMIS, M&E, DEWS or by adoption of a disease-specific approach as appropriate

The MoPH in collaboration with the WHO and other UN Agencies, Donors and NGOs has provided support for training and capacity-building of Malaria Control Programme staff and will continue to do so.

The NMLCP has traditionally run as a vertical programme operating outside the general health services, but should as far as possible be integrated into the BPHS. This will improve efficiency and will ensure that malaria control needs are not neglected.

- Provincial Malaria Control Programme should be given an expanded function as quality assurance centres and provide support services to BPHS implmenters, monitoring and supervision, refresher training across a range of infectious diseases including TB, leishmaniasis and as well as malaria.

The rolling back of malaria in Afghanistan will have a visible impact on the malaria situation of bordering countries. This plan calls upon the Government of Afghanistan to spearhead a process towards establishment of malaria cross-border coordination .

Acknowledgements

The Ministry of Public Health would like to acknowledge all members of staff from the National Malaria and Leishmaniasis Control Programme for organizing the first National Malaria Strategic Planning Workshop, which provided a forum for deliberations of this plan. We express our sincere appreciation to all MoPH participants and BPHS implementing Partners who came from the Provinces and National level to gather updates on malaria control, and share their programmatic experiences at all levels.

In addition to thanking all Donor representatives who were present at the workshop, we would like to acknowledge the WHO, UNICEF and the Global Fund Management Unit for their financial support, which made it possible to bring all stakeholders of malaria control together. The malaria experts from WHO RBM and EMRO, LSHTM, and other partners deserve special mention for their invaluable technical guidance and ensuring that Afghanistan's National Malaria Strategic Plan is comprehensive, effective and will have a significant impact in terms of rolling back malaria. We also thank GFMU, MSH and Johns Hopkins University for constructive feedback on this plan. Finally, it is important to note that this National Malaria Strategic Plan should be regarded as a working document. All comments, feedback and additional case materials will be considered in future reviews in order to make it more relevant.

Acronyms

ADB	Asian Development Bank
API	Annnual Parasite Index
ARI	Acute Respiratory Infection
AS	Artesunate
BHC	Basic Health Center
BPHS	Basic Package of Health Services
CHC	Comprehensive Health Centre
CHW	Community Health Worker
CIS	Commonwealth of Independent States
COMBI	Communication for Behavioural Impact
DOTS	Directly Observed Treatment Short course
EMRO	Eastern Mediterranian Regional Office
EPHS	Essential Package of Hospital Services
EPR	Epidmic Preparedness and Response
EU	European Union
GFATM	Global Fund to fight AIDS, Tubeculosis and Malaria
GFMU	Global Fund Managemnet Unit
HMIS	Health Management Information System
HMM	Home based management of Malaria
HNI	HealthNet International
IEC	Information Education and Communications
IMCI	Integrated Management of Childhood Illnesses
IMPD	Institute of Malaria and Parasitic Diseases
IPT	Intermittent Preventive Treatment
ITNs	Insecticide Treated Nets
IVM	Integrated Vector Management
LLINs	Long Lasting Insecticide Treated Nets
M&E	Monitoring and Evaluation
MoPH	Ministry of Public Health
MSH	Management Sciences for Health
NGOs	Non Governmental Organisations
NIML	National Institute for Malaria and Leishmaniasis
NMLCP	National Malaria and Leishmaniasis Control Programme
NMSP	National Malaria Strategic Plan
NTCC	National Technical Coordination Committee
PMLCP	Provincial Malaria and Leishmaniasis Control Programme

PPAs	Performance-based Partnership Agreements
PRR	Priority Reconstruction and Reform
PSI	Population Services International
RBM	Roll Back Malaria
REACH	Rural Expansion for Afghanistan Community Health
SP	Sulfadoxine-Pyrimethamine
TB	Tuberculosis
TBA	Traditional Birth Attendant
UN	United Nations
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WB	World Bank
WHO	World Health Organization
WHOPES	WHO Pesticide Evaluation Scheme

1 Introduction

Malaria is endemic to vast areas of Afghanistan at altitudes below 2000 meters , with an estimated 20.6 million people living in areas at risk of transmission. It is a major public health problem and continues to place an unacceptable burden on the health and economic development in malaria affected Provinces of Afghanistan.

In Afghanistan there is political commitment which offers a window of opportunity to roll back malaria through a coordinated effort between Partners with complementary expertise. This coordination is key to scaling-up interventions over the next six years. The international community (including the WB, USAID, EU, ADB, UN Agencies, GFATM and NGO community) and the MoPH are making funds and expertise available for malaria control and prevention.

Malaria case management and disease surveillance are two essential components of the malaria control programme that are already integrated into the BPHS and HMIS. A missing element, not part of the current mandate of the BPHS, but essential for accurate diagnosis and effective treatment is quality assurance of malaria diagnosis . Provision of effective protection such as insecticide-treated nets (ITN) in an IVM environment are also absent from the current BPHS. LLINs will be distributed, by NMLCP, free of charge through BPHS health facilities at central and provincial levels. In addition, other potential approches for the free distribution of LLINs will be also explored. Morover, the role of communites, and the private and commercial sectors will be promoted and are seen as integral to programme success.

This National Malaria Strategic plan sets out the essential elements of the Roll Back Malaria programme for the period 2008 to 2013. It builds on the efforts made by the international community to respond to the malaria issue during and in the aftermath of more than two decades of crisis and to the recommendations of the April 2005 consensus workshop of the Government of Afghanistan and other stakeholders.

The purpose of this document is to offer practical guidance to all interested parties to build a strong integrated malaria control and prevention programme in Afghanistan through adoption of Roll Back Malaria principles including funding, implementation and evaluation.

2 Situation analysis

2.1 Country Overview

Afghanistan is a land-locked country of high mountains and plateaux (average elevation 1,200 meters), desert and river valleys in South Central Asia. To the north lie the Commonwealth of Independent States countries of Tajikistan, Turkmenistan and Uzbekistan, to the northeast is a short frontier with China, to the west is Iran, to the east and south is Pakistan.

The dominating physical feature is the Hindu Kush mountain system. Afghanistan is a highly seismic country with an average of 50 earthquakes every year. There are four main river systems, the Amu (Oxus) to the north, the Hari Rud to the west, the Helmand

river in the south and the Kabul River in the east. Much of the south and south-west is desert.

The climate is mostly continental with cold winters and hot, dry summers. Average annual rainfall is less than 21 centimeters, most of it from December to April, though some areas in the south-east receive monsoonal summer rain and remain warm in winter.

Most of the country is too dry to permit the growth of true forest which is confined to the southern slopes of the eastern Hindu Kush, the Safed Koh and the Sulaiman mountains in Paktia. Forests along the border with Pakistan have been severely depleted since 1978. Much of the rest of the country has little vegetation or is covered with bush or scrub.

Although agriculture is the backbone of the Afghan economy, the rugged topography and low rainfall are severe constraints on productivity. Only 6-12 % of the land is arable. Rice is intensively cultivated through snow-fed irrigation in the eastern and northeastern provinces and is a major contributor to anopheline breeding sites.

2.2 General health profile

Due to the protracted war, poverty, loss of livelihoods, and the breakdown of health structures, the life expectancy at birth is only 46 years. Under-5 mortality is 191/1000 live births. The health situation for women is among the worst in the world; it is estimated that every year more than 20,000 women die in labour, mostly from easily preventable conditions. The very high dependency ratio, which is the result of a high growth rate, is a major burden for the country and the health system.

Table 1: General health indicators

Life expectancy (years)	Total: 46, Male: 47, Female: 45
Annual growth rate (%)	1.9
Dependency ratio (%)	92
Under 5 Mortality Rate (Deaths/1,000 live births)	191
Infant Mortality Rate (Deaths/1,000 live births)	129
Total Fertility Rate (Births/Woman)	6.3
Maternal Mortality Ratio (Maternal Deaths/100,000 live births)(2000 data)	1600

Source: HMIS, MoPH, Afghanistan 2006 Health Survey

2.3 Health System

2.3.1 Public health care delivery system

Health care delivery in Afghanistan remains poor (Table 2). Only 19% of deliveries are attended by skilled health pesonnel. Immunization coverage is reported to be 80%.

Table 2 Main health care delivery indicators

Pregnant women who received 1+ ANC visits (%)	30
Deliveries attended by skilled health personnel (%)	19
Newborns immunized with BCG 2007 (%)	91
1-year-olds immunized with 3 doses of DTP 2007 (%)	83
Children under 2 years immunized with 1 dose of measles 2007 (%)	70
Pregnant women immunized with two or more doses of tetanus toxoid 2007 (%)	60
DOTs Coverage (%)	97

Source: HMIS – MoPH, NTP Annual Report

In March 2003, after a year of consultations and planning, the MoPH released a strategic plan for a Basic Package of Health Services (BPHS). Main Donors supporting the BPHS are the World Bank, USAID, EU and ADB. After establishing the BPHS, the Hospital Management Task Force of the MoPH recognised the need for a framework for incorporating tertiary level health services and systems for improved referral. A strategy based on the Essential Package of Hospital Services (EPHS) was drafted in 2004.

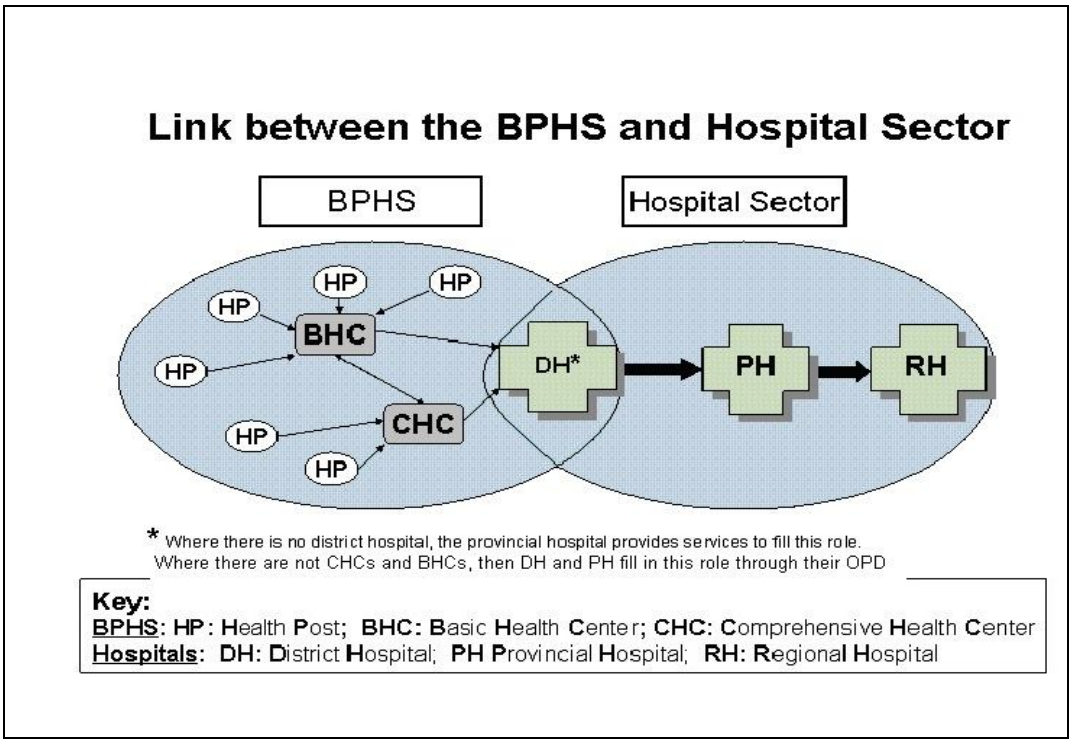
The BPHS lies at the core of the publicly administered health system. It endeavours to address the priority health problems and to provide equitable health services to all Afghans including those living in remote and underserved areas. The BPHS is implemented through four standardised levels of health facility and the functions of each level related to malaria control are indicated in this system as follows:

- **Health Posts (HP)** are run by one female and one male Community Health Worker (CHW) and cover a catchment area of 1,000-1,500 people or 100-150 families. Malaria services to be provided at this level are IEC, clinical diagnosis and referral, first line treatment of suspected uncomplicated cases, insecticide-treated mosquito nets promotion and reporting of cases.
- **Basic Health Centres** (BHCs) are staffed by a nurse, a midwife and vaccinators, and cover a population of 15,000- 30,000 people. Services provided for malaria, in addition to those provided through health posts, first line treatment of uncomplicated cases and second line treatment, rehydration therapy, treatment of anaemia, supervision and monitoring.
- **Comprehensive Health Centres** (CHCs) include both male and female doctors, male and female nurses, midwives, and laboratory and pharmacy technicians. They cover a population of 30,000-60,000 people. Interventions for malaria include those of BHCs

plus microscopy for differential diagnosis of vivax and falciparum malaria and treatment of severe cases.

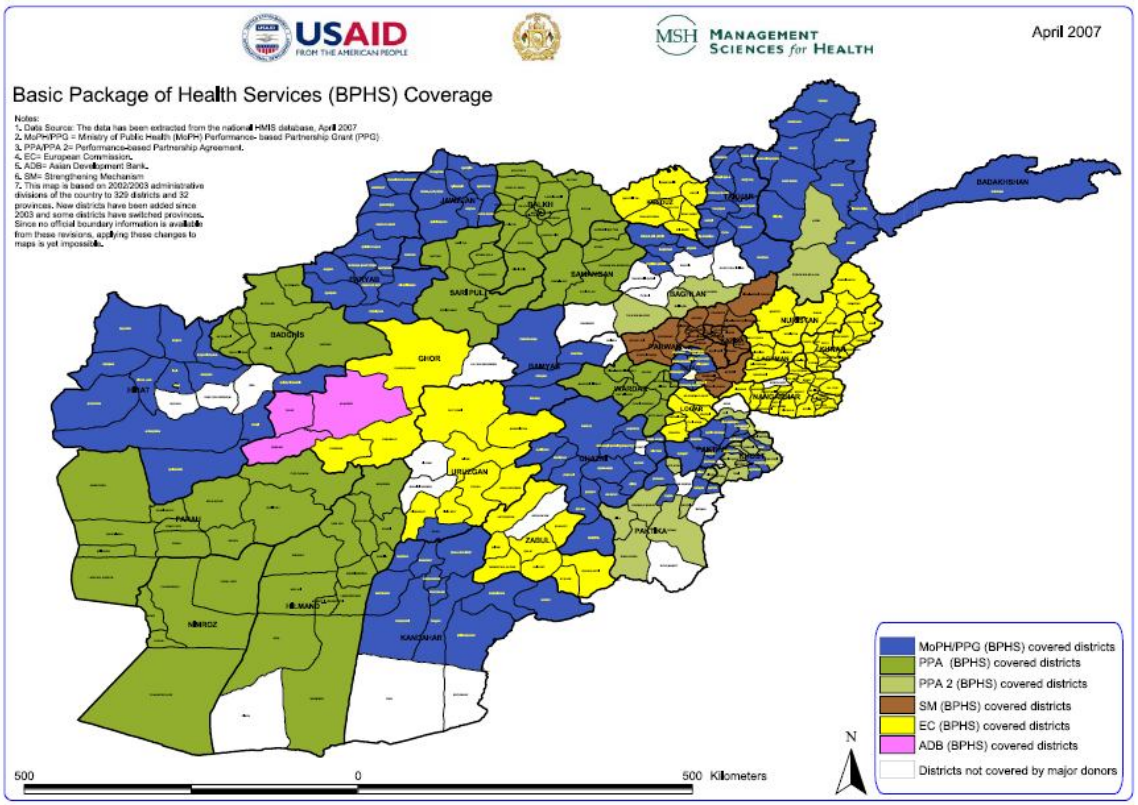
- **District Hospitals (first referral hospital)** serve up to four districts and a population of 100,000-300,000 people. They are staffed with physicians, including female OBS/GYN, surgeon, anaesthetist, paediatrician, midwives, lab and X-ray technicians, pharmacist, dentist and dental technician. Interventions for malaria include all of CHC plus in-patient management of severe malaria. District and Provincial hospitals support the primary health care services of the BPHS and referral.

Figure 1: relationships between BPHS and EPHS



Contracts for the delivery of the BPHS are being allocated by the MoPH and international Donors to NGOs in the form of Performance-based Partnership Agreements (PPAs). About 83% of the country is covered by NGOs but at different stages of implementation. By January 2008, NGOs were supporting a total of 670 BHCs, 376 CHCs and 49 District Hospitals (Source: HMIS 2008). The MoPH is directly implementing BPHS in 3 Provinces. It is also the regulatory body of the BPHS in other Provinces and is slowly developing its capacity to handle different challenges related to the management of the health sector.

Figure 2-BPHS coverage by April 2007 (source GCMU)



2.3.2 Private sector

Afghanistan 2006 health survey reported that: for the first visit to a provider for an illness or injury, 55% went to private providers, 44% went to public providers and less than 2% went to traditional healers or sought other care. For second visits, 50% of sick people went to private providers, while 27% went to public providers. The use of traditional providers' changes sharply by sequence of visit—less than 2% of people saw traditional providers for the first visit but 22% saw traditional providers for the third visit. People from households in the poorest quintile are more likely to use public providers as their first source of care compared to households from the wealthiest quintile (51% vs. 38%). There is a drop in the utilization of public health facilities as the first source of care when reported travel time increases (from 26% for households living within 2 hours of a health facility to 18% for households living 6 or more hours from a health facility), however, there is no change in utilization of district and provincial hospitals with increasing travel times. The use of private providers is higher for households reporting travel times of 6 or more hours (63%) compared to households living within 2 hours of a health facility (54%). These results show that the use of private sector health services is pervasive in Afghanistan, even among poor and remote households.

The high level of reported utilization of private sector services shows that the private health sector is large in Afghanistan. Even poor households and those living in remote communities commonly use private sector services for curative care. The quality of care provided by the private sector is unknown. It is likely that a range of diagnostic services, pharmaceuticals and allied treatments (i.e. iv infusions) are available at a variety of prices. Therefore, an investigation into private sector practices is urgently needed.

The strategy of ACT for reducing the burden of falciparum malaria will be severely compromised, unless the private sector is specifically included, LLIN could be disubuted with subcidised price through private sector outlets as persoanal protection means whenever needed.

2.4 Malaria in Afghanistan

2.4.1 History of malaria and malaria control in Afghanistan[4]

Afghanistan's first malaria control organisation was established in 1947 after an epidemiological assessment. In 1949, trial interventions of DDT indoor residual spraying were implemented with technical support from the WHO. After successful completion of the trials, nationwide spraying campaigns were organised. By 1954, more than 1.2 million people were protected by an annual round of DDT indoor residual spraying (rural areas) or antilarval measures (urban areas), and in 1956 malaria eradication was set as the goal. The initial effects of the malaria control programme were impressive, with previously uninhabited areas in the north being opened up for agricultural development. In 1968, 7.9 million people were covered by the eradication programme. Some areas of the country had entered the consolidation phase. But in 1970, a change in the vector situation became apparent: the original main vector *Anopheles superpictus* had been almost eradicated but was replaced by *A stephensi* and *A culicifacies,* which had become resistant to DDT in the east and south of Afghanistan, and by the outdoor resting *A hyrcanus* and *A pulcherrimus* in the problematic rice-growing areas in the north of the country. When DDT had lost its effectiveness, it was replaced by malathion. In cities, temephos replaced diesel oil for larviciding, and in rice-growing areas larvivorous Gambusia fish were introduced by the Soviet Union in 1971.

Malaria control programme activities were launched under the patronage of the Institute of Malaria and Parasitic Diseases (IMPD) in Kabul with technical support from the WHO and commodity support from UNICEF during the eradication era and from the UNDP after 1973. Despite setbacks and constraints their combined efforts remained moderately successful, steadily increasing the laboratory network to 240 facilities by 1979. Apart from insecticide resistance the main operational constraints were the large increase in the number of mosquito breeding sites resulting from the rise in irrigation for rice cultivation in previously arid areas, and population movements, whether traditional (nomadic pastoral) or industrial (labour). In 1973 it was realised that malaria eradication could not be achieved and the spraying programme was proving unsustainable. After

[4] This section is largely adapted from: Kolaczinski et al, 2005. Malaria control in Afghanistan: progress and challenges.*Lancet*. February 1st, 2005. http://image.thelancet.com/extras/04art2383web.pdf . Facts stated are from published and unpublished articles and reports cited in this article.

advice from a WHO/UNDP review, the government changed its strategy and concentrated on surveillance by increasing the number of diagnosis and treatment outposts while trying to maintain existing rates of control with limited amounts of insecticide supplied by the USSR, Iraq, and the UK. Occasional epidemics arising from insecticide shortages were brought under control by mobilising teams from outposts and by treating fever cases.

The Soviet invasion of Afghanistan initiated over two decades of war and civil strife, during which a third of the population fled the country, so that whole regions were abandoned by most of their inhabitants. The public health system collapsed, health professionals emigrated, agricultural systems deteriorated, poverty increased, and life expectancy fell to 46 years. This situation resulted in disproportionate increases in rates of malaria in Afghanistan. Little of the malaria control programme remained by the early 1990s. In the absence of political stability, long-term planning became impossible. The best that could be done was to encourage self-reliance and abandon any notion of vertical programming.

The eradication era policy of indoor residual spraying campaigns with DDT could not be maintained during the period of chronic conflict. Successful indoor residual spraying requires good planning, smooth logistics, reliable health information for targeting worst affected areas, and accurate timing of the campaigns, but none of these factors existed.

From 1992 the situation in the east of Afghanistan became sufficiently stable for the piloting of alternative techniques to address the control needs of Afghanistan during the chronic conflict and after. Expert consultants from WHO encouraged research on malaria prevention and personal protection. Alternatives to the operationally difficult indoor residual spraying were investigated. The effectiveness of insecticide-treated nets (ITN) was established in Afghan refugee camps in Pakistan, and was followed by a trial project of insecticide-treated net sales in Afghanistan in 1992–93. Despite little tradition of mosquito net use, demand was readily created by starting sales of ITNs across several provinces and with health education delivered through mosques, local newspapers, and radio. Supplementary methods of self-protection were investigated for their potential use for epidemic control.

2.4.2 Malaria burden and risk:

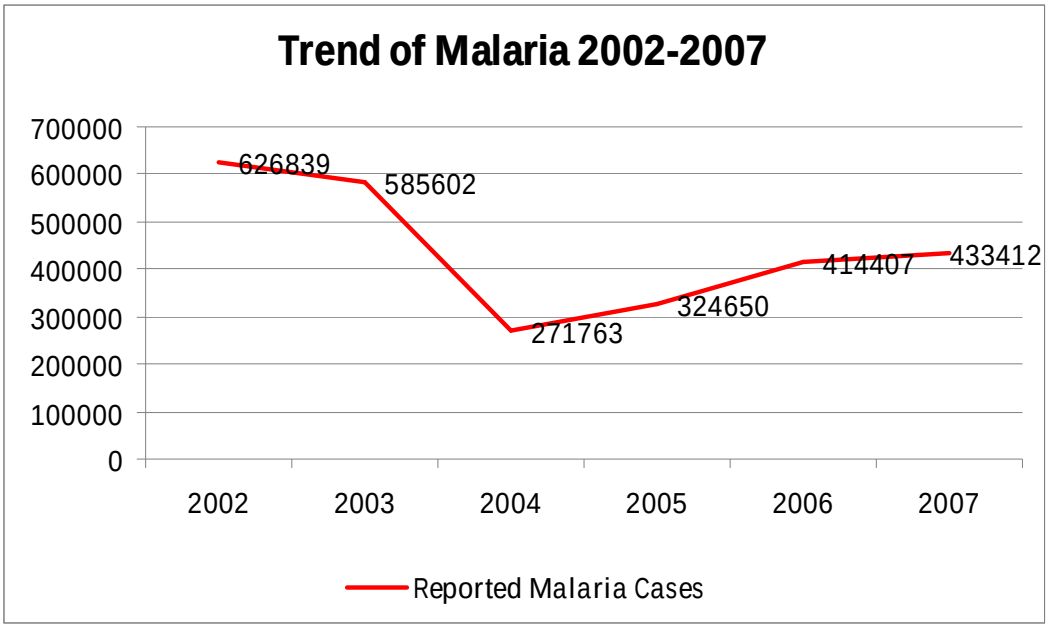
Malaria occurs at altitudes below 2,000 metres above sea level and is most prevalent in snow-fed river valleys and areas used for growing rice. Transmission is seasonal from June to November, with negligible transmission occurring between December and April. However, many *Plasmodium vivax* infections relapse during the spring season and this may give rise to a *vivax* peak around July. The *Plasmodium falciparum* peak is in October, a few months after the summer peak of *P.vivax*. The seasonality and relative low prevalence of malaria (e.g. about 10% in endemic areas) results in a population only partly immune to malaria, with children and teenagers carrying most of the burden. *P.falciparum* is particularly unstable in this region, at the edge of its range, and can fluctuate markedly from year to year depending on climatic variation and, in recent years, drought.

In 2002, the total malaria burden was estimated by the WHO to be 2.5-3 million cases per year. With a population of 25 million (80% of whom live in rural areas) and a recorded

annual incidence of 240 episodes per 1,000 people in the more endemic rice-growing areas around Jalalabad, 3 million cases would be the upper estimate. Before the war, in the 1970s, the number of recorded cases of malaria per year varied between 40,000 and 80,000 (an annual incidence of 2.5-5 per 1,000 people). After 1980 the war resulted in a progressive breakdown in malaria control activities. Environmental deterioration, damaged irrigation systems, population displacement, insecurity and inaccessibility, emigration of health staff, and health service decline all contributed to the progressive rise in malaria burden. By 1987, 429,000 cases were reported per year. Although reporting of cases had become irregular, this statistic still represented a five to ten-fold rise in burden as a direct consequence of war. Local epidemics were reported from the eastern and north-eastern regions of the country. In 2002, the number of reported cases from the public sector was 626,839 and the trend persisted in 2003 (585,602 reported cases).

As a result of improved case management, scaling-up of effective control measures by the MoPH and partner organizations, and due to the drought in some parts of the country, the burden decreased to 433412 in 2007. Changes in the reporting system resulted in under-reporting of cases in 2004; the gradual expansion of BPHS and the reporting system depict steadily increases in the number of reported cases afterwards.

Figure 3: Reported malaria cases in Afghanistan, 2002-07



The relative proportion of cases caused by *P.falciparum* increased during the war: less than 1% of malaria cases were caused by *P.falciparum* in 1974 but by 1999 this had risen to 11%. The spread of chloroquine resistance and poor access to effective treatment have contributed to this change. The proportion of reported falciparum cases decreased from 13% in 2002 to 7% of confirmed cases in 2007(6098 cases).

Although vivax malaria is not directly associated with mortality, it does constitute a major cause of morbidity and contributes to economic underperformance in many parts of Afghanistan. Reliable statistics regarding falciparum-related mortality do not exist. However mortality is commonly reported during outbreaks and the presence of resistance to chloroquine is associated with an increased risk of mortality. In areas of unstable malaria, immunity is absent or slow to develop and falciparum malaria is associated with significant mortality across all age groups.

In common with most post-emergency situations, reliable epidemiological data about the distribution of malaria in Afghanistan are either sparse or are based on localised surveys undertaken in areas with good healthcare provision or where malaria was known to be a problem. This limitation affects the quantification of disease burden for basic planning. In an effort to overcome this difficulty, a collaborative project, supported by ECHO, was established in 2004 to begin the mapping of *P. falciparum* and *P. vivax* risk countrywide. This project is now complete, and the stratification of malaria risk is now available at the district, rather than provincial level.

2.4.3 Malaria vectors and vector control

Recent survey of mosquitoes in Ningarhar, and the testing of collections for malaria sporozoites using ELISA, indicated that *A. stephensi* is an important vector in rural districts around Jalalabad. Other species collected that were sporozoite positive and therefore incriminated as vectors include *A. culicifacies, A. fluviatilus, A. annularis, A. pulcherrimus* and *A. superpictus*. Apart from this survey there is little recent data on the distribution of Anopheles species and their importance in disease transmission. Limited thirty-year-old data suggests that *Anopheles superpictus* had been replaced by *A. stephensi* and *A. culicifacies* in the east and south, and the recent surveys support this. Vectors of secondary importance such as *A. hyrcanus* and *A. pulcherrimus*, breed mainly in rice fields and mountain streams in northern Afghanistan.

The main method of vector control in Afghanistan is the use of insecticide-treated nets. ITNs are particularly suitable in situations or regions where there is limited malaria control capacity or entomological expertise. Coverage, however, is currently concentrated in the east, south and north.

2.4.4 Drug resistance and drug policy

From the first detection of resistance in 1989 the failure rate of chloroquine and amodiaquine treated *P. falciparum* malaria has risen to more than 60% overall and as high as 90% in Jalalabad[5]. Chloroquine remains fully effective against *P vivax*, and sulphadoxine-pyrimethamine (SP) remains effective against *P falciparum* (10-15% of cases fail to cure)[6].

[5] Durrani N., Leslie TJ., Rahim S., Graham K., Ahmed F., Rowland M. (2005) A randomised placebo controlled trial of chloroquine, amodiaquine, sulfadoxine & pyrimethamine and amodiaquine & artesunate for treatment of uncomplicated *Plasmodium falciparum* in Eastern Afghanistan. *Trop Med Int Health.* **10**(6); 521-529.

[6] Ezard et al (2004). Sulphadoxine-pyrimethamine remains efficacious against uncomplicated, *Plasmodium falciparum* in north-eastern Afghanistan. *Annal Trop Med Para.* **98**(1) 85-88.

Results of drug efficacy studies in 2002-04

Site	Date	Drug	Total Failure (%)
Jalalabad[1]	Oct 99-Nov 99	CQ	72
Kunar[1]	Oct 99-Nov 99	CQ	60
Laghman[1]	Oct 99-Nov 99	CQ	83
Khanabad[2]	Oct 02- Dec 02	CQ	90
Jalalabad[1]	Oct 02 – Jan 03	CQ	89
Jalalabad[1]	Oct 02 – Jan 03	AQ	91
Jalalabad[1]	Oct 02 – Jan 03	AQ+AS	28
Mazar-e-Sharif[2]	Dec 02 -Feb 03	SP	23
Jalalabad and NWFP[1]	Oct 00-Jan 03	SP + AS	0
Jalal Abad[3]	Oct 03- Dec 03	SP	4
Taluqan[3]	Oct 03- Nov 03	SP	9
Jalalabad[3]	Dec 03- Jan 04	AQ	38
Jalalabad[3]	Nov 03- Jan 04	AQ+SP	3
Taluqan[3]	Dec 03- Jan 04	AQ+SP	1
Jalalabad[3]	2004	SP+AS	0
Jalalabad and Taloqan[3]	2005	SP+AS	0
Jalalabad[3]	2006	SP+AS	0

1 studies by HNI
2 study by Merlin supported by WHO
3 study by MoPH

The SP-artesunate combination gives 100% cure rate in Afghanistan. Treatment of vivax malaria in the region is complicated by the presence of glucose-6-phosphate dehydrogenase (G6PD) deficiency in a minority of the population. Although individuals

with vivax malaria readily comply with a 14-day primaquine regimen, routine radical treatment is unsafe while G6PD testing of malaria patients remains unavailable[7].

Based on the evidence of drug efficacy studies (2003-2006) the MoPH has adopted and made progress in implementing a new treatment policy as follows:

- First-line treatment for laboratory confirmed falciparum cases: AS+SP
- Second-line treatment for laboratory confirmed falciparum cases: Quinine
- Clinically diagnosed cases: SP+CQ
- Confirmed vivax malaria: CQ

  In order to stop transmission and prevent relapse, it is essential to up-date the malaria treatment protocol and introduce primaquine for radical treatment of vivax malaria
- Pre-referral treatment of suspected complicated and/or severe malaria: Artemether IM
- Second-line treatment of suspected complicated and/or severe cases: Quinine

2.4.5 Stratification and Targeting of Interventions

Major determinants of malaria transmission in Afghanistan are altitude and agricultural practices (rice cultivation). Provinces with a medium to high transmission potential are Takhar, Kunduz, Ningarhar, Kunar, Laghman, Baghlan, Faryab, Badghis, Badakhshan, Herat, Khost, Kandahar, Helmand and Balkh. For strategic planning they could be grouped as Stratum 1 (High Priority). Kabul, Logar, Paktia, Paktika, Farah, Daikundi, Nimruz, Zabul, Oruzgan, Wardak, Jauzjan, Samangan, Kapisa, Parwan and Sar-e-pul are considered as low-risk areas, i.e. Stratum 2. The central highlands of Ghor, Bamyan, Panjsheer, Ghazni, and Nuristan have very little potential for malaria transmission, i.e. Stratum 3 (Figure 4). The risk of malaria transmission in the Provinces of each Stratum is not homogeneous. More accurate stratification has been done during the mid-term evaluation exercise based on the results of a malaria risk mapping survey[8]. Malaria risk can now be stratified by District (Annex 3) rather than by Province because Districts have considerable diversity in malaria risk. Stratification of risk at the District level will be used to improve targeting.

[7] Leslie TJ., Rab MA., Ahmadzai H., Durrani N., Fayaz M., Kolaczinski J., Rowland M. (2004). Compliance with 14 day primaquine therapy for radical cure of vivax malaria – a randomised placebo controlled trial comparing supervised and unsupervised treatment. *Transactions of the Royal Society of Tropical Medicine and Hygiene*. **98**; 168-173

[8] HealthNet-TPO, 2006. Malaria Risk Mapping in Afghanistan – project report and results. Unpublished document.

Figure 4. Stratification of Malaria problem in Afghanistan

3 **Vision:** Malaria-free Afghanistan

4 **Mission:** the Mission of the NMLCP is to develop itself into a technical department of the MoPH, staffed by qualified and motivated health professionals who will lead and carry out Malaria and Lesihmaniasis prevention, development of evidence-based national policies, quality control and timely detection and treatment of patients in integrated system at the point of service delivery, with the purpose of reducing the burden of malaria and leishmaniasis as a public health problem in Afghanistan.

5 Goal:

To contribute to the improvement of the health status in Afghanistan through the reduction of morbidity and mortality associated with malaria.

This improvement will be attained through an effective malaria control strategy based on recommended RBM strategies. The reduction of malaria burden will contribute to the reduction of poverty and improvement of the socio-economic status of the people of Afghanistan. This Strategic Plan is built on evidence-based strategies appropriate to the region, focussing on RBM tenets:

- Case Management; prompt and reliable diagnosis and effective treatment
- Application of effective preventive measures in the framework of IVM such as LLINs
- Detection and control of malaria epidemics
- Strengthening of the health system and malaria control programme (this includes institutional development at National and Provincial levels, human resource development, improving the malaria surveillance system, monitoring and evaluation of malaria control activities at all levels, private sector involvement, operational research, partnership building and intersectoral collaboration).

6 Objectives:

- To reduce malaria morbidity by 60% by the year 2013 (baseline 19 cases per 1000 population, 2007 data)
- To reduce malaria mortality by 90% by the year 2013
- To reduce the incidence of falciparum malaria to sporadic cases by the end of 2013 with a vision to interrupt transmission of PF

7 Strategies

7.1 Case Management; prompt and reliable diagnosis and effective treatment

With the divergence in treatments between vivax and falciparum malaria and relative high cost of ACT compared to chloroquine there is a need for greater emphasis on diagnosis at all levels of the health system; if falciparum malaria is mistakenly treated as vivax treatment failure is assured, and if vivax is treated as falciparum valuable drugs are needlessly wasted. Diagnosis and treatment of malaria should therefore be fully integrated into the general health services. This improves efficiency and coverage and makes better use of limited human and financial resources.

Microscopy should be adopted at the BHC level, with priority given to Stratum 1 districts and selected priority areas in Stratum 2. The estimated number of CHCs and BHCs to be targeted for strengthened malaria diagnosis is 670. Moreover, in epidemic situations and wherever malaria microscopy is not feasible RDTs can be used. Falciparum specific RDTs should be used at the community level to distinguish the more serious falciparum malaria from other causes of fever including vivax malaria. RDTs have been tested in Afghanistan[9] and the decision to implement these as opposed to microscopy will be based on cost-effectiveness analysis. Because symptoms of malaria are non-specific, 70-90% of febrile illnesses submitted to microscopic diagnosis are negative (i.e. slide positivity rates are 10-30% or less). Microscopy diagnosis is needed to

[9] Kolaczinski et al (2004). Comparison of OptiMal® rapid antigen test with field microscopy for the detection of *Plasmodium vivax* and *P. falciparum*. Considerations for the application of the rapid test in Afghanistan. *Ann Trop Med Para* **98**(1); 15-20.

reduce wastage of anti-malarial drugs and to improve management of patients who do not have malaria.

In situations where there is no facility for malaria diagnosis, IMCI guidelines should be used for diagnosis and treatment of malaria for children under-five years of age. A well-defined referral system including pre-referral management of severe malaria cases should be developed across the different levels of the health system.

ACT has been incorporated into the BPHS as an essential drug and is being used for treatment of confirmed falciparum cases. Vivax malaria should continue to be treated with chloroquine. Introduction of primaquine could be considered after updating treatment protocol.

Sustained high-quality diagnosis and treatment of malaria (and other diseases) can only be achieved by regular technical monitoring and quality control of microscopy by Quality Assurance Centres (QAC) of PHD/PMLCPs under direct supervision and coordination through a national quality assurance unit of MoPH/NMLCP.

The current anti-malaria drug efficacy monitoring sentinel sites in Ningarhar, Faryab and Takhar will continue to function and report to the NMLCP. The malaria treatment and referral policy is applicable to all 3 Strata, but the priority area for intervention is Stratum 1. The NMLCP and its Partners are committed to the provision of high quality malaria diagnosis and free treatment for all Afghan people.

There is need for greater involvement of the private health sector. Providing national diagnosis and treatment guidelines to the private sector for malaria control will improve the quality of services and increase data on the real burden of malaria in the country. Training activities for private service providers need to be initiated and an accreditation scheme developed (in co-operation with the MoPH HRD Department) to ensure unified and adequate service provision throughout the health sector (public and private).

7.1.1 Targets

- By the end of 2013, 90% of uncomplicated malaria cases will be managed according to national diagnosis and treatment guidelines
- By the end of 2013, 95% of severe and complicated malaria cases will be managed according to national diagnosis and treatment guidelines
- By the end of 2013, all CHCs and 90% of targeted BHCs in priority areas, will provide high quality laboratory diagnosis for malaria, TB and leishmaniasis
- By the end of 2013, 60% of targeted Health Posts will be able to diagnose malaria by RDTs
- By the end of 2013, 100% public health facilities will provide appropriate and effective malaria treatment according to National Treatment Guidelines
- By the end of 2013, 100% public health facilities offering laboratory diagnosis will be regularly monitored for quality assurance and will be achieving an accuracy of malaria diagnosis of 90% or higher
- By the end of 2010, anti-malaria drugs will be regularly supplied to 100% health facilities to ensure that there is no stock-out continuing for more than one week

- By the end of 2010, 90% of the private sector involved in malaria diagnosis and treatment in malaria-prone areas will be informed about national diagnosis and treatment guidelines
- By the end of 2013, 50% of private sector clinics and doctors will be certified by a standard criteria set by the MoPH and technical partners
- By the end of 2010, a functioning referral system for management of severe malaria cases will be in place in 90% of health facilities in target areas

7.2 Application of effective preventive measures in the framework of IVM with a focus on ITNs

Recognizing the importance of vector-borne diseases in the Eastern Mediterranean Region, Member States through Resolution (EM/RC.52/R.6) endorsed the Regional Strategic Framework for Integrated Vector Management (IVM) for the implementation of vector control. Member States also committed themselves, to develop requisite national capacities to plan and implement IVM, make specific budget allocations for vector control, establish a vector control unit in the Ministry of Health and establish functional intersectoral mechanisms to enhance in-country coordination of all relevant sectors.

Despite existing problems, the MoPH and Partners have made very good progress in creating demand for ITNs – including LLINs. Although the exact coverage with existing ITNs is unknown (except for those distributed under the GFATM), in some Provinces this rate is high. In the absence of any other feasible vector control intervention for malaria and leishmaniasis and adhering to *Article Fifty-two Ch. 2, Art. 30 of the Constitution which states that "The state is obliged to provide free means of preventive health care and medical treatment, and proper health facilities to all citizens of Afghanistan in accordance with the law"* free distribution of LLINs is recommended.
A phased implementation through special mass campaigns is proposed while at the same time providing LLINs through ANC and EPI health facilities. It is recommended that the MoPH and partners make concerted efforts to mobilize additional resources beyond the GFATM to implement and sustain this strategy.

Based on current evidence, it has been demonstrated elsewhere that when LLINs are used correctly and when a high proportion of people use them, they also have an impact in controlling mosquito vectors, reducing transmission and malaria risk beyond users. The same would apply to the control of anthroponotic leishmaniasis which is a huge problem in Afghanistan. Until recently, WHO guidance on ITN use has focused on the protection of vulnerable groups. It is appreciated however, that in countries with low to moderate transmission, all age groups are vulnerable and it is necessary to protect everyone at risk.

The currently recommended ITNs are LLINs, which have several advantages over conventional nets – i.e., they do not need to be re-treated. However, they are considerably more expensive to purchase, although increasingly considered as a cost-effective solution. Up-scaling and use of the commercial sector are to be considered for the wider availability of ITNs. Because of the ongoing security problems, weak health infrastructure, and limited entomological capacity, ITNs/LLINs are for the time being

the primary evidence-based tool for malaria prevention. With the rehabilitation and reorientation of the National Malaria and Leishmania Control Programme and the emphasis on evidence-based interventions, opportunities for other vector control measures will be explored through operational research as the capacity to implement interventions improves. Using IRS in areas targeted for falciparum malaria elimination will be considered with appropriate entomological assessment.

An estimated 6 million nets would be required, if the Program can distribute them within one year, to cover the entire at-risk population if 2 people sleep under each net. The scale of the task of providing ITNs to everyone at risk of malaria within 6 years in Afghanistan requires a massive effort from all Partners. Keeping in mind the three-year life-span of LLINs and population growth rate of 1.9%, 13 million LLINs are needed till 1013 to achieve the desired 85% coverage of these populations which is considered to be sufficient to create a significant positive public health impact.

The commercial private sector may provide an alternative system for efficient distribution and marketing of nets in towns and cities. To make public health goods more affordable and stimulate this market, the government should: remove taxes and tariffs on WHO recommended LLINs, provide the necessary environment for building public-private partnerships, and support health systems research to study the feasibility of such partnerships.

The Vector-Borne Disease Control Task Force shall coordinate and oversee the implementation of the programme. The taskeforce is chaired by the MoPH, with representation from RBM Partners i.e., WHO, UNICEF, BPHS implementing NGOs and perhaps major Donors representatives (USAID, EC, WB). Potentially important intersectoral partners are: the Ministry of Education, the Ministry of Information, the Chamber of Commerce, the Ministry of Finance, and the Ministry of Agriculture. Provincial Malaria Task Forces would be mandated the responsibility of implementing the operational aspects of the ITN strategy.

In order to improve the entomological capacity, initiate entomological surveillance and test a programme of integrated vector control, it will be necessary to construct facilities and insectaries for holding mosquito vectors of malaria in Kabul, Jalalabad, Kandahar and Kunduz/Takhar where there would be ready access to the field. These facilities will serve as training centres as well for the staff working in vector control.

7.2.1 Targets

- By the end of 2010, 85% of households in the targeted populations will have at least one ITN for each 2-3 members
- By the end of 2013, at least 85% of targeted population will be protected by ITNs (including LLINs and conventional ITNs) through scaling-up of effective implementation strategies
- By the end of 2010, four entomological sentinel sites- including monitoring of insecticide resistance - in Kabul, Kandahar, Jalalabad and Kunduz will be fully functional with insectaries and trained entomological technicians

- By the end of 2010, 14 million people living in the targeted Provinces will be stimulated through COMBI strategy to acquire and regularly use ITN/LLINs throughout the transmission season.
- By the end of 2013, 13 million LLINs will be distributed in targeted Provinces

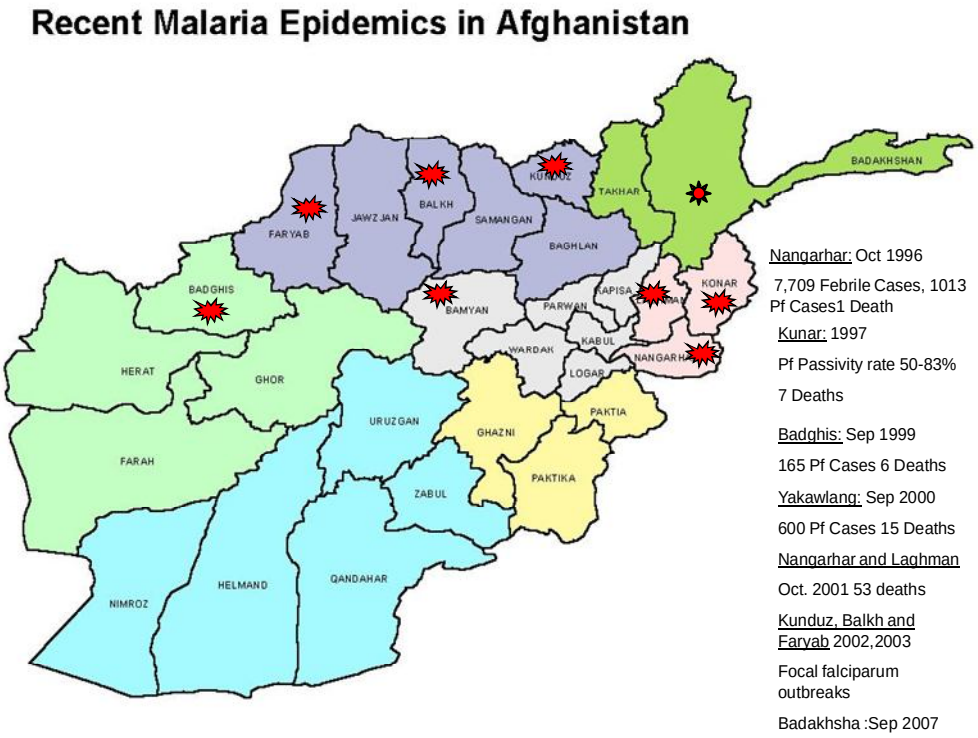
7.3 Detection and control of malaria epidemics

Transmission of malaria in Afghanistan is seasonal and of mostly low endemicity; this results in a low level of population immunity. Because of the weakened health system, poor access to health care, frequent population movement and ecological changes resulting from long period of drought and floods, Afghanistan is an epidemic-prone country. Detection and control of malaria epidemics is one of the main strategies of the NMLCP for all 3 Strata. Strengthening the malaria surveillance system in collaboration with the HMIS is the backbone of this strategy. It must also be recognised that while a sentinel system can provide regional information on disease trends it may not provide notice of local outbreaks, which may be occurring in areas beyond the sentinel site. For this reason, enhanced surveillance through regular monitoring of health centres is essential.

Epidemics are likely to be a mix of falciparum and vivax malaria, with falciparum malaria being a major cause of mortality. Provision of microscopy diagnosis and distinguishing between vivax and falciparum may not be easy when the outbreak is far from health facilities; use of Rapid Diagnostic Tests (RDTs) should be considered in these situations. If RDTs that distinguish vivax from falciparum are unavailable, falciparum-specific RDTs would still be useful for distinguishing the more dangerous species. All falciparum cases should be treated with ACT (artesunate + SP) and other type with chloroquine. RDTs might also be used to monitor the course of the outbreak. The malaria positivity rate will decrease over time as the outbreak is brought under control. Increases in slide positivity rates and the proportion of malaria patients of all out patients should be considered as an alarm of an outbreak.

IRS is certainly justified and recommended in outbreaks; therefore EPR teams should be trained in correct implementation. Distribution of ITNs is not recommended by WHO/RBM during outbreaks; the logistics involved and attaining compliance to use nets may be obstacles unless outbreaks occur in areas with a LLIN strategy in place. Outbreak response should be a priority for staff of provincial malaria control Programmes and partners. Most outbreaks will occur in the months of September to November and there should be enhanced preparedness prior to these months.

Figure 5



7.3.1 Targets

- By the end of 2013, 90% of malaria epidemics will be detected and controlled within 2 weeks
- By the end of 2008, 90% of health facilities (CHCs and BHCs) in strata 1 will be strengthened to detect malaria epidemics within one week of the beginning of epidemics by utilizing weekly watch charts with appropriate indicators
- By the end of 2008 all provincial Epidemiology, Early Warning, Epidemic Preparedness & Surveillance (EEWEP&S) teams will be able to investigate any epidemic notification and respond within one week

7.4 Strengthening of the health system and malaria control programme

7.4.1 Capacity building, institutional strengthening, and integration

The shortage of technical capacity after almost three decades of a complex emergency situation is a major constraint on the NMLCP at all levels. Guided by the technical elements of the global malaria control strategy and the principles of the global initiative to Roll Back Malaria (RBM), the MoPH will endeavour to ensure the Government's commitment to develop capacities at all levels to prevent and control malaria through: Provision of an enabling environment (e.g., development and implementation of appropriate recruitment and career policies; provision of facilities and resources; strengthened training institutions); intensive training and retraining programmes for MoPH and NGO staff locally and abroad; and technical support mechanisms between

the centre and periphery (e.g., information, communication and supply systems, supervision, monitoring and evaluation).

While it is important that malaria and leishmaniasis remain priorities in Afghanistan until these diseases are brought under control, this process will be done in coordinated with the development of the health system and control of other communicable diseases. A National Institute for Malaria & Leishmaniasis (NIML) was established in 2007 and will be strengthened to coordinate and supervise training and research activities. The Institute will also serve as a central reference laboratory and maintain quality assurance between National and Provincial levels, particularly in diagnosis, treatment and collection of malaria statistics. The Institute would address malaria and leishmaniasis specific training, health surveillance and statistics (health information system), research needs of the country and provide Provincial health centres with linkage, support and supervision on disease control.

7.4.1.1 Targets

- By the end of 2008, the proposed structure of the National and Provincial Malaria Control Programme should be implemented. The approved organograms and proposed ToRs of NMLCP and PMLCPs are attached as Annexes 2&3
- By the end of 2009, the NMLCP and 100% PMLCPs will be upgraded (buildings, equipment, vehicles) and made fully functional
- By the end of 2009, in order to strengthen malaria control at the community level, the NMLCP and all PMLCPs will have a Community-Based Component including Home Management of Malaria (HMM)
- From 2008 every two years a thorough evaluation will be undertaken by the Malaria Task Force to assess the performance of all national and provincial malaria control staff
- By the end of 2008, a COMBI plan of action for promotion of effective prevention and treatment of malaria will be designed and implemented in all targeted provinces

7.4.2 Private Sector Involvement

The private sector will play a vital role if the goals and objectives of this NMSP are to be reached. The health care private sector can be defined as pharmacies, traditional healers, doctors and allied health professionals (both qualified and self-appointed) who practice outside the regulatory authority of government or its appointed Partners for health care implementation, as well as outlets selling or with the potential to sell public health tools. There are, therefore, two aspects of the private sector to be included as vital for successful malaria control; those providing care to patients, and those providing preventive measures (such as ITNs, repellents, etc). It is likely that a range of diagnostic services, pharmaceuticals and allied treatments (i.e., IV infusions) are available at a variety of prices. Therefore, an investigation into private sector practices is urgently needed.

In addition, a process of training and accreditation should take place. The accreditation scheme will be conditional on: a thorough training; passing an exam; issuance of certification and licensing; regular re-assessment; and monitoring. The private sector should also be active in case reporting. This can be coupled to a public education campaign focussing on changing treatment seeking to the public sector, and the use of accredited practitioners only for malaria diagnosis and treatment. Initially the scheme will be piloted before being up-scaled if successful. The use of the private sector for increasing access to preventive measures is also vital to achieve the ambitious targets set by this NMSP.

7.4.2.1 Targets:

- By the end of 2009, a survey of private sector practices should be conducted, training and accreditation schemes developed and tested at pilot level

7.5 Malaria control and border areas

To address malaria in Afghanistan's border areas with neighbouring countries, the NMLCP has participated in several border meetings (Bishkek, Kyrgyzstan – 2001, Baku, Azerbaijan – 2002, Chabahar, Iran – 2003, Peshawar, Pakistan – 2004, Dushanbe, Tajikistan 2006, Ashgabat, Turkmenistan 2007) and will establish a coordination mechanism with other NMCPs to analyse, plan, implement, monitor and evaluate malaria control in border areas. The NMLCP of Afghanistan with support of the WHO will continue to maintain contact with other NMCPs to revitalize the spirit of the Peshawar meeting.

8 MONITORING AND EVALUATION

Monitoring is a continuous ongoing and step-by step recording of the progress made by health programmes. Monitoring measures process indicators and should be carried out at all levels. It helps to ensure accountability, implementation of the Programme in the correct and agreed-upon manner and provides decision-makers with the required tools for refined planning and modifing strategies by updating progress, as well as identifying any problems or constraints. While monitoring is continuous, evaluation is usually intermittent, focusing on those indicators which allow periodic assessment of whether the defined strategies and implemented activities obtained the intended results.

8.1 Current M&E System of MoPH

The Monitoring and Evaluation Strategic Plan focuses on routine monitoring and evaluation processes that are managed by the Monitoring and Evaluation Department. It is imperative that a high level of coordination is achieved between the Monitoring and Evaluation Department and related initiatives and systems of the MoPH, which include the Health Management Information System (HMIS), the Disease Early Warning System (DEWS), the Human Resources Database, the Research and Informatics Department and many individual initiatives within the various technical departments of the Ministry.

The Strategic Plan of the Monitoring and Evaluation Department includes activities that aim at harmonization, streamlining and integration of existing data collection systems at

the Ministry of Public Health. The Monitoring and Evaluation Department works in the context of a complex system at the MoPH that strives to measure various aspects of health system performance in Afghanistan. In October 2006, a Monitoring and Evaluation Working Group consisting of representatives of major MoPH programmes, and Partners supporting MoPH M&E activities concluded that fragmentation and lack of harmony is a major challenge negatively affecting the performance of monitoring and evaluation efforts across the Ministry. A five-year National Health System Performance Assessment strategy was then developed in an attempt to address this challenge and other priority issues. This plan is a continuation of the effort that aims to achieve greater harmonization of existing monitoring and evaluation systems within the Ministry of Public Health. NMLCP will benefit from this Strategy for data collection and analysis of indicators.

Stewardship: As MoPH contracts service delivery to non-profit non-governmental organizations (NGOs), stewardship is critical. As part of its National Health Policy, the Ministry is focusing on: monitoring and evaluation, coordination of Donor support, strategic planning, establishment of technical standards for healthcare delivery, regulating the for-profit private sector and coordination and regulation of the NGOs. These areas of focus are aimed at strengthening the Ministry's capacity for effective stewardship by:

- Basing policy and strategy decisions on evidence
- Increasing transparency and accountability
- Ensuring effectiveness in the use of international aid to maintain and attract on-going support

8.1.1 MONITORING AND EVALUATION DEPARTMENT

The Department aims to coordinate, guide and harmonize monitoring and evaluation activities among various departments within the central Ministry of Public Health, Provincial Public Health Directorates and NGOs. In addition to its full time staff, the Monitoring and Evaluation Department is advised by a consultative group, the Monitoring and Evaluation Advisory Board, which is comprised of representatives from the MoPH, international technical agencies and donor agencies. The Monitoring and Evaluation Advisory Board advises the Ministry of Public Health in the development of guidelines, monitoring tools and related procedures.

The goal of the Monitoring and Evaluation Department is to provide high quality, relevant and timely information to the MoPH leadership and Programme Managers to practice evidence-based management, policy and strategic decisions in fulfilment of their management and stewardship roles.

The Department is responsible for the provision of:

- Regular reports on the performance of the health care delivery system and wide dissemination of the reports in local and English languages
- Timely evidence for effective policy, management and programme-related decision-making
- Well-trained staff capable of fulfilling their roles in the monitoring and evaluation of health service delivery and health status in Afghanistan
- Evidence for rational distribution of resources in the health sector

- Identification of emerging public health concerns in a timely manner and assistance to other departments and programmes within the MoPH related to development and use of health information

Monitoring and Evaluation for the Malaria Control Programme will take advantage of existing M&E systems and all M&E activities will be coordinated with stakeholders at the national and sub-national levels. The M&E component of this plan has been developed by NMLCP in consultation with other stakeholders and Partners, in order to assure sustainability. Overall responsibility for M&E in Afghanistan will be by the MoPH/M&E Unit. A National Malaria M&E Team will be formed to coordinate and oversee the progress made in the implementation of National Malaria Programme.

The current HMIS provides information only for uncomplicated malaria. In consultation between the NMLCP and the HMIS Task Force, the malaria registration and reporting formats as well as some RBM indicators were incorporated in the national HMIS to be used by all healthcare providers in the public sector. The following indicators are included in the HMIS:

1. Reported incidence
2. Malaria mortality
3. Stock out of anti-malaria drugs except ACT
4. Laboratory confirmed cases

NMLCP proposed to add following indicators in the HMIS

1. Number of patients treated with ACT
2. Age and gender specific incidence rates
3. Severe and complicated cases
4. Number of cases among pregnant women
5. Number of cases confirmed by RDT

The HMIS Unit will continue to gather HMIS reports from all BPHS implementing Partners. NMLCP will continue to gather more malaria-specific information using revised NMLCP forms delivered by the provincial focal persons. NMLCP will also share surveillance data from sentinel sites with HMIS for analysis, mapping and integration with other health data. Quarterly malaria updates in terms of epidemiological profile and progress in malaria control will be disseminated at both National and Provincial levels. Quarterly feedback will be given to the BPHS Partners after consultation with NMLCP at the Provincial via quarterly review reports by HMIS.

With technical and financial support from WHO the National Malaria Database will be introduce in all provinces for management of malaria related data to measure progress on each key NMLCP indicator.

8.2 Selected Indicators for Monitoring and Evaluation

Regular monitoring of the following indicators is essential for proper implementation and accomplishment of the objectives of the National Malaria Strategic Plan.

Impact indicators:

- Reported incidence of malaria, 19/1000 cases have been reported in 2007 which will be considered as baseline.
- Bed net utilization rate, base line data is not available

Case Management:

No	Indicator	Formula	Source of data	Targets						Level	Frequency	Remarks
				08	09	10	11	12	13			
1	Proportion of malaria patients receiving treatment according to national therapeutic guidelines	**Numerator**: Number of patients receiving treatment according to national therapeutic guideline **Denominator:** All malaria patients receiving treatment	Health facility survey Household survey	50 %	50%	60%	70 %	90 %	90 %	Provincial / National	Every 2-3 years	
2	Proportion of severe and complicated malaria cases receiving case management according to national therapeutic guideline	**Numerator:** Number of severe and complicated malaria cases receing treatment according to national therapeutic guideline **Denominator:** All severe and complicated malaria cases received treatment	Health facility survey	60 %	60%	70 %	75 % %	90 %	95 %	National	Every 2-3 years	
3	Proportion of health facilities with reports of stock-out lasting for more than one week during last three months of nationally recommended anti-malarial drugs	**Numerator:** Number of health facilities with report of stock-out for more than one week **Denominator:** All health facilities surveyed	National health facilities performance assessment (NHFPA) and HMIS				0%			Provincial / National	Annually	
4	Proportion of reported malaria cases confirmed by microscopy	**Numerator:** Number of reported malaria cases confirmed by microscopy **Denominator:** All reported malaria cases	HMIS	30 %	40%	545 %	50 %	65 %	70%	Provincial / National	Monthly	Baseline 2007, 15%

5	Proportion of malaria cases confirmed by RDT in targeted BHCs and health posts	**Numerator:** Number of reported malaria cases confirmed by RDT in targeted BHCs **Denominator:** All reported malaria cases from targeted BHCs	National health facilities performance assessment	10 %	20%	30 %	40 %	55 %	60%	Provincial / National	Annually	
6	Proportion of CHSs with functional malaria lab	**Numerator:** Number of CHSs with functional malaria lab **Denominator:** All CHSs surveyed	National health facilities performance assessment	60 %	70%	75%	80 %	95 %	100 %	Provincial / National	Annually	
7	Proportion targeted BHCs with functional malaria lab	**Numerator:** Number of BHCs with functional malaria lab **Denominator:** All BHCs surveyed	National health facilities performance assessment	5 %	15%	30%	50 %	80 %	90%			
8	Proportion of health facilities providing appropriate and effective treatment according to National Diagnosis and Treatment Guidelines	**Numerator:** Number of health facilities providing appropriate and effective treatment according to national therapeutic guidelines **Denominator:** All health facilities visited for monitoring purpose	Monitoring report or health facility surveys	60 %	70%	75%	80 %	95 %	100 %	Provincial / National	Monthly /annuall y	
9	Proportion of health facilities monthly monitored for quality assurance	**Numerator:** Number of health facilities monitored on monthly bases for quality assurance **Denominator:** All health facilities	Monitoring report	50 %	60%	65%	70 %	85 %	100 %	Provincial	Monthly	
10	Proportion of correctly diagnosed slides	**Numerator:** Number of slides diagnosed positive in cross-check **Denominator:** All positive slides collected from health facilities for cross-checking	Quality assurance report	50 %	60%	65%	70 %	85 %	90%	Provincial (by unit)	Monthly	
11	Proportion of private practitioners in malaria-prone areas informed of national diagnostic and treatment guidelines	**Numerator:** Number of private practitioners following national diagnostic and treatment guidelines **Denominator:** All private practitioners surveyed	Private health facilities survey		50%		70 %		90%	Provincial / National	every 2-3years	

12	Proportion of private clinics certified by MoPH	**Numerator:** Number of private clinics certified by MoPH **Denominator:** All private clinics surveyed	Private health facilities survey			20%	30 %	40 %	50%	Provincial / National	Every 2-3 years	
13	Proportion of private health facilities in high-risk Provinces regularly monitored for quality control	Numerator: Number of private health facilities regularly monitored for quality control Denominator: Total number of private health facilities surveyed	Health facility survey		40%		50 %		60%	National / Provincial	Two years	

Integrated Vector Management

No	Indicators	Formula	Source of data	Targets						Level	Frequency	Remarks
				08	09	10	11	12	13			
1	Percentage of households owing at least one ITN for each 2 members	Nominator: Number of households with at least one ITN for each 2 members Denominator: Number of households surveyed	Household Survey	20%	40%	50%	60%	75%	85%	Provincial / National	Every 2-3 years	
2	ITN/LLIN utilization rate among under five children	Nominator: Number of under-five children slept under ITN/LLIN last night Denominator: Total number of under-five children living in households surveyed	Household Survey		60%	60%	65%	80%	85%	Provincial / National	Every 2-3 years	
3	ITN/LLIN utilization rate among pregnant women	Nominator: Number pregnant women slept under ITN/LLIN last night Denominator: Total number of pregnant women living in households surveyed	Household Survey		60%	60%	65%	80%	85%	Provincial / National	Every 2-3 years	
4	Number of ITN/LLIN distributed in targeted Provinces	Number of ITN/LLIN distributed in targeted Provinces	NMLCP document review	1,665,500	1,969,500	5,000,000	6,000,000	8,000,000	9 million	Provincial / National	Annually	
5	Percentage of mothers/ caretakers able to recognize at least two methods of malaria prevention	Nominator: Number of mothers/ caretakers correctly recognizing at least two methods of malaria prevention Denominator: Total number of mothers/caretakers surveyed	Household Survey		60%		70%		90%	National	Every 2-3 years	

6	Number of entomological sentinel sites established in targeted provinces (Kabul, Jalalabad, Kandahar and Kunduz)		NMLCP document review	1		2		4				

Detection and control of malaria epidemics

No	Indicators	Formula	Source of data	Targets						Level	Frequency	Remarks
				08	09	10	11	12	13			
1	Proportion of epidemics detected and controlled within two weeks of onset	Numerator: Number of epidemics detected and controlled in a specific geographical area (province, district) within two weeks of onset Denominator: All epidemics occurred in that specific geographical area	Outbreak investigation reports	50 %	60 %	80 %	90 %			National / provincial	Yearly	
2	Proportion of health facilities (BHCs and CHCs) utilizing weekly watch chart to detect malaria epidemics within one week of its occurrence	Numerator: Number of health facilities utilizing weekly watch chart Denominator: All health facilities (BHCs and CHCs)	Monitoring report	50 %	50 %	60 %	70 %	95 %	100 %	National / provincial	Yearly	
3	Number of Provinces with functional epidemiology, epidemic preparedness and response team		Document review	14	19	24	29	34		National	Yearly	

Capacity Building

No	Indicators	Formula	Source of data	Targets						Level	Frequency	Remarks
				08	09	10	11	12	13			
1	Proportion of NMLCP with posts of with written job description	Numerator: Number of NMLCP posts with written job description Denominator: Total number of NMLCP posts	Review of documents	80%	100%	100%	100%	100%	100%	National/ Provincial	Annually	
2	Proportion of NMLCP staff trained to acquire essential computer skills	Numerator: Number of NMLCP staff trained in essential computer skills Denominator: Total number of staff needing essential computer skills according to their job	Training report		50%	60%	80%	95%	100%	National/ Provincial	Annually	
3	Proportion of NMLCP staff acquiring working knowledge of English	Numerator: Number of NMLCP staff with working knowledge of English Denominator: Total number of staff needing working knowledge of English	Training report		30%	40%	50%	65%	70%	National/ Provincial	Annually	
4	Proportion of NMLCP management staff trained in basic management skills	Numerator: Number of NMLCP management staff trained in basic management skills Denominator: Total number of management staff	Training report		50%	55%	60%	75%	80%	National/ Provincial	Annually	
5	Proportion of professional staff trained in their respective specialty	Numerator: Number of staff trained in their specific area of work Denominator: Total number of professional staff	Training report	50%	55%		60%	85%	90%	National/ Provincial	Annually	
6	Proportion of Provinces where at least three school teachers have been trained as malaria master trainers	Numerator: Number of Provinces, where at least three school teachers have been trained as malaria master trainers Denominator: All Provinces (34)	Training report	40%	70%	100%	100%	100%	100%	National	Annually	

7	Proportion of public health facilities in high-risk Provinces regularly monitored for quality control	Numerator: Number of public health facilities regularly monitored for quality control Denominator: Total number of public health facilities in high-risk provinces	Health facility survey	50%		60 %		90 %	100 %	National/ Provincial	Two years	

Surveillance

No	Indicators	Formula	Source of data	Targets						Level	Frequency	Remarks
				08	09	10	11	12	13			
1	Formulation of M&E action plan for NMLCP and its implementation		Annual malaria report	√						National		
2	Design and execution of national malaria indicators and prevalence survey		Final report of the survey	√			√	√		National	Every2-3 years	
3	Number of priority Provinces with functional malaria centre providing quality assurance services for lab	Number of priority provinces have functional malaria centre providing quality assurance services	NMLCP report							National	Anually	
4	Number of Provinces with functional malaria surveillance unit and use National Malaria Database as a surveillance tool		NMLCP Report	3	14	24	29	34	34	National		

Operational Research

No	Indicators	Formula	Source of data	Targets						Level	Frequency	Remarks
				08	09	10	11	12	13			
1	Publication of NMLCP newsletter on quarterly basis to disseminate malaria related information and study results/ annual malaria report		NMLCP report		√	√	√	√	√	National	Annually	
2	Establishment of Functional Malaria and Leishmaniasis Institute that will serve as a training and research facility for NMLCP		NMLCP report		√					National	Annually	
3	Number of staff trained in applied research methodology		NMLCP report		5	7	10			National	Annually	

9. Operational Research

To develop evidence-based strategies it is essential to conduct operational research as needed by the Programme. Proposed studies for the upcoming years cover the following areas:

Health System Research:

- Cost-effectiveness of diagnosis: rapid diagnostic tests versus microscopy in Health Posts and in Basic Health Centres
- The usage of different type of RDTs (sensitivity and specificity)
- Role of the private sector and integration models for the private sector into NMLCP strategies
- Alternative types of LLINs: effectiveness particularly for vivax malaria, compliance and longevity
- Establishment of entomological surveillance: entomological risk maps to complement malaria risk mapping, resistance studies, vector abundance and incrimination in different regions, impact of war on vector behaviour

Treatment:

- Short course radical treatment of vivax malaria using primaquine and tafenoquine: efficacy, compliance and safety
- Surveillance of frequency of resistance genes to SP and chloroquine
- Assessment of community approaches and home management in reduction of malaria morbidity and mortality

Targets

- By the end of 2008, the National Malaria Task Force should develop a well-defined mechanism for setting priority needs and dissemination of results of malaria studies
- By the end of 2010, the National Malaria and Leishmaniasis Institute will be fully functional, equipped and adequately staffed
- By the end of 2009, NMLCP will submit at least 3 proposals for TDR annually

10. Challenges

- Inadequate financial resources and sustainable Government and Donor commitment for malaria control
- Health services are supported by a multitude of Partners, creating occasional difficulties for coordinated approaches
- Logistic barriers including limited road access to many parts of the country
- Lack of clarity over the integration of a historically vertical programme into the BPHS
- Low salaries / incentives for Government staff forcing competent staff to supplement their income through private practice or seek employment in the private, NGO or UN sectors where income is higher
- Insufficient trained staff to run malaria control programmes at various level
- Limited mobility of women (as professional staff, health workers, household decision-makers, and patients)
- Limited data for planning, monitoring and evaluation of malaria control activities
- Poor knowledge and understanding of malaria among some sections of the population (including some health workers)
- Low purchasing power among some population groups with regard to ITNs
- Inadequate private sector participation
- Ongoing insecurity in some areas of the country
- Poor private sector involvement in malaria control activities according to national policies and guidelines

Annex 1: NMLCP Roles and Responsibilities.

THE NATIONAL MALARIA AND LEISHMANIA CONTROL PROGRAMME (NMLCP)

RESPONSIBILITIES:

- Ensure political commitment to the Roll Back Malaria Initiative and Leishmaniasis Control Programme
- Provide strategic direction for the programme
- Develop malaria and leishmaniasis control policies
- Formulate national standards and guidelines
- Support the development of national plans to control malaria and leishmaniasis
- Coordinate and oversee the implementation of malaria and leishmania control plans at the national and sub-national levels
- Provide technical training and build capacities at the national and sub-national levels
- Ensure inter-sectoral collaboration and mobilize broad partnerships to support effective control measures
- Mobilize and coordinate external funding
- Coordinate response to epidemics
- Facilitate the development of a research culture within the programme, coordinate and support planning and conducting operational research
- Set standards, norms and indicators for monitoring the progress of operational activities
- Monitor the programme activities
- Evaluate and validate the programme activities
- Overall administrative, statistical, logistic, financial and human resources management as required for the smooth and efficient functioning of the program

ROLES AND FUNCTIONS OF THE NMLCP DEPARTMENTS

Quality Disease Management Department

- Participate in the formulation and dissemination of the national malaria and leishmania treatment guidelines to all healthcare providers in the public and private sectors.
- Train health care providers on the national guidelines
- Establish mechanisms that ensure adherence of all health care providers to the national guidelines
- To establish systems of stock control and buffer stock to prevent stock-out of essential anti-malaria/leishmania drugs
- Oversee the quality assurance of anti-malaria/leishmania drugs
- Ensure training and supervision of community-based health workers in malaria case management

- Monitor the therapeutic efficacy of anti-malarial drugs
- Facilitate the establishment of quality laboratory services for the microscopic diagnosis of malaria and leishmaniasis
- Ensure availability of quality laboratory reagents
- In consultation with the concerned authorities, ensure availability of appropriate laboratory technicians through basic and in-service training programs.
- Establish, monitor and supervise quality control of existing laboratory services for the diagnosis of malaria and leishmaniasis including safe practices
- Contribute to epidemiological surveillance and outbreak investigation activities
- Periodically report on the Department's activities

Integrated Vector Management (IVM) Department

- Develop an IVM strategic plan based on a comprehensive vector control needs assessment
- Identify supplementary IVM activities that complement the National Plan for scaling-up of ITN/LLINs
- Participate in the National Steering Committee for ITN/LLINs implementation and facilitate increased use of ITNs by all household members in targeted areas endemic for malaria and anthroponotic cutaneous leishmaniasis
- Coordinate ITN programming and implementation, coordinating ITN promotion, plan mechanisms for targeting subsidies, monitor and evaluate implementation, set priorities and undertake operational research
- Identify technical, human and financial resources/deficiencies for the implementation of IVM activities based on a comprehensive needs assessment
- Mobilize resources for the establishment of IVM services within the existing framework of national health policies and health systems and obtain agreement from relevant authorities
- Develop national guidelines for planning, implementation, monitoring and evaluation of IVM activities
- Build national capacities for implementation of IVM, including institutional development, career opportunities, collaboration, appropriate re-orientation of vector control activities and availability of skilled staff
- Ensure inter-sectoral and intra-sectoral collaboration, facilitate public/private partnerships, cross-border coordination and community participation to optimize allocation of resources and effective implementation of IVM
- Monitor and evaluate vector control activities using entomological surveillance, conduct necessary operational research to provide relevant information for formulation of evidence-based interventions including post-registration monitoring of pesticide use

Epidemiology, Early Warning and Epidemic Preparedness Department

- Develop plans and mobilize resources for the establishment of national and sub-national epidemiological surveillance systems
- Develop and disseminate guidelines on epidemic detection and control, forecasting and prevention
- In collaboration with the National Health Management Information System, establish malaria/leishmania epidemiological information and feedback systems capable of generating appropriate responses
- Identify, formulate and disseminate indicators of epidemic risk including mapping of risk areas
- Responsible for field investigation of suspected epidemics
- In collaboration with relevant institutions, establish geographical information systems
- Pre-position strategic stocks of response supplies and reserve emergency funds
- Manage and lead the responses to epidemics
- Improve emergency preparedness in order to prevent future epidemics
- Build national capacities in epidemiological surveillance and ensure availability of skilled staff

Information, Education and Communications (IEC) Department

In collaboration with the relevant institutions:

- Inform the public on programme activities through the mass media
- Develop appropriate health education messages and materials
- Plan and implement malaria/leishmania health education programs
- Design and implement communication-for-behavioural-impact plans aiming at mobilizing communities for anti-malaria and anti-leishmania activities
- Advocate for and promote voluntary work against malaria and leishmania by training and building the skills of the volunteers
- Document the programme activities through appropriate available means
- Prepare periodic reports

Training and research (National Malaria Institute)

- Identify training needs for all categories of the staff and activities
- Prepare, develop and print training materials
- Train National and Provincial Master Trainers
- Plan and oversee training activities at national and sub-national levels
- Periodically supervise and evaluate all training activities

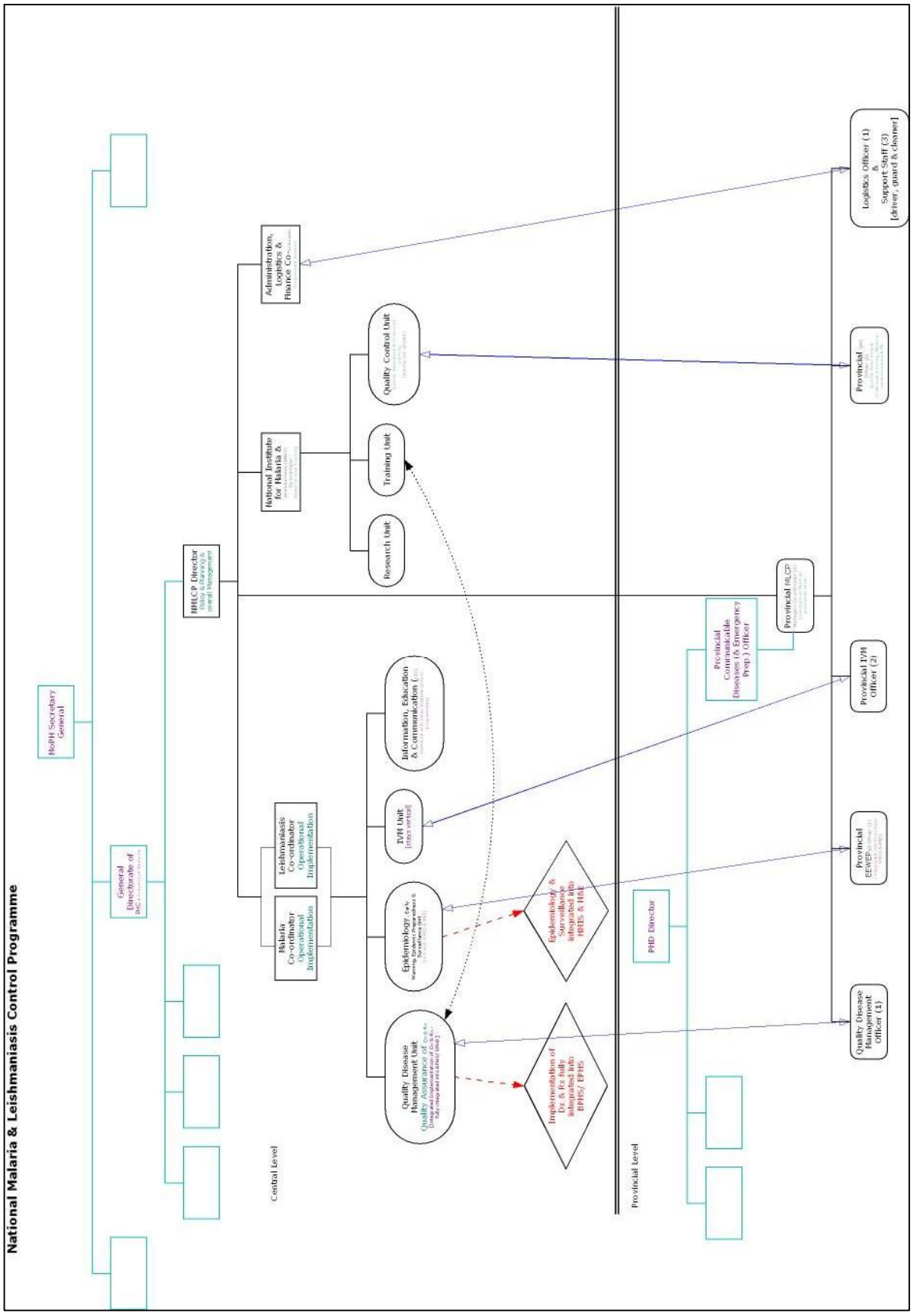
- Conduct basic and applied research
- Plan, and manage the quality assurance of all NMLCP interventions

Administration, Logistics and Finance Department

In collaboration with other relevant authorities:

- Manage the of programme's human and financial resources and logistics operations
- Write periodic administrative (including staff appraisal) and financial reports
- Participate in the procurement and sales committees

Annex 2: Organogram of NMLCP and PMLCPs.



ANNEX 3: Malaria Risk Strata, by District.

Province	District	ProvinceID	DistrictID	Rural/urban	2002 population	Malaria strata
BADAKHSHAN	JURM	11	1103	R	76,072	1
BADAKHSHAN	KISHIM	11	1102	R	84,920	1
BADAKHSHAN	SHAHRI BUZURG	11	1113	R	41,651	1
BADGHIS	AB KAMARI	19	1902	R	39,169	1
BADGHIS	GHORMACH	19	1905	R	38,953	1
BADGHIS	MURGHAB	19	1906	R	50,283	1
BADGHIS	QADIS	19	1903	R	62,908	1
BADGHIS	QALAY-I- NAW	19	1901	U	37,982	1
BAGHLAN	ANDARAB	13	1307	R	46,938	1
BAGHLAN	BAGHLAN	13	1301	U	33,234	1
BAGHLAN	BAGHLANI JADID	13	1312	R	159,914	1
BAGHLAN	BURKA	13	1310	R	49,204	1
BAGHLAN	DAHANA-I- GHORI	13	1303	R	54,707	1
BAGHLAN	DUSHI	13	1304	R	54,060	1
BAGHLAN	KAHMARD	13	1311	R	46,507	1
BAGHLAN	KHINJAN	13	1306	R	24,171	1
BAGHLAN	KHOST WA FIRING	13	1308	R	48,017	1
BAGHLAN	NAHRIN	13	1309	R	56,542	1
BAGHLAN	PULI KHUMRI	13	1302	U	164,338	1
BAGHLAN	TALA WA BARFAK	13	1305	R	20,610	1
BALKH	BALKH	16	1606	R	100,998	1
BALKH	CHAHAR KINT	16	1611	R	42,406	1
BALKH	CHIMTAL	16	1608	R	71,864	1
BALKH	DIHDADI	16	1612	R	46,722	1
BALKH	KISHINDIH	16	1610	R	61,397	1
BALKH	SHOLGARA	16	1609	U	105,638	1
BALKH	SHORTEPA	16	1604	R	35,932	1

Province	District	ProvinceID	DistrictID	Rural/urban	2002 population	Malaria strata
FARYAB	ALMAR	18	1803	R	21,905	1
FARYAB	BILCHIRAGH	18	1806	R	37,659	1
FARYAB	KHWAJA SABZ POSH	18	1813	R	84,813	1
FARYAB	MAYMANA	18	1801	U	56,973	1
FARYAB	PASHTUN KOT	18	1802	R	157,324	1
FARYAB	QAYSAR	18	1804	R	120,853	1
FARYAB	SHIRIN TAGAB	18	1808	R	64,958	1
HILMAND	NAWAY_I_ BARAKZAYI	23	2309	R	77,043	1
HIRAT	GUZARA	20	2003	R	109,738	1
HIRAT	INJIL	20	2002	R	197,680	1
HIRAT	KARUKH	20	2005	R	46,507	1
HIRAT	KUSHK	20	2006	R	70,461	1
HIRAT	KUSHKI KUHNA	20	2016	R	34,529	1
HIRAT	OBE	20	2012	R	50,391	1
HIRAT	PASHTUN ZARGHUN	20	2004	R	76,504	1
JAWZJAN	DARZAB	17	1703	R	59,024	1
JAWZJAN	SHIBIRGHAN	17	1701	U	145,994	1
KABUL	CHAHAR ASYAB	1	109	R	35,393	1
KABUL	KABUL	1	101	U	2,306,125	1
KABUL	MIR BACHA KOT	1	103	R	55,139	1
KABUL	MUSAYI	1	114	R	20,825	1
KABUL	SHAKARDARA	1	107	R	80,281	1
KANDAHAR	KANDAHAR	24	2401	U	445,104	1
KAPISA	ALASAY	2	206	R		1

Province	District	ProvinceID	DistrictID	Rural/urban	2002 population	Malaria strata
					27,731	
KAPISA	KOH BAND	2	203	R	19,423	1
KAPISA	MAHMUD RAQI	2	201	U	58,376	1
KAPISA	NIJRAB	2	204	R	94,632	1
KAPISA	TAGAB	2	205	R	60,966	1
KHOST	BAK	32	3210	R	9,819	1
KHOST	GURBUZ	32	3211	R	13,488	1
KHOST	JAJI MAYDAN	32	3202	R	17,912	1
KHOST	KHOST(MATUN)	32	3201	U	70,246	1
KHOST	MANDO ZAYI	32	3206	R	33,234	1
KHOST	MUSA KHEL	32	3205	R	27,192	1
KHOST	NADIR SHAH KOT	32	3208	R	16,617	1
KHOST	QALANDAR	32	3212	R	5,935	1
KHOST	SABARI	32	3209	R	30,105	1
KHOST	SPERA	32	3204	R	15,214	1
KHOST	TANI	32	3203	R	33,234	1
KHOST	TERE ZAYI	32	3207	R	27,623	1
KUNAR	ASAD ABAD	10	1001	U	57,189	1
KUNAR	BAR KUNAR	10	1003	R	21,473	1
KUNAR	CHAPA DARA	10	1010	R	23,199	1
KUNAR	CHAWKAY	10	1013	R	30,968	1
KUNAR	DANGAM	10	1004	R	12,733	1
KUNAR	KHAS KUNAR	10	1015	R	26,760	1
KUNAR	MARAWARA	10	1002	R	16,941	1

Province	District	ProvinceID	DistrictID	Rural/urban	2002 population	Malaria strata
KUNAR	NARANG	10	1012	R	22,552	1
KUNAR	NARI	10	1005	R	13,596	1
KUNAR	NURGAL	10	1014	R	27,839	1
KUNAR	PECH	10	1011	R	46,615	1
KUNAR	SIRKANAY	10	1016	R	21,797	1
KUNDUZ	ALI ABAD	14	1405	U	40,140	1
KUNDUZ	ARCHI	14	1407	R	84,381	1
KUNDUZ	CHAHAR DARA	14	1404	U	60,534	1
KUNDUZ	IMAM SAHIB	14	1402	U	182,466	1
KUNDUZ	KHAN ABAD	14	1406	R	148,584	1
KUNDUZ	KUNDUZ	14	1401	U	240,734	1
LAGHMAN	ALINGAR	9	903	R	7,208	1
LAGHMAN	ALISHING	9	907	R	60,858	1
LAGHMAN	DAWLAT SHAH	9	906	R	31,184	1
LAGHMAN	MIHTARLAM	9	901	U	115,565	1
LAGHMAN	QARGHAYI	9	902	R	93,445	1
LOGAR	BARAKI BARAK	5	503	R	63,555	1
LOGAR	CHARKH	5	502	R	49,744	1
NANGARHAR	ACHIN	8	810	R	72,296	1
NANGARHAR	BATI KOT	8	817	R	55,894	1
NANGARHAR	DARA-I-NUR	8	820	R	39,709	1
NANGARHAR	DIH BALA	8	808	R	34,098	1
NANGARHAR	DUR BABA	8	812	R	25,573	1
NANGARHAR	GOSHTA	8	816	R		1

Province	District	ProvinceID	DistrictID	Rural/urban	2002 population	Malaria strata
					14,351	
NANGARHAR	JALAL ABAD	8	801	U	177,502	1
NANGARHAR	KAMA	8	818	R	76,396	1
NANGARHAR	KHOGYANI	8	805	R	106,609	1
NANGARHAR	KUZ KUNAR	8	819	R	49,528	1
NANGARHAR	LAL PUR	8	815	R	14,999	1
NANGARHAR	MUHMAND DARA	8	814	R	32,911	1
NANGARHAR	PACHIR WA AGAM	8	807	R	31,292	1
NANGARHAR	RODAT	8	809	R	87,402	1
NANGARHAR	SHERZAD	8	804	R	47,801	1
NANGARHAR	SHINWAR	8	813	R	35,069	1
NANGARHAR	SURKH ROD	8	802	R	110,278	1
NURISTAN	KAMDESH	30	3002	R	13,272	1
NURISTAN	NURISTAN	30	3001	U	50,823	1
NURISTAN	WAYGAL	30	3003	R	8,417	1
PAKTIKA	BARMAL	29	2909	R	28,810	1
PAKTIKA	GAYAN	29	2910	R	28,810	1
PAKTIKA	NIKA	29	2913	R	10,359	1
PAKTIKA	SAR HAWZA	29	2914	R	19,207	1
PAKTIKA	SAROBI	29	2908	R	10,359	1
PAKTIKA	URGUN	29	2911	R	45,751	1
PAKTIKA	ZIRUK	29	2912	R	16,078	1
PAKTYA	AZRA	7	724	R	19,315	1
PAKTYA	CHAMKANI	7	718	R	24,926	1

Province	District	ProvinceID	DistrictID	Rural/urban	2002 population	Malaria strata
PAKTYA	DAND WA PATAN	7	717	R	14,459	1
PAKTYA	GARDEZ	7	701	U	64,203	1
PAKTYA	JADRAN	7	704	R	21,581	1
PAKTYA	JAJI	7	723	R	44,241	1
PAKTYA	JANI KHEL	7	716	R	18,020	1
PAKTYA	LIJA MANGAL	7	719	R	23,523	1
PAKTYA	SAYID KARAM	7	722	R	75,425	1
PAKTYA	SHAMAL	7	705	R	8,417	1
PAKTYA	SHWAK	7	703	R	7,230	1
PARWAN	BAGRAM	3	308	R	97,761	1
PARWAN	CHAHARIKAR	3	301	U	156,461	1
PARWAN	JABALUSSARAJ	3	302	R	101,861	1
SAMANGAN	DARA-I- SUF	15	1504	R	118,694	1
SAMANGAN	KHURAM WA SARBAGH	15	1506	R	35,824	1
SAMANGAN	RUYI DU AB	15	1505	R	35,069	1
SARI PUL	BALKHAB	31	3104	R	40,140	1
SARI PUL	SANGCHARAK	31	3102	R	135,204	1
SARI PUL	SARI PUL	31	3101	U	140,383	1
SARI PUL	SAYYAD	31	3106	R	43,593	1
SARI PUL	SOZMA QALA	31	3105	R	47,046	1
TAKHAR	BANGI	12	1202	R	30,645	1
TAKHAR	CHAH AB	12	1209	R	30,645	1
TAKHAR	CHAL	12	1204	R	22,228	1
TAKHAR	DARQAD	12	1211	R		1

Province	District	ProvinceID	DistrictID	Rural/urban	2002 population	Malaria strata
					18,775	
TAKHAR	FARKHAR	12	1206	R	37,659	1
TAKHAR	ISHKAMISH	12	1203	R	46,938	1
TAKHAR	KALAFGAN	12	1207	R	30,753	1
TAKHAR	KHWAJA GHAR	12	1212	R	66,253	1
TAKHAR	RUSTAQ	12	1208	R	139,628	1
TAKHAR	TALUQAN	12	1201	U	172,107	1
TAKHAR	WARSAJ	12	1205	R	29,566	1
TAKHAR	YANGI QALA	12	1210	R	72,404	1
URUZGAN	CHORA	26	2602	R	34,637	1
URUZGAN	TIRIN KOT	26	2601	U	62,692	1
BADAKHSHAN	BAHARAK	11	1108	R	61,937	2
BADAKHSHAN	FAYZ ABAD	11	1101	U	194,335	2
BADAKHSHAN	KHWAHAN	11	1111	R	13,488	2
BADAKHSHAN	RAGH	11	1112	R	37,443	2
BADGHIS	JAWAND	19	1904	R	53,089	2
BADGHIS	MUQUR	19	1907	R	19,099	2
BALKH	CHAHAR BOLAK	16	1607	U	65,498	2
BALKH	DAWLAT ABAD	16	1605	R	94,308	2
BALKH	MARMUL	16	1615	R	9,711	2
BAMYAN	BAMYAN	28	2801	U	67,548	2
BAMYAN	SHIBAR	28	2802	R	26,544	2
FARAH	PUR CHAMAN	21	2104	R	38,414	2
FARYAB	DAWLAT ABAD	18	1809	R	38,630	2

Province	District	ProvinceID	DistrictID	Rural/urban	2002 population	Malaria strata
FARYAB	KOHISTAN	18	1805	R	37,659	2
GHAZNI	MUQUR	6	608	R	36,472	2
HILMAND	BAGHRAN	23	2305	R	67,548	2
HILMAND	KAJAKI	23	2303	R	59,131	2
HILMAND	NAHRI SARRAJ	23	2302	R	96,466	2
HILMAND	SANGIN	23	2313	R	49,636	2
HIRAT	FARSI	20	2013	R	22,876	2
HIRAT	GULRAN	20	2007	R	48,557	2
HIRAT	HIRAT	20	2001	U	238,144	2
HIRAT	ZINDA JAN	20	2010	R	40,140	2
JAWZJAN	AQCHA	17	1706	R	89,992	2
JAWZJAN	FAYZ ABAD	17	1708	R	35,608	2
JAWZJAN	MINGAJIK	17	1704	R	40,356	2
JAWZJAN	QARQIN	17	1705	R	62,476	2
KABUL	BAGRAMI	1	110	R	24,710	2
KABUL	DIH SABZ	1	102	R	43,270	2
KABUL	GULDARA	1	113	R	24,171	2
KABUL	ISTALIF	1	106	R	39,709	2
KABUL	KALAKAN	1	104	R	32,695	2
KABUL	KHAKI JABBAR	1	111	R	16,725	2
KABUL	PAGHMAN	1	108	R	117,615	2
KABUL	SUROBI	1	112	R	68,843	2
KAPISA	KOHISTAN	2	202	R	99,164	2
KUNDUZ	QALAY-I- ZAL	14	1403	R		2

Province	District	ProvinceID	DistrictID	Rural/urban	2002 population	Malaria strata
					58,268	
LOGAR	KHUSHI	5	504	R	25,142	2
LOGAR	MUHAMMAD AGHA	5	505	R	67,116	2
LOGAR	PULI ALAM	5	501	U	86,323	2
NANGARHAR	CHAPARHAR	8	806	R	43,701	2
NANGARHAR	HISARAK	8	803	R	23,199	2
NANGARHAR	NAZYAN	8	811	R	7,985	2
NIMROZ	KANG	22	2202	R	23,955	2
NIMROZ	ZARANJ	22	2201	U	42,298	2
NURISTAN	BARGI MATAL	30	3005	R	8,417	2
NURISTAN	MANDOL	30	3004	R	22,984	2
NURISTAN	WAMA	30	3006	R	7,985	2
PAKTIKA	OMNA	29	2907	R	10,035	2
PAKTYA	ZURMAT	7	702	R	93,769	2
PARWAN	GHORBAND	3	305	R	87,294	2
PARWAN	HISA-I-DUWUMI PANJSHER	3	312	R	44,456	2
PARWAN	KOHI SAFI	3	309	R	16,833	2
PARWAN	SURKHI PARSA	3	307	R	45,751	2
SAMANGAN	AYBAK	15	1501	U	80,496	2
SAMANGAN	HAZRATI SULTAN	15	1502	R	33,990	2
SARI PUL	KOHISTANAT	31	3103	R	61,397	2
URUZGAN	DIHRAWUD	26	2609	R	51,578	2
URUZGAN	GIZAB	26	2604	R	54,168	2
URUZGAN	KHAS URUZGAN	26	2603	R	56,758	2

Province	District	ProvinceID	DistrictID	Rural/urban	2002 population	Malaria strata
URUZGAN	KIJRAN	26	2607	R	56,650	2
URUZGAN	NESH	26	2610	R	11,114	2
URUZGAN	SHAHIDI HASSAS	26	2608	R	50,283	2
WARDAK	CHAKI WARDAK	4	406	R	56,758	2
WARDAK	MAYDAN SHAHR	4	401	U	32,047	2
WARDAK	NIRKH	4	408	R	38,306	2
WARDAK	SAYD ABAD	4	407	R	78,123	2
BADAKHSHAN	DARWAZ	11	1110	R	21,365	3
BADAKHSHAN	ISHKASHIM	11	1107	R	10,467	3
BADAKHSHAN	KURAN WA MUNJAN	11	1104	R	8,093	3
BADAKHSHAN	SHIGHNAN	11	1109	R	23,631	3
BADAKHSHAN	WAKHAN	11	1106	R	13,164	3
BADAKHSHAN	ZEBAK	11	1105	R	6,582	3
BALKH	KALDAR	16	1613	R	15,646	3
BALKH	KHULM	16	1614	R	73,914	3
BALKH	MAZARI SHARIF	16	1601	U	175,344	3
BALKH	NAHRI SHAHI	16	1602	R	36,364	3
BAMYAN	PANJAB	28	2805	R	65,821	3
BAMYAN	WARAS	28	2806	R	100,135	3
BAMYAN	YAKAWLANG	28	2804	R	79,957	3
FARAH	ANAR DARA	21	2107	R	22,012	3
FARAH	BAKWA	21	2102	R	19,854	3
FARAH	BALA BULUK	21	2105	R	47,801	3
FARAH	FARAH	21	2101	U		3

Province	District	ProvinceID	DistrictID	Rural/urban	2002 population	Malaria strata
					73,914	
FARAH	GULISTAN	21	2103	R	23,091	3
FARAH	KHAKI SAFED	21	2106	R	16,725	3
FARAH	LASH WA JUWAYN	21	2109	R	26,436	3
FARAH	PUSHT ROD	21	2111	R	32,263	3
FARAH	QALAY-I-KAH	21	2108	R	21,365	3
FARAH	SHIB KOH	21	2110	R	16,401	3
FARYAB	ANDKHOY	18	1812	R	39,385	3
FARYAB	KHANI CHAHAR BAGH	18	1811	R	21,905	3
FARYAB	QARAMQOL	18	1810	R	16,833	3
GHAZNI	AB BAND	6	611	R	19,746	3
GHAZNI	AJRISTAN	6	605	R	23,199	3
GHAZNI	ANDAR	6	614	R	89,237	3
GHAZNI	BAHRAMI SHAHID(JAGHATU)	6	602	R	43,270	3
GHAZNI	DIH YAK	6	615	R	37,011	3
GHAZNI	GELAN	6	609	R	44,241	3
GHAZNI	GHAZNI	6	601	U	1,090,478	3
GHAZNI	GIRO	6	612	R	22,444	3
GHAZNI	JAGHATU	6	603	R	63,124	3
GHAZNI	JAGHURI	6	607	R	142,541	3
GHAZNI	MALISTAN	6	606	R	65,282	3
GHAZNI	NAWA	6	610	R	24,710	3
GHAZNI	NAWUR	6	604	R	76,072	3
GHAZNI	QARABAGH	6	613	R	109,307	3

Province	District	ProvinceID	DistrictID	Rural/urban	2002 population	Malaria strata
GHAZNI	ZANA KHAN	6	616	R	10,359	3
GHOR	CHAGHCHARAN	27	2701	U	128,514	3
GHOR	LAL WA SARJANGAL	27	2707	R	94,200	3
GHOR	PASABAND	27	2706	R	65,821	3
GHOR	SAGHAR	27	2704	R	27,084	3
GHOR	SHAHRAK	27	2702	R	59,995	3
GHOR	TAYWARA	27	2705	R	69,706	3
GHOR	TULAK	27	2703	R	40,788	3
HILMAND	DISHU	23	2311	R	16,941	3
HILMAND	GARMSER	23	2312	R	72,835	3
HILMAND	LASHKAR GAH	23	2301	U	82,115	3
HILMAND	MUSA QALA	23	2304	R	49,096	3
HILMAND	NAD ALI	23	2308	R	97,977	3
HILMAND	NAW ZAD	23	2306	R	42,190	3
HILMAND	REG	23	2314	R	21,797	3
HILMAND	WASHER	23	2307	R	12,841	3
HIRAT	ADRASKAN	20	2011	R	32,911	3
HIRAT	CHISHTI SHARIF	20	2015	R	14,028	3
HIRAT	GHORYAN	20	2009	R	52,549	3
HIRAT	KOHSAN	20	2008	R	32,479	3
HIRAT	SHINDAND	20	2014	R	110,602	3
JAWZJAN	KHAMYAB	17	1709	R	10,575	3
JAWZJAN	KHWAJA DU KOH	17	1702	R	26,221	3
JAWZJAN	MARDYAN	17	1707	R		3

Province	District	ProvinceID	DistrictID	Rural/urban	2002 population	Malaria strata
					38,414	
KABUL	QARABAGH	1	105	R	77,583	3
KANDAHAR	ARGHANDAB	24	2404	R	61,829	3
KANDAHAR	ARGHISTAN	24	2412	R	28,595	3
KANDAHAR	DAMAN	24	2402	R	24,494	3
KANDAHAR	GHORAK	24	2406	R	7,877	3
KANDAHAR	KHAKREZ	24	2405	R	18,883	3
KANDAHAR	MARUF	24	2413	R	27,408	3
KANDAHAR	MAYWAND	24	2407	R	55,463	3
KANDAHAR	PANJWAYI	24	2408	R	104,451	3
KANDAHAR	REG	24	2409	R	1,619	3
KANDAHAR	SHAH WALI KOT	24	2403	R	35,932	3
KANDAHAR	SHORABAK	24	2410	R	9,496	3
KANDAHAR	SPIN BOLDAK	24	2411	R	40,464	3
NIMROZ	CHAHAR BURJAK	22	2203	R	35,932	3
NIMROZ	CHAKHANSUR	22	2204	R	28,595	3
NIMROZ	KHASH ROD	22	2205	R	18,559	3
PAKTIKA	DILA	29	2903	R	20,825	3
PAKTIKA	GOMAL	29	2906	R	6,366	3
PAKTIKA	MATA KHAN	29	2915	R	20,718	3
PAKTIKA	SHARAN	29	2901	R	52,549	3
PAKTIKA	WAZA KHWA	29	2904	R	20,825	3
PAKTIKA	WOR MAMAY	29	2905	R	2,913	3
PAKTIKA	ZARGHUN SHAHR	29	2902	R	59,024	3

Province	District	ProvinceID	DistrictID	Rural/urban	2002 population	Malaria strata
PARWAN	HISA-I-AWALI PANJSHER	3	311	R	47,046	3
PARWAN	PANJSHER(3)	3	310	R	50,283	3
PARWAN	SALANG	3	303	R	22,228	3
PARWAN	SHEKH ALI	3	306	R	27,731	3
PARWAN	SHINWARI	3	304	R	29,134	3
URUZGAN	DAY KUNDI	26	2606	R	153,655	3
URUZGAN	SHAHRISTAN	26	2605	R	107,580	3
WARDAK	DAY MIRDAD	4	405	R	22,768	3
WARDAK	HISA-I- AWALI BIHSUD	4	403	R	36,903	3
WARDAK	JALREZ	4	402	R	43,485	3
WARDAK	MARKAZI BIHSUD	4	404	R	105,206	3
ZABUL	ARGHANDAB	25	2503	R	27,084	3
ZABUL	ATGHAR	25	2508	R	7,230	3
ZABUL	DAYCHOPAN	25	2504	R	54,276	3
ZABUL	MIZAN	25	2505	R	11,330	3
ZABUL	QALAT	25	2501	U	28,379	3
ZABUL	SHAHJOY	25	2502	R	48,449	3
ZABUL	SHAMULZAYI	25	2509	R	37,011	3
ZABUL	SHINKAY	25	2507	R	19,531	3
ZABUL	TARNAK WA JALDAK	25	2506	R	14,135	3

Note: Stratification needs to be up-dated